Print Form

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☒ County Clerk
County of: Riverside
Address: 2724 Gateway Drive
Riverside, CA 92507

From:
Public Agency: Eastern Municipal Water District
Address: P.O. Box 8300
Perris, CA 92572-8300
Contact: Joseph Broadhead
Phone: 951-928-3777 ext. 4545

Lead Agency (if different from above):
Address:
Contact:
Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2020040220

Project Title: Perris North Groundwater Monitoring Project

Project Applicant: Eastern Municipal Water District

Project Location (include county): Moreno Valley, Riverside County

Project Description:
The Perris North Groundwater Monitoring Project consists of development and operation of groundwater monitoring wells in the Perris North Sub-basin. The proposed Project includes construction and operation of ten monitoring wells – seven in the City of Moreno Valley, and three in the City of Perris. Two wells would be constructed on sites owned by EMWD and the remaining eight wells would be constructed within public rights-of-way. The proposed Project area contains three sub-areas: Moreno Valley, North and East Area, and South Area, as well as a Sentinel Well. The Moreno Valley and North and East Areas are located within the City of Moreno Valley, while the South Area is locate

This is to advise that the Eastern Municipal Water District (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on June 17, 2020 (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☐ were ☒ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
Eastern Municipal Water District, 2270 Trumble Road, Perris, CA 92570

Signature (Public Agency): _____ Title: Principal Water Resources Specialist

Date: 6/17/20 Date Received for filing at

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

FILED / POSTED
County of Riverside
Peter Aldana
Assessor-County Clerk-Recorder
E-202000749
06/30/2020 12:48 PM Fee: $ 2456.75
Page 1 of 1
Removed: AUG 04 2020 By: Deputy

STATE OF CALIFORNIA - THE RESOURCES AGENCY
DEPARTMENT OF FISH AND GAME
ENVIRONMENTAL FILING FEE CASH RECEIPT

Receipt #: 20-204621

State Clearinghouse # (if applicable): 2020040220

Lead Agency: EASTERN MUNICIPAL WATER DISTRICT *Date:* 06/30/2020

County Agency of Filing: RIVERSIDE *Document No:* E-202000749

Project Title: PERRIS NORTH GROUNDWATER MONITORING PROJECT

Project Applicant Name: EASTERN MUNICIPAL WATER DISTRICT *Phone Number:* 951-928-3777 EX 4545

Project Applicant Address: P O BOX 8300, PERRIS , CA 925728300

Project Applicant: SPECIAL DISTRICT

CHECK APPLICABLE FEES:

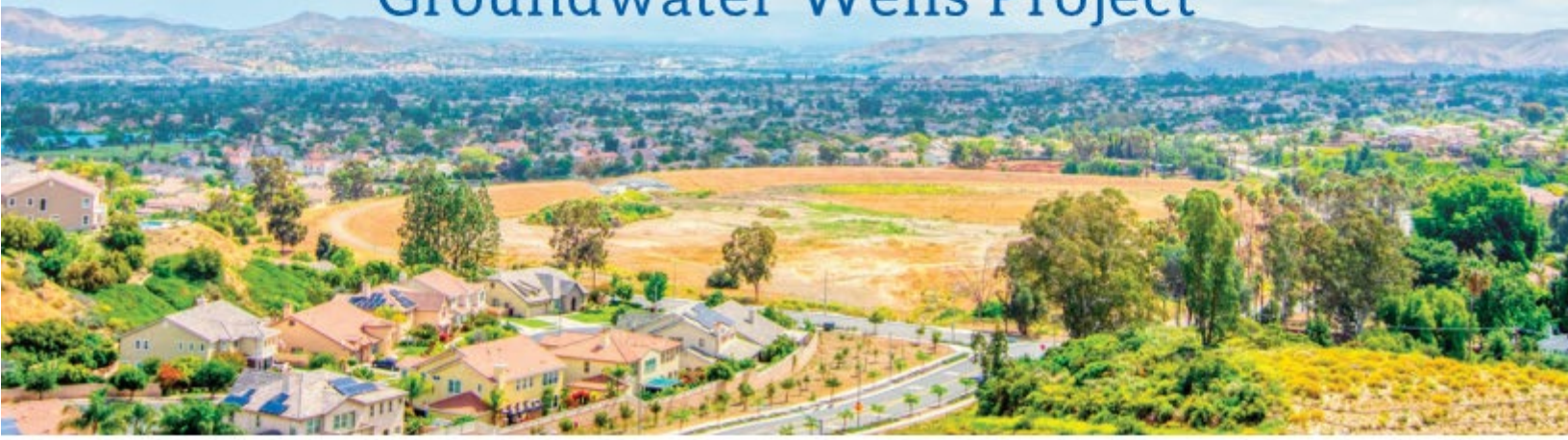
☐ *Environmental Impact Report*	
☒ *Negative Declaration*	$2,406.75
☐ *Application Fee Water Diversion (State Water Resources Control Board Only)*	
☐ *Project Subject to Certified Regulatory Programs*	
☒ *County Administration Fee*	$50.00
☐ *Project that is exempt from fees (DFG No Effect Determination (Form Attached))*	
☐ *Project that is exempt from fees (Notice of Exemption)*	
Total Received	$2,456.75

Signature and title of person receiving payment Sherlah Navala Deputy

Notes:

EASTERN MUNICIPAL WATER DISTRICT

Final Initial Study and Mitigated Negative Declaration Cactus Avenue Corridor Groundwater Wells Project



MAY 2020

WOODARD &CURRAN

Final
Initial Study and Mitigated Negative Declaration

Cactus Avenue Corridor Groundwater Wells Project

State Clearinghouse #2020030267

Prepared by:

Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92572-8300

With Assistance From:

9665 Chesapeake Drive, Suite 320
San Diego, CA 92123
858.875.7400
May 2020

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Appendices

Acronyms

Acronym	Definition
APE	Area of Potential Effect
AWWA	American Water Works Association
Basin Plan	Santa Ana Basin Water Quality Control Plan
BMPs	Best Management Practices
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CMP	Congestion Management Program
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
COC	Contaminants of Concern
CWA	Clean Water Act
dB	decibel
dBA	a-weighted decibel
DNL or L_{dn}	day-night average sound level
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
DWSRF	Drinking Water State Revolving Fund
EIR	Environmental Impact Report
EMWD	Eastern Municipal Water District
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
g	gravity

Acronym	Definition
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HCP	Habitat Conservation Plan
IBC	International Building Code
IEBL	Inland Empire Brine Line
IS/MND	Initial Study/Mitigated Negative Declaration
L_{10}	ten-percentile exceeded sound level
LOS	level of service
LRTS	Long Range Transportation Study
LUFT	leaking underground fuel tank
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendant
MSHCP	Multiple Species Habitat Conservation Plan
MT	metric tons
MWD	Metropolitan Water District of Southern California
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
O&M	operations and maintenance
OHW	ordinary high water
OPR	Governor's Office of Planning and Research
PCE	perchloroethylene
PFAS	per- and polyfluoroalkyl substances
PM	particulate matter
PPV	peak particle velocity
PRC	Public Resources Code
RCTC	Riverside County Transportation Commission
rms	root mean square
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alternation Agreement
SCAG	Southern California Association of Governments

Acronym	Definition
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SFHA	Special Flood Hazard Area
SGMA	Sustainable Groundwater Management Act
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TDS	total dissolved solids
TMDL	total maximum daily load
UBC	Uniform Building Code
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	vibration decibels
VMT	vehicle miles traveled
VOC	volatile organic compound
WRCOG	Western Riverside Council of Governments

1. INTRODUCTION

1.1 Purpose of this Document

Eastern Municipal Water District (EMWD) has prepared this Initial Study (IS) to evaluate the potential environmental impacts related to implementation of the Cactus Avenue Corridor Groundwater Wells Project (the "proposed Project," "proposed action," or "Project"), which consists of development and operation of groundwater extraction, treatment, and distribution facilities.

EMWD is the lead agency under the California Environmental Quality Act (CEQA) for the proposed Project. CEQA requires that the lead agency prepare an IS to determine whether an Environmental Impact Report (EIR), Negative Declaration (ND), or Mitigated Negative Declaration (MND) is needed. EMWD has prepared this IS to evaluate the potential environmental consequences associated with the Cactus Avenue Corridor Groundwater Wells Project, and to disclose to the public and decision makers the potential environmental effects of the proposed Project. Based on the analysis presented herein, an MND is the appropriate level of environmental documentation for the proposed Project.

1.2 Scope of this Document

This IS/MND has been prepared in accordance with CEQA (as amended) (Public Resources Code Section 21000 et. seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15000 et. seq.), as updated on December 28, 2018. CEQA Guidelines Section 15063 describes the requirements for an IS and Sections 15070–15075 describe the process for the preparation of an MND. Where appropriate, this document refers to either the CEQA Statute or State CEQA Guidelines (as amended in December 2018). This IS/MND contains all of the contents required by CEQA, which includes a project description, a description of the environmental setting, potential environmental impacts, mitigation measures for any significant effects, consistency with plans and policies, and names of preparers.

This IS/MND evaluates the potential for environmental impacts to resource areas identified in Appendix G of the State CEQA Guidelines (as amended in December 2018). The environmental resource areas analyzed in this document include:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources

- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire
- Mandatory Findings of Significance

To support compliance with the federal environmental review requirements of potential funding programs, this document includes analysis pertinent to federal regulations (also referred to as federal cross-cutters or CEQA-Plus). Guidelines for complying with cross-cutting federal authorities can be found in the Drinking Water State Revolving Fund (DWSRF) regulations at 40 Code of Federal Regulations (CFR) Section 35.3575.

The federal cross-cutters analyzed in this document include:

- Archaeological and Historic Preservation Act (AHPA)
- Clean Air Act (CAA)
- Coastal Zone Management Act (CZMA)
- Federal Endangered Species Act (FESA)
- Environmental Justice
- Farmland Protection Policy Act
- Fish and Wildlife Coordination Act (FWCA)
- Floodplain Management: Executive Orders 11988, 12148, and 13690
- Magnuson-Stevens Fishery Conservation and Management Act
- Migratory Bird Treaty Act
- National Historic Preservation Act (NHPA)
- Protection of Wetlands
- Rivers and Harbors Act, Section 10
- Safe Drinking Water Act, Sole Source Aquifer Protection
- Wild and Scenic Rivers Act
- Environmental Alternative Analysis

1.3 CEQA Process

In accordance with CEQA Guidelines Section 15073, the Draft IS/MND was circulated for a 30-day public review period (March 10, 2020 – April 9, 2020) to local and state agencies, and to interested organizations and individuals who may have wished to review and comment on the report. EMWD circulated the Draft IS/MND to the State Clearinghouse for distribution to State agencies. In addition, EMWD circulated a Notice of Intent to Adopt a Mitigated Negative Declaration to the Riverside County Clerk, responsible agencies, and interested entities. A copy of the Draft IS/MND was made available for review at: https://www.emwd.org/public-notices.

Written comments were to be submitted to EMWD by 5:00 PM on April 1, 2020 and addressed to:

Joseph Broadhead, Principal Water Resources Specialist
Eastern Municipal Water District
2270 Trumble Road
P.O. Box 8300
Perris, CA 92572-8300
broadhej@emwd.org

Following the 30-day public review period, EMWD evaluated written comments received on the Draft IS/MND and prepared responses to comments (see *Section 1.5*). EMWD also prepared a Mitigation Monitoring and Reporting Program (MMRP), which is described in *Section 1.6*. While minor editorial revisions and clarifications were made to various sections of the Final IS/MND, no changes were made to incorporate any new evidence raised during the public review period.

EMWD's Board of Directors will consider adopting the Final IS/MND and MMRP in compliance with CEQA at a publicly noticed meeting, planned for May 20, 2020.

1.4 Impact Terminology

The level of significance for each resource area uses CEQA terminology as specified below:

No Impact. No adverse environmental consequences have been identified for the resource or the consequences are negligible or undetectable.

Less than Significant Impact. Potential adverse environmental consequences have been identified. However, they are not adverse enough to meet the significance threshold criteria for that resource. No mitigation measures are required.

Less than Significant with Mitigation Incorporated. Adverse environmental consequences that have the potential to be significant but can be reduced to less than significant levels through the application of identified mitigation strategies that have not already been incorporated into the proposed project.

Potentially Significant. Adverse environmental consequences that have the potential to be significant according to the threshold criteria identified for the resource, even after mitigation strategies are applied and/or an adverse effect that could be significant and for which no mitigation has been identified. If any potentially significant impacts are identified, an EIR must be prepared to meet the requirements of CEQA.

1.5 Comments Received on the IS/MND

EMWD received two comment submittals (one letter and one email) on the Draft IS/MND during the 30-day public review period. EMWD also received correspondence from the State Clearinghouse documenting the completion of the public review period for the Draft IS/MND. The Governor's Office of Planning and Research (OPR) provided the Draft IS/MND to 23 reviewing agencies, none of which submitted comments during the 30-day review period. The comment letter and email received are listed in **Table 1-1** and identified by number, comment author, and date. The comment letter and e-mail are provided in **Appendix F**. The responses to comments have been based on the CEQA Guidelines, Section 15088 – Evaluation and Response to Comments.

Table 1-1: List of Comments

Letter Number	Comment Author	Comment Date
1	Rincon Band of Luiseño Indians, Cheryl Madrigal, Tribal Historic Preservation Officer, Cultural Resources Manager	March 13, 2020
2	Luis Ding, Chief Executive Officer, T&C Moreno Valley SNF Inc.	April 9, 2020

1.5.1 Comment Letter 1 – Rincon Band of Luiseño Indians

Comment 1-1 Summary: The comment states that the proposed Project area is within the Territory of the Luiseño people and within Rincon's specific area of Historic interest. It further states that the Rincon Band is in agreement with the proposed archaeological and tribal monitoring, monitoring report, and protocols for discovery of cultural materials and human remains. The comment requests that the Rincon Band receive a copy of the final monitoring report and be notified of any changes in Project plans.

Response to Comment 1-1: EMWD appreciates that the Rincon Band has reviewed and is in agreement with the proposed archaeological and tribal monitoring, monitoring report, and protocols for discovery of cultural materials and human remains. A copy of the final monitoring report will be provided to the Rincon Band, as specified in the Mitigation Monitoring and Reporting Program. Rincon Band will be notified of any changes to the Project plans.

1.5.2 Comment Letter 2 – T&C Moreno Valley SNF Inc.

Comment 2-1 Summary: The comment states that T&C Moreno Valley SNF is opposed to the proposed Project given the Project location near its planned Skilled Nursing Facility to be located at 25622 Alessandro Boulevard. The comment requests more information on how the proposed Project will affect the planned Skilled Nursing Facility.

Response to Comment 2-1: The comment does not address concerns related to adequacy of the IS/MND prepared for the proposed Project. As such, the comment is noted and included with the IS/MND provided to the EMWD Board of Directors for consideration prior to Project determination. The environmental analysis that assesses impacts associated with the proposed Project is provided in the *Initial Study and Mitigated Negative Declaration for the Cactus Avenue Corridor Groundwater Wells Project*, which is available online at https://www.emwd.org/public-notices.

1.6 Mitigation Monitoring and Reporting Program

Table 1-2 provides a summary of potential impacts and mitigation measures by resource area. In accordance with State CEQA Guidelines Section 15097 and 15126.4, the following mitigation measures have been incorporated into the Project design and would be implemented before, during, or after construction in accordance with the program; thereby, reducing all identified potential environmental impacts to a less than significant level. The table does not include impacts or criteria that were deemed No Impact or Less than Significant due to actions associated with the Cactus Avenue Corridor Groundwater Wells Project; rather, the table focuses on potentially significant impacts and associated mitigation measures.

Table 1-2: Mitigation Monitoring and Reporting Checklist

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
Aesthetics						
Impact 3.1c – In non-urbanized areas, potential to substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, potential to conflict with applicable zoning and other regulations governing scenic quality.	**Mitigation Measure (MM) AES-1: Design of Aboveground Structures** To minimize visual impacts on public views, permanent, aboveground structures (treatment/blending facility, extraction well houses) shall be designed to blend into the existing visual character of their surroundings, including building and wall height, color, and exterior architectural treatments.	EMWD, Construction Contractor	EMWD Construction Administrator	1. Confirm measure is included in contract documents 2. Confirm that mitigation measure is incorporated into design specifications 3. Verify that approved visual measures are implemented during construction 4. Retain a copy of design specifications in project file	1. Contracting 2. Design 3. Construction 4. Post-construction	1._____ 2._____ 3._____ 4._____
Impact 3.1d – Potential to create a new source of substantial light or glare which would adversely affect day or nighttime views.	**MM AES-2: Low Illumination Nighttime Construction Lighting** All nighttime construction lighting shall be of the lowest illumination necessary for Project construction, attached to motion sensors, and shielded and directed downward to avoid light spillage onto neighboring properties.	EMWD, Construction Contractor	EMWD Construction Administrator	1. Confirm measure is included in contract documents 2. Confirm that mitigation measure is incorporated into design specifications 3. Monitor construction activities to verify that measures are implemented during construction 4. Retain a copy of design specifications and construction monitoring report in project file	1. Contracting 2. Design 3. Construction 4. Post-construction	1._____ 2._____ 3._____ 4._____
Impact 3.1d – Potential to create a new source of substantial light or glare which would adversely affect day or nighttime views.	**MM AES-3: Lighting Fixtures** All permanent nighttime lighting and fixtures shall comply with Riverside County Ordinance No. 655 for Zone B of the Mount Palomar Nighttime Lighting Policy Area.	EMWD, Construction Contractor	EMWD Construction Administrator	1. Confirm measure is included in contract documents 2. Confirm that mitigation measure is incorporated into design specifications 3. Verify that permanent lighting features are installed consistent with measure, as applicable	1. Contracting 2. Design 3. Construction	1._____ 2._____ 3._____

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
				4. Retain a copy of design specifications and construction monitoring report in project file	4. Post-construction	4._____
Air Quality						
Impact 3.3b – Potential to 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. **Impact 3.3c –** Potential to expose sensitive receptors to substantial pollutant concentrations.	**MM AIR-1: Tier 4 Engines** EMWD shall use off-road equipment that meets the United States Environmental Protection Agency (EPA) certified Tier 4 final engines or engines that are certified to meet or exceed the emission ratings for EPA Tier 4 final or interim engines such that average daily nitrogen oxide (NO_X) emissions are lower than SCAQMD Regional Mass Emissions Thresholds of 100 pounds per day. One way for this to be accomplished would be for 55 percent of the construction equipment and vehicles, with the exception of drill rigs, used for the Project to be equipped with Tier 4 final engines.	EMWD, Construction Contractor	EMWD Construction Administrator	1. Confirm mitigation measure is incorporated into contract documents 2. Monitor construction activities to verify that measures are implemented during construction 3. Retain construction monitoring report in project file	1. Contracting 2. Construction 3. Post-construction	1._____ 2._____ 3._____
Biological Resources						
Impact 3.4a – Potential to 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. **Impact 3.4f –** Potential to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	**MM BIO-1: Burrowing Owl Preconstruction Clearance Survey** A qualified wildlife biologist shall conduct a Pre-construction survey of the impact areas to confirm presence/absence of burrowing owl individuals no more than 30 days prior to construction. The survey methodology will be consistent with the methods outlined in the CDFW *Staff Report on Burrowing Owl Mitigation* (2012). If no active breeding or wintering owls are identified, no further action is required. If burrowing owls are detected onsite, the following actions shall be implemented in accordance with the CDFW *Staff Report on Burrowing Owl Mitigation* (2012): • A qualified wildlife biologist shall be onsite during initial ground-disturbing activities in potential burrowing owl habitat. • No ground-disturbing activities shall be permitted within a buffer no less than 656 feet from an active burrow, depending on the level of disturbance, unless otherwise authorized by CDFW. Occupied burrows will not be disturbed during the nesting season (February 1 to August 31), unless a qualified biologist verifies through noninvasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. • During the nonbreeding (winter) season (September 1 to January 31), ground-disturbing work can proceed near active burrows as long as the work occurs no closer than 165 feet	EMWD, Qualified Biologist	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm that contract documents include mitigation measure 2. Retain a qualified biologist for pre-construction survey 3. Confirm pre-construction survey conducted no more than 30 days prior to construction by qualified biologists consistent with CDFW Staff Report on Burrowing Owl Mitigation methods 4. If pre-construction survey is positive for burrowing owls, implement CDFW *Staff Report on Burrowing Owl Mitigation* actions listed in the mitigation measure 5. Retain copies of all surveys and reports in the project file	1. Contracting 2. Pre-construction 3. Pre-construction 4. Construction 5. Post-construction	1._____ 2._____ 3._____ 4._____ 5._____

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
	from the burrow, depending on the level of disturbance, and the site is not directly affected by the project activity. A smaller buffer may be established in consultation with CDFW. If active winter burrows are found that would be directly affected by ground-disturbing activities, owls can be excluded from winter burrows according to recommendations made in the *Staff Report on Burrowing Owl Mitigation* (2012). • Burrowing owls shall not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed based on the recommendations made in the St*aff Report on Burrowing Owl Mitigation* (2012). The plan shall include, at a minimum: o Confirmation by site surveillance that the burrow(s) is empty of burrowing owls and other species o Type of scope to be used and appropriate timing of scoping o Occupancy factors to look for and what shall guide determination of vacancy and excavation timing o Methods for burrow excavation o Removal of other potential owl burrow surrogates or refugia onsite o Methods for photographic documentation of the excavation and closure of the burrow o Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take o Methods for assuring the impacted site shall continually be made inhospitable to burrowing owls and fossorial mammals • Compensatory mitigation for lost breeding and/or wintering habitat shall be implemented onsite or offsite through implementation of a Mitigation Land Management Plan based on the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) guidance. The plan shall include the following components, at a minimum: o Temporarily disturbed habitat on the project site shall be restored, if feasible, to pre-project conditions, including decompacting soil and revegetating;					

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
	○ Permanent impacts to nesting, occupied and satellite burrows and/or burrowing owl habitat shall be mitigated such that the habitat acreage, number of burrows and burrowing owl impacted are replaced based on a site-specific analysis which includes conservation of similar vegetation communities comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals; ○ Mitigation land acreage shall not exceed the size of the Project site; ○ Permanently protect mitigation land through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a CDFW approved burrowing owl conservation bank, the project operator may purchase available burrowing owl conservation bank credits. ○ Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment. ○ Mitigation lands shall be on, adjacent or proximate to the impact site where possible and where habitat is sufficient to support burrowing owls present.					
Impact 3.4a – Potential to 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. .	**MM BIO-2: Preconstruction Nesting Bird Survey** If Project construction occurs during avian nesting season (February to September) then a survey for active nests must be conducted by a qualified biologist one to two weeks prior to construction activities. If active nests are identified and present onsite, clearing and construction within 50-250 feet of the nest, depending on the species (50 feet for common urban-adapted native birds and up to 250 feet for raptors), shall be postponed until the nest is vacated, the juveniles have fledged, and there is no evidence of a second attempt at nesting. The qualified biologist shall establish limits to the construction in order to avoid a nest site with flagging and stakes or construction fencing. If construction must occur within the buffer, it shall be conducted at the discretion of a qualified biological monitor to ensure indirect impacts to the nesting birds are avoided.	EMWD, Qualified Biologist	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm that contract documents include mitigation measure 2. Confirm construction schedule occurs outside of February 1 – September 30 3. If construction occurs between February 1 and September 30, retain a qualified biologist for pre-construction survey and confirm pre-construction nesting bird survey is completed within one to two weeks prior to construction 4. If a nest is identified in the pre-construction survey, verify avoidance buffer is	1. Contracting 2. Pre-construction 3. Pre-construction 4. Construction	1._____ 2._____ 3._____ 4._____

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
				established and that ground-disturbing activities do not occur in buffer until biologist determines that breeding/nesting is completed 5. Retain copies of all surveys and reports in project file	5. Post-construction	5._____
Cultural Resources						
Impact 3.5a – Potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. **Impact 3.5b –** Potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5? **Impact 3.18a –** Potential to 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: 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 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	**MM CUL-1: Cultural Resources Treatment and Monitoring Agreement** At least 30 days prior to the start of any ground-disturbing activities, EMWD shall contact the Consulting Tribe(s) to develop Cultural Resource Treatment Monitoring Agreement(s) ("Agreement"). The Agreement(s) 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 reimbursements.	EMWD, Consulting Tribe(s)	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm preparation of and completion of Cultural Resource Treatment Monitoring Agreement(s) 2. Retain copies of all agreements in project file	1. Pre-construction 2. Post-construction	1._____ 2._____

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.						
Impact 3.5a – Potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. **Impact 3.5b –** Potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5? **Impact 3.18a –** Potential to 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: 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 a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	**MM CUL-2: Develop a Cultural Resources Monitoring Plan** Prior to any grading activities, a Cultural Resources Monitoring Plan shall be prepared by a qualified archaeologist in consultation with the Consulting Tribe(s). The plan shall identify the location and timing of cultural resources monitoring. The plan shall also contain an allowance that the qualified archaeologist, based on observations of subsurface soil stratigraphy or other factors during initial grading, and in consultation with the Native American monitor and EMWD, may reduce or discontinue monitoring as warranted if the archaeologist determines that the possibility of encountering archaeological deposits is low. The plan shall outline the appropriate measures to be followed in the event of unanticipated discovery of cultural resources during Project implementation (including during the survey to occur following vegetation removal and monitoring during ground-disturbing activities). The plan shall identify avoidance as the preferred manner of mitigating impacts to cultural resources. The plan shall establish the criteria utilized to evaluate the historic significance (per CEQA) of the discoveries, methods of avoidance consistent with CEQA Guidelines Section 15126.4(b)(3), as well as identify the appropriate data recovery methods and procedures to mitigate the effect of the Project if avoidance of significant historical or unique archaeological resources is determined to be infeasible. The plan shall also include reporting of monitoring results within a timely manner, disposition of artifacts, curation of data, and dissemination of reports to local and state repositories, libraries, and interested professionals. A qualified archaeologist and 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 in the event that cultural material is encountered.	EMWD, Qualified Archaeologist, Tribal Monitor(s), Consulting Tribe(s)	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm that contract documents include mitigation measure 2. Retain a qualified archaeologist and confirm preparation of a Cultural Resources Monitoring Plan prior to any grading activities 3. Confirm pre-grade meeting between a qualified archaeologist and Consulting Tribe(s) monitor and EMWD staff, the contractor, and appropriate subcontractors was held 4. Retain copy of the Cultural Resources Monitoring Plan in project file	1. Contracting 2. Pre-construction 3. Pre-Construction 4. Post-construction	1._____ 2._____ 3._____ 4._____

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
Impact 3.5a – Potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. **Impact 3.5b –** Potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5? **Impact 3.18a –** Potential to 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: 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 a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	**MM CUL-3: Tribal Monitoring Agreements** A qualified archaeological monitor and a Consulting Tribe(s) monitor shall be present for ground-disturbing activities associated with the Project, and both the Project archaeologist and Tribal Monitor(s) will make a determination as to the areas with a potential for encountering cultural material. At least seven business days prior to Project grading, EMWD shall contact the tribal monitors to notify the Tribe of grading/excavation and the monitoring program/schedule, and to coordinate with the Tribe on the monitoring work schedule. Both the archaeologist and the tribal monitor shall have the authority to stop and redirect grading activities in order 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 predetermined between EMWD and the Consulting Tribe(s), details of which shall be addressed in the Cultural Resources Treatment and Monitoring Agreement in **MM CUL-1**. Treatment may also include curation of the cultural resources at a tribal curation facility, as determined in discussion among EMWD, the Project archaeologist, and the tribal representatives and addressed in the Cultural Resources Treatment and Monitoring Agreement referenced in **MM CUL-1**.	EMWD, Qualified Archaeologist, Tribal Monitor(s), Consulting Tribe(s)	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm measure is included in contract documents 2. Contact the tribal monitors to coordinate the monitoring work schedule at least seven business days prior to grading 3. Confirm qualified archaeological monitor and a Consulting Tribe(s) monitor are present during initial ground disturbing activities 4. Retain copies of all agreements in project file	1. Contracting 2. Pre-construction 3. Construction 4. Post-construction	1._____ 2._____ 3._____ 4._____
Impact 3.5a – Potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. **Impact 3.5b –**	**MM CUL-4: Evaluation of Discovered Artifacts** All artifacts discovered at the development site shall be inventoried and analyzed by the Project archaeologist and tribal monitor(s). A monitoring report will be prepared, detailing the methods and results of the monitoring program, as well as the disposition of any cultural material encountered. If no cultural	Qualified Archaeologist, Tribal Monitor(s)	EMWD Construction Administrator, in consultation with EMWD CEQA/	1. Confirm mitigation measure is included in contract documents 2. If artifacts are discovered, confirm they are inventoried and analyzed by Project	1. Contracting 2. Construction	1._____ 2._____

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
Potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5? **Impact 3.18a –** Potential to 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: 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 a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	material is encountered, a brief letter report will be sufficient to document monitoring activities.		Environmental Compliance Team	archaeologist and tribal monitor(s), and a monitoring report is prepared. 3. If no cultural artifacts are encountered, confirm a brief letter report is prepared. 4. Retain copies of any monitoring reports in project file 5. Provide copy of monitoring report to Rincon Band of Luiseño Indians.	 3. Post-construction 4. Post-construction 5. Post-construction	 3._____ 4._____ 5._____
Impact 3.5a – Potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. **Impact 3.5b –** Potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5? **Impact 3.18a –**	**MM CUL-5: Disposition of Inadvertent Discoveries** In the event that 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. EMWD 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.	EMWD, Qualified Archaeologist, Tribal Monitor(s)	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm mitigation measure is included in contract documents 2. If Native American cultural resources are unearthed, verify appropriate treatment procedures are implemented as outlined in the mitigation measure 3. If curation agreement is prepared, retain curation agreement and all artifact	1. Contracting 2. Construction 3. Post-construction	1._____ 2._____ 3._____

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
Potential to 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: 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 a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	2. If preservation-in-place is not feasible, on-site reburial of the discovered items as detailed in the Monitoring Plan required pursuant to **MM CUL-2** is the next preferable treatment measure. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments. 3. In the event that on-site reburial is not feasible, EMWD will enter into a curation agreement with an appropriate qualified repository within Riverside County that meets federal standards per 36 Code of Federal Regulations 800 Part 79 and therefore would be curated and made available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within Riverside County, to be accompanied by payment of the fees necessary for permanent curation.			disposition reports in project file		
Impact 3.5a – Potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. **Impact 3.5b –** Potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5? **Impact 3.18a –** Potential to 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	**MM CUL-6: 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.	EMWD, Construction Contractor, Qualified Archaeologist, Tribal Monitor(s), Consulting Tribe(s), Riverside County Coroner	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm mitigation measure is included in contract documents	1. Contracting	1._____

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: 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 a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.						
Impact 3.5c – Potential to disturb any human remains, including those interred outside of dedicated cemeteries? **Impact 3.18a –** Potential to 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: 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 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)	**MM CUL-7: Human Remains** If Native American human remains are encountered, Public Resources Code 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 origin. Further, pursuant to California Public Resources Code Section 5097.98(b), 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 California 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." The most likely descendant (MLD) shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in Public Resources Code Section 5097.98	EMWD, Riverside County Coroner, NAHC	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm mitigation measure is included in contract documents 2. If human remains are found, coordinate with Riverside County Coroner 3. If human remains are found, verify adequate consultation with NAHC or MLD has occurred, if applicable, and that proper treatment and reburial has occurred, as applicable 4. Document and retain records regarding discovery of human remains in project file	1. Contracting 2. Construction 3. Construction 4. Post-construction	1._____ 2._____ 3._____ 4._____

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.						
Geology and Soils						
Impact 3.7f – Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	**MM GEO-1: Unanticipated Fossil Discovery** In the event of an unanticipated fossil discovery made during the construction of the Project, in accordance with Society of Vertebrate Paleontology (2010) guidelines, it is the responsibility of any worker who observes the fossil within the Project site to stop work within the fossil's immediate vicinity and notify a qualified professional paleontologist. The paleontologist shall evaluate the discovery, determine the fossil's significance, and decide if additional mitigation or treatment is needed. Work within the area of the fossil discovery will resume once the find is documented and authorization to resume construction work is given. Any significant paleontological resources discovered during construction monitoring will be prepared, identified, analyzed, and permanently curated in an approved regional museum repository.	EMWD, Constructor Contractor, Qualified Professional Paleontologist	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm that mitigation measure is included in contract documents 2. If a fossil discovery is made, retain and consult with a qualified professional paleontologist, and confirm that fossil discoveries are recorded and treated in accordance with direction provided by paleontologist 3. Retain construction monitoring report in project file	1. Contracting 2. Construction 3. Post-construction	1._____ 2._____ 3._____
Hazards and Hazardous Materials						
Impact 3.9b – Potential to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. **Impact 3.9c –** Potential to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	**MM HAZ-1: Hazardous Materials Management and Spill Prevention and Control Plan (HMMSPCP)** Before construction begins, EMWD shall prepare a Hazardous Materials Management Spill Prevention and Control Plan that includes a project-specific contingency plan for hazardous materials and water operations. The Plan will be applicable to construction activities and will establish policies and procedures according to applicable codes and regulations, including but not limited to the California Building and Fire Codes, and federal and Occupational Safety and Health Administration (OSHA) regulations. The Plan will include, but is not limited to the following: • A discussion of hazardous materials management, including delineation of hazardous material storage areas, access and egress routes, waterways, emergency assembly areas, and temporary hazardous waste storage areas; • Notification and documentation of procedures; and • Spill control and countermeasures, including employee spill prevention/response training.	EMWD, Construction Contractor	EMWD Construction Administrator	1. Confirm that contract documents include preparation of a Hazardous Materials Management Spill Prevention and Control Plan 2. Confirm contractor has prepared HMMSPCP and is available on-site. 3. Retain a copy of the HMMSPCP in the project file	1. Contracting 2. Construction 3. Post-construction	1._____ 2._____ 3._____
Noise						
Impact 3.13a –	**MM NOI-1: Construction Noise Reduction Measures**	EMWD, Construction Contractor	EMWD	1. Confirm that noise reduction measures are	1. Contracting	1._____

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
Potential 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.	EMWD shall require its contractor to implement the following actions relative to construction noise: • EMWD shall conduct construction activities between 7:00 a.m. and 7:00 p.m. on weekdays and 8:00 a.m. and 4:00 p.m. on Saturdays, in accordance with the City of Moreno Valley Municipal Code, Sections 8.14.040 and 11.80.030, with the exception of specific well drilling and testing activities, which require 24-hour continuous work. • Prior to construction, EMWD in coordination with the construction contractor, shall provide written notification, to all properties within 100 feet, as determined by the maximum 90 a-weighted decibel (dBA) noise contour, of the proposed Project facilities informing occupants of the type and duration of construction activities. Notification materials shall identify a method to contact EMWD's program manager with noise concerns. Prior to construction commencement, the EMWD program manager shall establish a noise complaint process to allow for resolution of noise problems. This process shall be clearly described in the notifications. • Stationary noise-generating equipment shall be located as far from sensitive receptors as possible. Such equipment shall also be oriented to minimize noise that would be directed toward sensitive receptors. Whenever possible, other non-noise generating equipment (e.g., water tanks, roll-off dumpsters) shall be positioned between the noise source and sensitive receptors. • Equipment and staging areas shall be located as far from sensitive receptors as possible. At the staging location, equipment and materials shall be kept as far from adjacent sensitive receptors as possible. • Construction vehicles and equipment shall be maintained in the best possible working order; operated by an experienced, trained operator; and shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds). • Unnecessary idling of internal combustion engines shall be prohibited. In practice, this would require turning off equipment if it would idle for five or more minutes. • Electrically powered equipment shall be used instead of pneumatic or internal-combustion powered equipment, where feasible. • The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.		Construction Administrator	included in the contract documents 2. Confirm that written notification has occurred to residents within 100-feet of the proposed Project prior to the start of construction 3. Confirm EMWD program manager has established a noise complaint process 4. Confirm that construction occurs during approved hours and that all noise reduction measures are implemented during construction 5. Retain construction monitoring documentation in project file	 2. Pre-construction 3. Pre-construction 4. Construction 5. Post-construction	 2._____ 3._____ 4._____ 5._____

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
Impact 3.13a – Potential 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.	**MM NOI-2: Noise Barriers** EMWD shall require its contractor to install temporary construction noise barriers prior to the start of well construction activities that would occur outside the hours specified by the City of Moreno Valley Municipal Code Sections 8.14.040 and 11.80.030. These barriers shall block the line of sight between the equipment and the noise-sensitive receptor(s) and shall provide a minimum of 25 dBA of noise attenuation. Due to the height of the drill rig, the noise barrier shall be at least 24 feet tall. The construction noise barrier shall be constructed of a material with a minimum weight of one pound per square foot with no gaps or perforations. It shall remain in place until conclusion of the nighttime construction activities. The Project plans and specifications shall include documentation from a noise consultant verifying the inclusion of an appropriate noise barrier.	EMWD, Construction Contractor, Noise Consultant	EMWD Construction Administrator	1. Confirm mitigation measure is included in contract documents 2. Confirm plans and specifications include an appropriate noise barrier confirmed by a noise consultant 3. Confirm sound wall barriers are installed between construction equipment and noise-sensitive receptor(s) that meet the specifications approved in the mitigation measure 4. Conduct periodic monitoring of mitigation commitments during construction to ensure noise barrier is providing 25 dBA of noise attenuation 5. Retain construction monitoring documentation in project file	1. Contracting 2. Design 3. Construction of wells that occurs outside of hours specified in municipal code 4. Construction of wells that occurs outside of hours specified in municipal code 5. Post-construction	1._____ 2._____ 3._____ 4._____ 5._____
Transportation						
Impact 3.9f – Potential to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan **Impact 3.17a –** Potential to conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. **Impact 3.17c –** Potential to substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or	**MM TRA-1: Traffic Control Plan** Prior to Project construction, EMWD shall require its construction contractor to implement a Traffic Control Plan, to be approved by the EMWD construction inspector and the City of Moreno Valley. The Traffic Control Plan shall: • Identify staging locations to be used during construction • Identify safe ingress and egress points from staging areas • Identify potential road closures • Establish haul routes for construction-related vehicle traffic • Identify alternative safe routes to maintain pedestrian and bicyclist safety during construction EMWD's project manager shall coordinate with emergency services (police, fire, and others) to notify these entities regarding construction schedule, Project alignment and siting, and potential delays due to construction. EMWD shall identify roadways and access points for emergency services and minimize disruptions to or closures of these locations.	EMWD, Construction Contractor	EMWD Construction Administrator	1. Confirm that contract documents include requirement for a Traffic Control Plan 2. Confirm that a Traffic Control Plan was developed in accordance with the mitigation measure, and approved by City of Moreno Valley 3. Confirm coordination of construction schedules has occurred with emergency services	1. Contracting 2. Pre-construction 3. Pre-construction 4. Construction	1._____ 2._____ 3._____ 4._____

Impact Statement	Mitigation Measure	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
incompatible uses (e.g., farm equipment). **Impact 3.17d –** Potential to result in inadequate emergency access. **Impact 3.20a –** Potential to substantially impair an adopted emergency response plan or emergency evacuation plan.	The Traffic Control Plan shall include provisions for traffic control measures including barricades, warning signs, cones, lights, and flag persons, to allow safe circulation of vehicle, bicycle, pedestrian, and emergency response traffic. The Traffic Control Plan shall be reviewed and approved by EMWD's project manager and the construction inspector prior to Project construction. EMWD's construction inspector shall also provide the construction schedule and Traffic Control Plan to the City of Moreno Valley for review to ensure that construction of the proposed Project does not conflict with other construction projects that may be occurring simultaneously in the Project vicinity.			4. Confirm traffic control measures identified in the Traffic Control Plan are implemented during construction 5. Retain copy of Traffic Control Plan in project file	5. Post-construction	5._____

2. PROJECT DESCRIPTION

2.1 Project Overview

The Cactus Avenue Corridor Groundwater Wells Project involves the development and operation of groundwater extraction, treatment, and distribution facilities in the Perris North Groundwater Management Zone. The Project includes construction and operation of extraction wells, raw water pipelines, a water treatment and blending facility, and treated water pipelines. Please refer to *Section 2.6 Proposed Project Description* for a detailed description of the Project components.

2.2 Project Purpose

The overall goal of the Project is to increase EMWD potable supplies while also cleaning up contamination areas of concern in the Perris North Basin. Currently, groundwater in the Perris North Groundwater Management Zone is contaminated. Contaminants of concern (COCs) include perchloroethylene (PCE), volatile organic compounds (VOCs), nitrate, perchlorate, total dissolved solids (TDS), fluoride, and manganese (co-mingled VOC-Nitrate Plume). Potential contamination sources were identified by EMWD through implementation of the Drinking Water Source Assessment Program (DWSAP), as well as the State Water Resources Control Board (SWRCB)'s GeoTracker and Department of Toxic Substances Control (DTSC)'s GeoTracker and EnviroStor database research, in developing a map of the comingled plume.

The Project would also augment local water supply in the EMWD service area by extracting and treating contaminated groundwater. In doing so, it would reduce EMWD's need to purchase additional imported water. Currently, approximately 75 percent of EMWD's potable water demand is supplied by imported water from MWD through its connections to the Colorado River Aqueduct and its connections to the State Water Project, while only approximately 25 percent of EMWD's drinking water comes from local EMWD groundwater wells. The majority of the groundwater produced by EMWD comes from its wells in the Hemet and San Jacinto areas. EMWD also has existing wells in the Moreno Valley, Perris Valley, and Murrieta areas (EMWD n.d.a). In 2020, EMWD's potable and raw water demand was estimated to be approximately 150,000 AFY according to its latest Urban Water Management Plan (EMWD 2016). The proposed Project is expected to produce approximately 3,700 AFY, which equates to approximately 2.5 percent of the total demand, off-setting the equivalent volume of imported supply.

2.3 Project Location

The proposed Project is located in the City of Moreno Valley, in the western portion of Riverside County, California. The Project vicinity is generally bounded on the west by Interstate 215 and to the north by State Route 60 (see **Figure 2-1 Regional Location**). Two general areas have been identified for the proposed Project facilities: the North and East Sub-Areas. The North Sub-Area is immediately to the north of March Air Reserve Base (MARB) and the East Sub-Area is immediately to the east of the MARB. Both Sub-Areas are located outside the published extent of MARB contamination plumes.

EMWD has not finalized the location of the proposed extraction wells, treatment and blending facility, or pipelines. Instead, EMWD is considering several options within the two Sub-Areas. Wells would be constructed at various sites in the City, and raw water pipelines would be constructed within existing roadway rights of way to link these sites with the proposed treatment facility (see **Figure 2-2 Project Overview**). The proposed raw water pipeline would extend west to east along Alessandro Boulevard or a parallel street (beginning west of Graham Street), then turn south and travel along Perris Boulevard or Kitching Street, terminating before Iris Avenue. Well and treatment facility sites would be located at sites along this alignment.

2.4 Project Siting Criteria

The siting of the Project components would be based on the following criteria:

- Well spacing would be at least 2,000 feet, where practical, within the comingled areas of concern;
- Well distance from known point source contamination sites would avoid or minimize impacts on groundwater remediation systems, if any;
- Parcels would be vacant sites, one-half acre or larger, and have access to public roads;
- Thickness of alluvium would be approximately 250 feet or more;
- Sites would be able to accommodate a well and comply with regulatory set-back requirements (e.g., property boundaries, sewer pipelines and storm drains);
- Wells would be located 50 feet from property lines to accommodate the 150-feet by 150-feet permanent well footprint; and
- EMWD would not place proposed Project structures at sites that would require substantial alteration or removal of public structures that are existing.

2.5 Environmental Setting

The Project area setting is generally built-out. Surrounding land uses include single-family residential, multi-family residential, schools, churches, libraries, neighborhood commercial, office, public facilities, and open space/park.

2.5.1 Sensitive Receptors

Sensitive receptors within the Project vicinity include single-family residences, multi-family residences, schools, churches, and day care centers. In some cases, residences or schools are located adjacent to the well sites, as noted in the site descriptions above. The following schools are located within one-quarter mile of the individual Project sites: Armada Elementary School, Chaparral Hills Elementary School, Creekside Elementary School, Hendrick Ranch Elementary School, Ramona Elementary School, March Mountain High School, Moreno Valley Adult Education, and Victoriano Elementary School. Two hospitals in Moreno Valley, the Riverside County Regional Medical Center

and Kaiser Permanente Moreno Valley Medical Center, are both at least one mile from the Project sites.

2.5.2 Utilities

Electrical service in the proposed Project area is provided by Moreno Valley Utility (MVU) and Southern California Edison (SCE). MVU's service area extends from the City boundary in the south up to Bay Avenue, covering the majority of the proposed Project area. Electrical service for the proposed Project alignment between Bay Avenue and Cottonwood Avenue (bound by Heacock Street and Indian Street) is provided by SCE. Natural gas service for the entire proposed Project area is provided by the Southern California Gas Company. EMWD provides water and wastewater services in the Project area. Solid waste services are provided by Waste Management of Inland Valley. Existing facilities for these utilities are located throughout the vicinity of the proposed Project.

2.5.3 Transportation

The Riverside County Transportation Commission (RCTC) owns a rail line located west of the City, parallel to I-215 (roughly two miles west of the Project site), which carries commuter rail service and a low volume of freight trains. Bikeways also exist in the Project vicinity. Those nearest to the Project site are intermittent Class 2 bike lanes on Alessandro Boulevard, Class 2 bike lands on Cactus Avenue, and a Class 3 bike route along Cottonwood Avenue (City of Moreno Valley, 2014; Google Maps, 2019). Active bus routes in the area are operated by Riverside Transit Agency (RTA) and include line 11 along Alessandro Boulevard, Indian Street, and Cactus Avenue; line 18 along Cottonwood Avenue, Perris Boulevard, and Kitching Street; line 19 along Perris Boulevard; and line 20 along Alessandro Boulevard (RTA 2020). The City of Moreno Valley (2019c) has designated truck routes that run east-west along Alessandro Boulevard and Cactus Avenue, and north-south along Heacock Street and Perris Boulevard.

There are no state-designated scenic highways in the Project vicinity. Ramona Expressway, three miles south of the Project area, is a County-eligible scenic highway, but is not designated as a scenic highway (Riverside County, 2017). The nearest state-designated scenic highway is State Route 243, approximately 20 miles east of the Project site (Caltrans 2019).

2.5.4 Airports

The March Air Reserve Base/March Inland Port is located southwest of the City, roughly one-half mile from the Project area. It is currently active as a center for military reserve activities and as a military communication center. The runways at the base are located along the western edge of the base, approximately 1.75 miles from the Project site. Other municipal airports in the region are far removed from the Project area; the nearest is the Perris Valley Airport which is located over eight miles south of the Project area.

2.5.5 Air Quality and Water Quality

The Project is located within the South Coast Air Quality Management District (SCAQMD), within the South Coast Air Basin (SCAB). The City and Project sites lie within the San Jacinto River watershed. Water quality is regulated by the Regional Water Quality Control Board (RWQCB), Santa Ana Region. Concrete-lined drainage channels exist in the Project area; notable drainage channels in the Project vicinity are those along Kitching Street and Camino Flores.

2.5.6 Geology

The Project area lies on bedrock known as the Perris Block. The Perris Block is a large mass of granitic rock generally bounded by the San Jacinto Fault, the Elsinore Fault, and the Santa Ana River (with a non-defined southeast boundary). The San Jacinto Fault is the closest fault zone and is located just over four miles from the Project area. The Project area is not known to be located on soils with the potential for liquefaction (City of Moreno Valley 2006b).

2.5.7 Habitat Conservation Plan

The Project area is within the boundaries of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP was developed by Riverside County to aid in maintaining biological and ecological diversity within the region, while addressing requirements of the California Endangered Species Act (CESA) and FESA. The MSHCP defines a reserve system that includes existing and proposed core habitat blocks and habitat linkages to accommodate the needs of wildlife and plant species. The Plan was completed in 2003, and associated permits were issued in 2004. EMWD is not a signatory to the MSHCP. None of the Project features are located within existing or proposed reserve or criteria areas of the MSHCP.

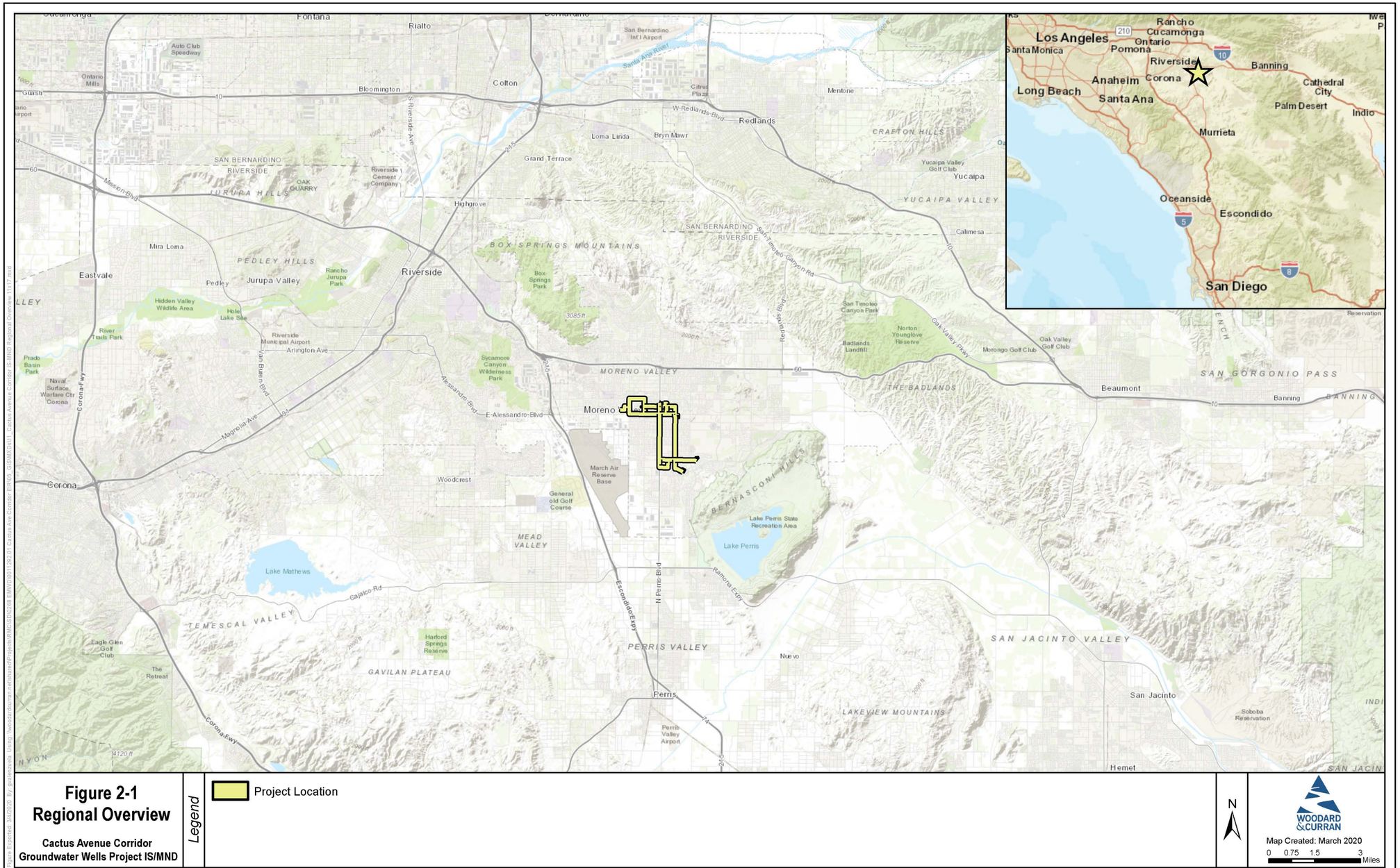

Figure 2-1: Regional Location

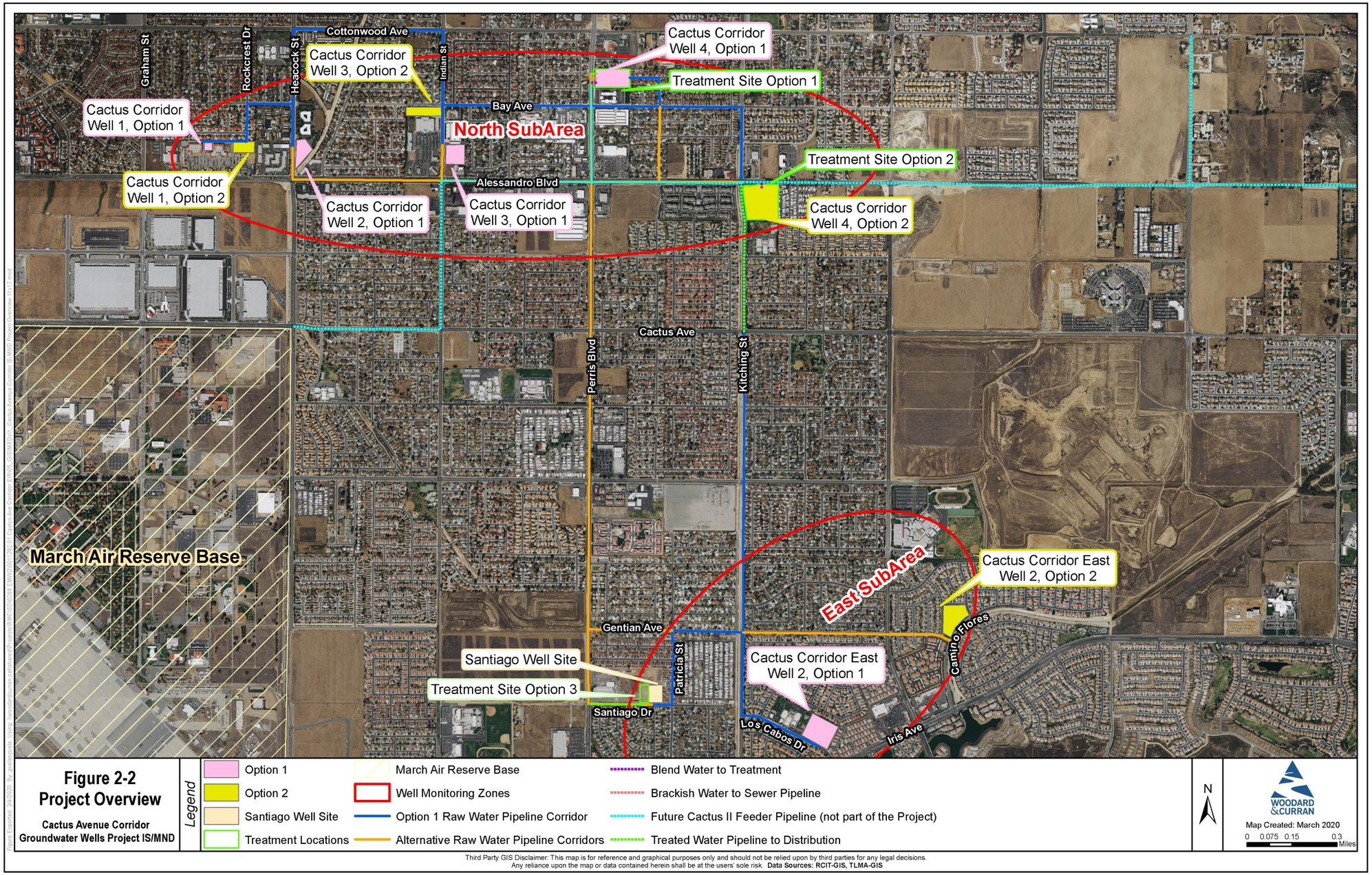

Figure 2-2: Project Overview

2.5.8 Existing Site Conditions

Existing conditions at each optional well sites are summarized below with a photograph of the existing site as of December 2019:

Cactus Corridor (North Sub-Area) Well Sites

Cactus Corridor Well 1, Option 1: The site is an interior vacant lot; current land cover at the site consists of weedy/ruderal grass. The site is surrounded by paved surface parking and a fitness center. Single-family homes exist to the north, across the surface parking lot. The site is approximately one-half acre. The photograph below is taken from the parking lot on Alessandro Boulevard, looking north.

Photo 1: Cactus Corridor Well 1, Option 1 Site

Cactus Corridor Well 1, Option 2: The site is an interior vacant lot. Vegetation at the site consists of weedy/ruderal grass and some trees along the perimeter of the site. The site is surrounded by paved surface parking, residences, and a church. The site is approximately two acres. The photograph below is taken from the parking lot on Alessandro Boulevard, looking northeast.

Photo 2: Cactus Corridor Well 1, Option 2 Site

Cactus Corridor Well 2, Option 1: The site is a corner triangular vacant lot located at the northeast corner of Heacock Street and Alessandro Boulevard. Trees exist along the perimeter near Heacock Street. Sparse ruderal vegetation covers most the site, with a pocket of denser vegetation. The site is bordered on the east by a concrete-lined drainage. To the north of the site is paved surface parking. Heacock Street is immediately west of the site. The site is approximately two acres. The photograph below is taken from the edge of the site near the intersection of Alessandro Boulevard and Heacock Street, looking northeast.

Photo 3: Cactus Corridor Well 2, Option 1 Site

Cactus Corridor Well 3, Option 1: The site is a vacant parcel covered by ruderal vegetation and bare ground. Residences are located to the east of the site. Commercial areas border the site to the north, south, and west, including a Food 4 Less, Auto Zone, and self-storage. The site is approximately three acres. The photograph below is taken from the edge of the site closest to the intersection of Alessandro Boulevard and Indian Street, looking northeast.

Photo 4: Cactus Corridor Well 3, Option 1 Site

Cactus Corridor Well 3, Option 2: The well would be located in the existing Bayside Park. The site is a developed park with paved walkway, contoured grass, trees, and play area. The site abuts Food 4 Less grocery store to the south, and two residences to the west. Bay Avenue runs north along the site, with residences on the north side of Bay Avenue. Indian Street forms the east border of the site. The site is approximately two acres. The photograph below is taken from the corner of the site near the intersection of Bay Avenue and Indian Street, looking southwest.

Photo 5: Cactus Corridor Well 3, Option 2 Site

Cactus Corridor Well 4, Option 1: The site is a vacant parcel covered by bare earth and grass, with some trees along the western edge. The site is bordered to the south by a school, Riverside County Education Academy. Perris Boulevard forms the western border of the site. Residences abut the site to the north and east. The site is approximately five acres. The photograph below is taken from the edge of the site on Perris Boulevard, looking east.

Photo 6: Cactus Corridor Well 4, Option 1 Site

Cactus Corridor Well 4, Option 2: The site is a large open grassy field. Kitching Street forms the western boundary of the site, and Alessandro Boulevard forms the northern boundary. A mobile home park borders the eastern edge of the site. Hendrick Ranch Elementary School is located immediately to the south and adjacent to the site. The site is approximately eight acres. The photograph below is taken from the southwest corner of the site on Kitching Street near Hendrick Ranch Elementary School, looking northeast.

Photo 7: Cactus Corridor Well 4, Option 2 Site

Cactus Corridor East (East Sub-Area) Well Sites

Cactus Corridor East Santiago Well Site: The site is located at the City of Moreno Valley Corporate Yard on Santiago Drive between Nan Avenue and the intersection with Patricia Street. The site consists of bare ground, with a depression that forms a seasonal water body in the southeast corner of the site. Single-family residential neighborhoods border the east edge of the site. Santiago Drive borders the south of the site, with residential areas across the street from the site. The remainder of the Corporate Yard borders the north and west sides of the site. The site is approximately two acres. The photograph below is taken from the southern edge of the site on Santiago Drive, looking east.

Photo 8: Cactus Corridor East Well "Santiago" Site

Cactus Corridor East Well 2, Option 1: The well would be constructed in the existing Victoriano Park, which is developed with extensive grasslands, bathroom facilities, baseball fields, paved pathways, and surface parking. Victoriano Elementary School is located northwest of the park. To the north and east, single-family residences surround the park. To the southwest, Los Cabos Drive borders the site. The site is approximately five acres. The photograph below is taken from the southwest edge of the site along Los Cabos Drive, looking north.

Photo 9: Cactus Corridor East Well 2, Option 1 Site

Cactus Corridor East Well 2, Option 2: The well would be located in the existing Parque Amistad, a park developed with extensive grass fields, trees and ball fields, and paved walkways. The park is bordered on all sides by paved roads (Camino Flores, Calle Camelia, Calle Alto, and Caballo Road). Residential neighborhoods surround the park. The site is approximately four acres. The photograph below is taken from the western edge of the site along Caballo Road, facing east.

Photo 10: Cactus Corridor East Well 2, Option 2 Site

Treatment Facility Sites

Option #1 Treatment Facility Site is at the same location as Cactus Corridor Well 4, Option 1 in the North Sub-Area. The existing condition of the site is described above. This site would also accommodate a component of a separate EMWD project: Turnout 2 for the Cactus II Feeder pipelines project. The Cactus II Feeder Turnout 2 would be constructed on one third of this site through January 2023. The other two-thirds of the site would be available for construction of the proposed treatment and blending facility and extraction well, if the site is selected. The Option #2 Treatment Facility Site is at the same location as Cactus Corridor Well 4, Option 2 in the North Sub-Area and the Option #3 Treatment Facility Site is at the same parcel as the Santiago Well Site in the East Sub-Area. The existing conditions of the sites are described above.

Pipeline Alignments

The potential pipelines would be constructed in existing roadway rights-of-way and would generally travel through areas zoned for residential, commercial, and office uses. There would be several crossings of intersections and concrete-lined drainage channels.

2.6 Proposed Project Description

The Project includes construction and operation of extraction wells, raw water pipelines, a water treatment/blending facility, and treated and blend water pipelines. Each of the components are described in detail in this Section.

2.6.1 Extraction Wells

Up to four extraction wells (each approximately 250 gallons per minute [gpm]) would be constructed in the North Sub-Area. Up to two extraction wells (each approximately 650 gpm) would be constructed in the East Sub-Area. The locations of the wells have yet to be finalized (with the exception of the East Sub-Area well that would be located on Santiago Drive). Instead, EMWD has identified six potential locations for the four North Sub-Area wells and two potential locations for the second East Sub-Area well. All of the well site options were chosen based on the criteria described in *Section 2.4 Project Siting Criteria*. This document analyzes the environmental impacts that could be associated with all nine of the site options.

The wells would be drilled to a depth of approximately 1,000 feet. The annual volume of potable water that would be produced from the new extraction wells is estimated at 3,710 acre-feet per year (AFY) ([250x4]+[650x2] x 525,600 minutes per year ÷ 325,851 gallons per acre foot = 3,710 AFY). The groundwater extraction wells would be expected to have a lifespan of 30 years.

Each well would have a permanent footprint of approximately 20,000 square feet (150 feet by 150 feet) minimum. To minimize long-term noise from the pumps and to provide security, each well would be enclosed within a concrete masonry unit (CMU) block well house. In addition, an eight-foot perimeter CMU wall would be installed at each

of the well sites and wells would be sited at least 50 feet from the nearest existing land uses. The approximate 20 by 20 foot pump and well housing would be included in the well footprint area. The pump and well housing structure would be no taller than 15 feet.

Blow-off from a well is typically required for either clearing initial highly turbid water and sediment or to flush the well to meet bacteriological requirements prior to connecting the raw well water to the treatment system. Where groundwater water quality allows discharge to the ground, blow-off from the well typically discharges either to the storm drain system or to a blow-off pond. Where the groundwater water quality fails to meet regulatory standards for discharge to an unlined blow-off pond, discharge to sewer may be required. If required, the connection to the sewer is typically accommodated by directly discharging to the sewer, or by utilizing temporary onsite storage through a lined blow-off pond or holding tank that would be pumped to the sewer. The raw water well connection to the sewer would require a back-flow device, such as an air gap, and California Division of Drinking Water approval.

Well Construction

The extraction wells would be constructed in two phases: a well drilling phase, and a well equipping phase. Well drilling would last nine months per well, including two weeks of continuous drilling operation and additional nighttime construction activities (for well development and testing) occurring over an additional 12 weeks. Well drilling is assumed to require drill operation for 24 hours/day to prevent borehole collapse. The well equipping phase consists of developing the site such as construction of the blow off pond, the building, mechanical and electrical components for the well and would last approximately 12 months per well (does not include treatment).

Construction of each well would require the estimated construction equipment shown in **Table 2-1**.

Table 2-1: Construction Vehicle Fleet for Wells

Equipment	Number Required for Each Well
Backhoe/Loader	1
Drilling Rig	1
Crane	1
Utility Truck	1
Water Truck	1
Welder	1
Compressor	1
Pump	1
Pick-up Trucks	2
Concrete Pumper	1
Generator	1

With the exception of the site options Cactus Corridor Well 3 Option 2, Cactus Corridor East Well 2 Option 1, and Cactus Corridor East Well 2 Option 2, which are proposed at existing public parks, construction of the extraction wells is assumed to temporarily disturb

100 percent of each of the parcel sites. At the existing public park sites, the temporary disturbance footprint for construction of each well is expected to be 25,500 square feet (150 feet by 170 feet). Each well site would be designed to utilize the existing grade of the parcel where applicable.

Based on the wells' approximate depth (1,100 feet) and permanent footprint (approximately 150 by 150 feet, minimum), and the typical borehole diameter of 32 inches, it is estimated that approximately 230 cubic yards (cy) of drill cuttings would be exported from each well site. Additional material export would be associated with construction of each well site foundation and pump house. The total material exported for each well, foundation and pump station would be approximately 300 cy (i.e. 1,800 cy of export total for all six of the Project's wells).

The estimated amount of material export from construction of the well blow-off pond at each well site is 2,000 cy (i.e. 12,000 cy of export in total for all six of the Project's wells). Material from drilling activities would be disposed to the nearest landfill.

Portable, steel liquid container tanks (i.e. Baker Tanks) would be used for onsite dewatering clarification. There are three options for disposal of dewatering and well testing water:

- Discharge to land per RWQCB National Pollutant Discharge Elimination System (NPDES) Permit/Waste Discharge Requirements for construction dewatering; or
- Discharge to storm drain per RWQCB NPDES Permit and Riverside County Flood Control and Water Conservation District requirements; or
- Discharge to EMWD sewer.

Well Operations

Once operational, the volume of water pumped from each well is estimated to be 250 gpm for the North Sub-Area wells and 650 gpm for the East Sub-Area wells. Operation of the pumps would involve energy usage (kilowatt hours per day [kWh/day]), as summarized in **Table 2-2**. In addition, each site would be provided with a portable generator connection for emergency scenarios at a minimum. Emergency generators may be installed at the well sties at a later date. Operations and maintenance (O&M) activities would involve monthly site visits from EMWD operators to inspect the site.

Table 2-2: Energy Consumption

Equipment	Qty	hp	hrs/day	kWh/day	Comments
Cactus Corridor Wells (North sub-area)	4	50–75	24	3,500–5,400	Range depends on the type of well pump provided (vertical vs submerged)
Cactus Corridor East Wells (East sub-area)	2	200–250	24	7,100–9,000	Range depends on the type of well pump provided (vertical vs submerged)

2.6.2 Treatment Facility

A treatment facility would be constructed and operated at a central location in the proposed Project area. The treatment/blending facility would treat, blend, and disinfect raw water from the extraction wells before delivering it into a large diameter transmission pipeline in the potable water system for conveyance to other parts of EMWD's service area. The location of the treatment and blending facility has not been finalized. Instead, EMWD has identified three potential sites for the treatment facility (see **Figure 2-2**). The treatment facility would remove PCE, treat nitrate, and blend with Metropolitan Water District of Southern California (MWD) water for elevated levels of aluminum, fluoride, manganese and TDS. The treatment/blending facility would include GAC contactors, a blending facility, a potable water distribution pump station and a chlorine residual injection system. A nitrate treatment system may also need to be constructed at the centralized treatment facility site to be used when blend water of sufficient quality is not available. If required, the nitrate treatment system would be contained fully on the treatment facility site. The treatment facility would contain a chemical storage room within the CMU booster pump station building. The chemical storage room would house the onsite sodium hypochlorite generation system and storage of Liquid Ammonium Sulfate (LAS). The final, permanent footprint of the treatment facility structures would be approximately 20,000 square feet and the height would be approximately two stories. An overview of the proposed treatment facility is shown in **Figure 2-3**.

There are two options for disposal of regenerant waste (brine) brackish or backwash water from the treatment and blending facility. The concentration of the brine is expected to be 12 percent sodium chloride solution, or approximately 120,000 mg/L of TDS. Under the first option, there would be approximately 100 linear feet of 12-inch pipe to discharge the brackish or backwash water from the central treatment and blending facility to the sanitary sewer system. Under the second option, the brine would be hauled to a collection facility for disposal into the IEBL, approximately 24 miles away. The treatment facility would generate approximately 6,500 gallons per day (gpd; average of approximately 4.5 gpm) of brackish or backwash water. Brine wastewater would be stored onsite until approximately 30,000 gallons accumulates. Then, it would be hauled to the IEBL collection facility in five 6,000-gallon capacity tanker trucks. Under this option for disposal, approximately five tanker trucks would haul brine wastewater to the IEBL every four to five days.

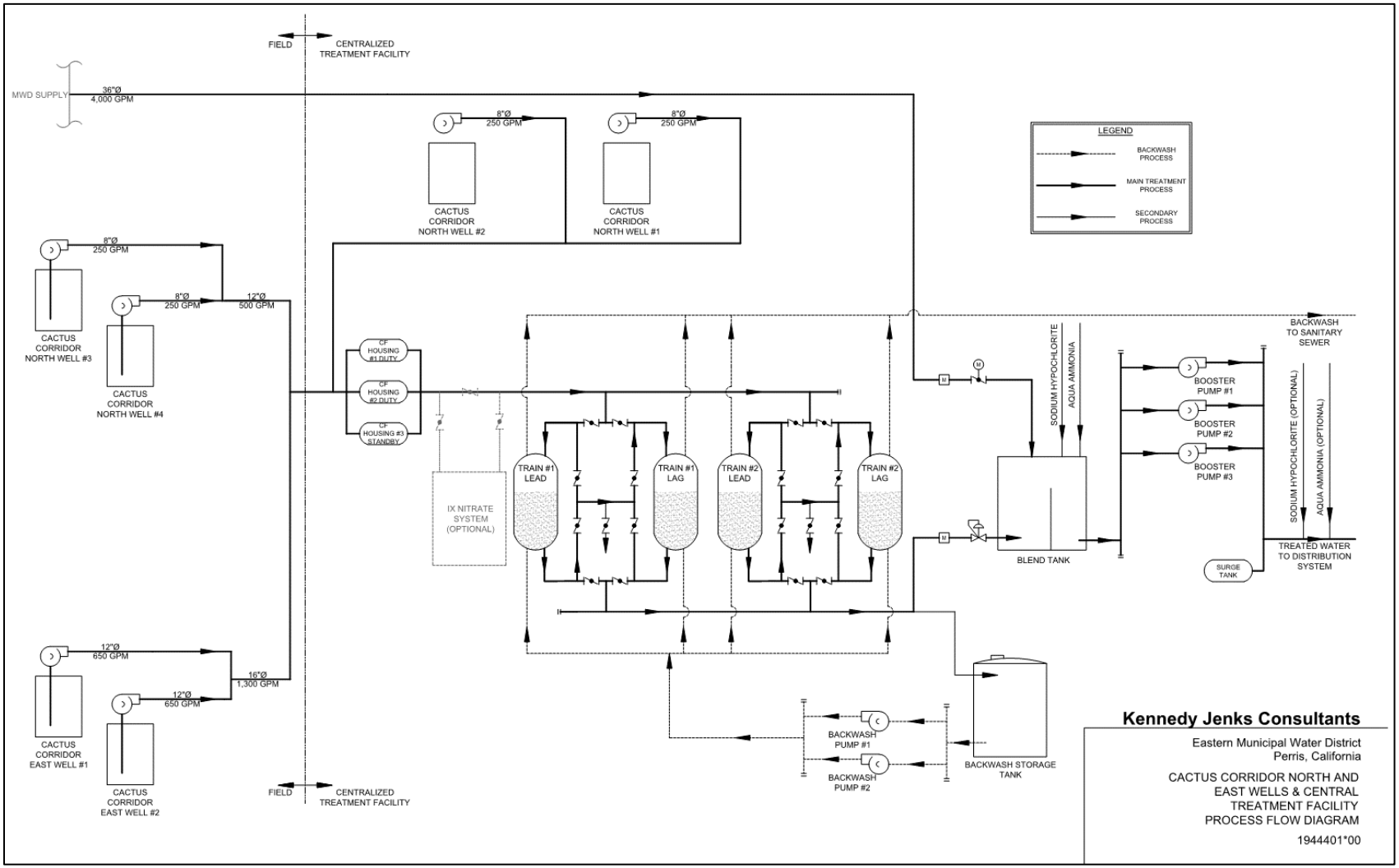

Figure 2-3: Treatment Facility Overview

All stormwater that occurs on the site would be collected as runoff and conveyed and discharged to the street in accordance with applicable storm water drainage design and water quality control requirements. To attenuate noise, all large equipment, including the well and potable water booster pumps, would be housed within a CMU building. In addition, a six-foot CMU perimeter wall would also be installed around the treatment facility site. For security purposes, appropriate site and flood lighting would be installed, with switches, spaced evenly across the treatment facility site. The treatment facility site would be constructed with two access driveways. The front driveway would be constructed with a 24-foot wide rolling gate and the rear driveway would be constructed with a 24-foot wide swing gate.

Treatment Facility Construction

Construction of the treatment facility would occur in a single phase lasting 18 months. Construction of the treatment facility would require the estimated equipment fleet shown in **Table 2-3**.

Table 2-3: Construction Vehicle Fleet for Treatment Facility

Equipment	Number Required for Treatment facility
Backhoe/Loader	2
Excavator	2
Forklift	2
Concrete Pumper	1
Crane	1
Utility Truck	1
Water Truck	1
Welder	1
Compressor	1
Pump	1
Pick-up Trucks	2
Generator	1

During construction, it is assumed that 100 percent of the treatment facility site would be disturbed to allow for staging and storage during construction. The treatment facility site would be excavated to a depth of 10 feet to accommodate footings, piping, a partially below-grade basin, well discharge pond, over excavation and re-compaction. Approximately 50 percent of the material would be reused on site as fill, thus approximately 4,000 cy of material would be exported.

Operations

Once construction is complete, the treatment facility would involve energy use as described in **Table 2-4**. A connection for a portable standby generator would be provided for emergency use.

Table 2-4: Treatment Facility Energy Consumption

Facility Description	Qty	hp	hrs/day	kWh/day
Potable Water Booster Pumps	2+1 standby	150-175	12	2,600-3,200
Backwash Booster Pumps	1+1 standby	25-30	3	55-70
Air Compressor	1	5	12	45
Blend Tank Mixer	1	5	12	45

Ongoing O&M activities would involve bi-weekly visits by an EMWD operator to verify the integrity of the treatment system and inspect the onsite infrastructure. Routine maintenance would be conducted monthly on the equipment and instrumentation. GAC Media replacement is expected to be annually. Delivery for each chemical can be expected once a month (salt and aqueous ammonia). If the IEBL is the chosen method of brine waste disposal, approximately five 6,000 gallon tanker trucks would haul brine wastewater to the IEBL collection point approximately 24 miles from the proposed treatment facility every four to five days.

2.6.3 Pipelines

Approximately 32,600 linear feet of pipeline would be constructed to convey raw water from the extraction wells to the proposed treatment facility, and to convey treated water from the treatment facility to the distribution system. These pipelines would be located primarily within easements, roadway rights of way, and EMWD owned land. Depending on which options are chosen for the well and treatment facility sites (see **Figure 2-2**), the raw water pipeline would be constructed either along Kitching Street (Option 1) or along Perris Boulevard (Alternative alignment). If the Option 1 Raw Water Pipeline alignment is constructed, there would be 29,350 linear feet of pipe to convey raw water from the extraction wells to the treatment and blending facility. If the Alternative Raw Water Pipeline alignment is selected, there would be 27,800 linear feet. The raw water pipeline would vary in diameter from 8-, 12-, 16-, or 24-inch. Approximately 500 linear feet of 36-inch pipeline would be constructed between the proposed treatment facility and a lateral off EMWD's Cactus II Feeder transmission pipeline. The Cactus II Feeder pipeline conveys MWD water to EMWD's potable system and is not a part of this Project; however, the proposed 500-linear feet of 36-inch pipeline from the Cactus II Feeder lateral to the proposed treatment facility is a part of the proposed Project, and would provide the MWD blend water to dilute the water treated from the extraction wells before discharge into the EMWD distribution system.

Depending on which site is chosen for the treatment and blending facility, there would be up to 2,650 linear feet of 36-inch pipeline to convey treated water from the treatment and blending facility to the distribution system. If the treatment facility is sited at Option 1 on Perris Boulevard between Cottonwood Avenue and Bay Avenue, approximately 100 feet of treated water pipeline would be constructed. If the treatment facility is sited at Option 2 on the southeast corner of Kitching Street and Alessandro Boulevard, approximately 2,650 linear feet of treated water pipeline would be constructed. If the treatment facility is sited at Option 3 on Santiago Drive between Perris Boulevard and Patricia Street,

approximately 1,000 linear feet of treated water pipeline would be constructed. The treated water pipelines would be up to 36-inches in diameter.

If the option for disposal of the regenerant waste (brine) to the sanitary sewer system is selected, there would be approximately 100 linear feet of 12-inch pipe to discharge the brackish or backwash water from the central treatment and blending facility to the sanitary sewer system. Approximately 6,500 gpd (4.5 gpm average) of brine waste would be generated from the proposed treatment operations and the concentration of the brine would be 12 percent sodium chloride solution, or approximately 120,000 mg/L of TDS.

Pipeline Construction

Pipelines would be constructed in existing roadways using an open cut method, except at crossings of existing facilities, utilities, and storm channels. Pipelines installed using open cut methods would include a typical trenching depth of 7 feet. The estimated trench width would be equal to 2 feet plus the pipeline diameter, for a width of up to 5 feet. When trenchless techniques are required, pipelines would be constructed using “bore and jack” methods. “Bore and Jack” employs a non-steerable system that drives an open-ended pipe laterally using a percussive hammer, thereby resulting in the displacement of soil limited to the wall thickness of the pipe. For this construction method, pits would be dug on either side of the surface feature to be avoided (e. g. storm channel or existing utilities). The pits are typically 10-15 feet wide and 10-20 feet long for the receiving pit and up to 50 feet long for the jacking pit. The depth would depend on the feature to be avoided. At utility crossings, the depth is estimated to be 15 feet; however, for the purposes of this analysis, it is assumed bore and jack depth could be up to 40 feet. The boring equipment and pipe would be lowered into the pit and aligned at the appropriate depth and angle to achieve the desired exit location. A compressor would supply air to the pneumatic ramming tool to thrust the pipe forward. A cutting shoe may be welded to the front of the lead pipe to help reduce friction and cut through the soil. Depending on the size of the installation, spoil from inside the pipe would be removed with an auger, compressed air, water, or a combination of techniques. A seal cap would be installed on the starter pit side of the installation and spoil would be discharged into the receiver pit. Using this technique, ground surface disturbance would not occur, except at the pits.

Construction of the pipelines would occur in four phases: trenching; pipe installation and backfill; testing; and pavement restoration. The pipelines would be constructed at an average rate of 150 linear feet per day, depending on the pipe size being installed on a given day, extent of the existing utilities and traffic control, and permitted work hours. Therefore, the total duration of construction of the pipelines is estimated to last approximately 10 months. Construction of the pipelines would require the estimated construction equipment shown in **Table 2-5**.

Table 2-5: Construction Vehicle Fleet for Pipelines

Equipment	Number Required for Pipelines
Backhoe/Loader	1
Hydraulic Excavator	1
Crane	1
Utility Truck	1
Auger Boring Machine	1
Water Truck	1
Welder	1
Compressor	1
Pump	1
Pick-up Trucks	2
Dump Truck	2
Concrete Saw	1
Pavement Breaker	1
Sweeper	1
Paver	1
Generator	1

Approximately 35 percent of the excavated material would be re-used onsite as fill during the pavement restoration phase. Import material would be required for the pipe zone and the pavement section. Thus, the total estimated volume of material export from construction of the pipelines is estimated to be 22,500 cy. After construction is complete, all pipeline construction areas would be restored to pre-construction conditions (i.e., no permanent disturbance footprint).

Operations

The pipelines would not be associated with long-term energy usage or additional EMWD O&M activities. The anticipated volume of raw water to be conveyed in the pipelines once they are complete would depend on the actual well flow and is estimated at 250 to 2,300 gpm.

2.6.4 Construction Schedule

In total, construction of the Project is estimated to take 22 months, with anticipated commencement in July 2021 and completion in March 2023. Construction of all three Project components (wells, pipelines and treatment facility) is expected to occur simultaneously.

2.6.5 Equipment Staging Areas

The treatment facility site would be utilized as the main equipment storage/staging area for the Project. To accommodate construction equipment, the treatment facility site would contain a paved access road and the rest of the site would be installed with a layer of crushed rock. If the Option #1 Treatment Facility site is selected, it may not be large enough to accommodate all of the equipment storage/staging for the proposed Project

due to simultaneous construction of the Cactus II Feeder Turnout 2. If the treatment facility site cannot accommodate all equipment storage/staging for the proposed Project, other existing EMWD property would be utilized as necessary for staging and intermediate storage for the installation of the water pipelines, or the contractor would be responsible for securing suitable temporary equipment storage/staging site(s) prior to construction and implementing applicable environmental commitments (see *Section 2.7*) at the staging area(s).

2.7 Environmental Commitments

The following measures are EMWD construction best management practices (BMPs) that would be implemented as part of the project:

- Temporary sound walls would be required for well drilling construction due to 24-hour operation of the drilling rig for noise control
- Block wall buildings would be designed and constructed for the well facilities and treatment/blending facilities for noise control, aesthetics (to blend in with surrounding aesthetics and buildings) and for security purposes
- The chlorination facilities would use onsite sodium hypochlorite generation or bulk sodium hypochlorite (chlorine bleach) to minimize the use of hazardous materials
- Permanent exterior security lighting would be shielded downward to avoid light spill onto surrounding properties
- The design and construction of the facilities would be based on a soils report and geotechnical investigation to minimize geological risk
- Groundwater encountered during construction would be discharged to land or the storm drain in accordance with applicable permits or discharged to EMWD's sewer for treatment and reuse
- All construction work within public roadways would require the contractor to prepare and implement a traffic control plan
- All construction work would require the contractor to implement fire hazard reduction measures, such as having fire extinguishers located onsite, use of spark arrestors on equipment and using a spotter during welding activities
- Construction would comply with SCAQMD Rule 403 Fugitive Dust Control requirements
- Specifications would require the contractor to prepare a Stormwater Pollution Prevention Plan (SWPPP). Construction would implement BMPs to control water quality of stormwater discharges offsite, according to the SWPPP, such as site management "housekeeping," erosion control, sediment control, tracking control and wind erosion control.

2.8 Required Permits and Approvals

Anticipated permits are identified in **Table 2-6**. South Coast Air Quality Management District permits for new stationary sources may be required if emergency generators are installed at the wells and treatment facility.

Table 2-6: Permits and Approvals

Agency	Permit/Approval
City of Moreno Valley	Encroachment Permit
South Coast Air Quality Management District	Permit to Construct, Permit to Operate, Dust Control Permits
Riverside County Flood Control and Water Conservation District	Encroachment Permit
California Division of Drinking Water	Amended Water Supply Permit
Riverside County Department of Environmental Health	Well Drilling Permit
State Water Resources Control Board	NPDES Construction General Permit for Storm Water Discharges
Regional Water Quality Control Board	NPDES permit for dewatering and test water discharges during construction

3. ENVIRONMENTAL CHECKLIST FORM

1. **Project title:** Cactus Avenue Corridor Groundwater Wells Project

2. **Lead agency name and address:** Eastern Municipal Water District
   2270 Trumble Road
   P.O. Box 8300
   Perris, CA 92572-8300

3. **Contact person and phone number:** Joseph Broadhead,
   Principal Water Resources Specialist
   broadhej@emwd
   (951) 928-3777 ext. 4545

4. **Project location:** City of Moreno Valley,
   Riverside County, California

5. **Project sponsor's name and address:** Same as Lead Agency

6. **General plan designations:** Commercial, Office, Open Space, Residential/Office, Public Facilities

7. **Zoning:** Neighborhood Commercial, Open Space/Park, Office, Public Facilities

8. **Description of project:** The Cactus Avenue Corridor Groundwater Wells Project consists of development and operation of groundwater extraction, treatment, and distribution facilities in the Perris North Groundwater Management Zone. The Project includes construction and operation of extraction wells, raw water pipelines, a water treatment and blending facility, and treated water pipelines. Up to four extraction wells (each approximately 250 gpm) would be constructed in the North Sub-Area and up to two extraction wells (each approximately 650 gpm) would be constructed in the East Sub-Area. The treatment facility would be constructed and operated at a central location that would include GAC contactors, a blending facility, potable water distribution pump station, a chlorine residual injection system, and nitrate treatment facilities. The treated water from the extraction wells would be blended with imported water from MWD to drinking water standards and then delivered to a transmission pipeline in the potable water system that would convey the water to other parts of EMWD's service area. The water would be disinfected prior to discharging into the potable water system.

9. **Surrounding land uses and setting:** The Project sites are located throughout the City of Moreno Valley. The Project area setting is generally built-out. Surrounding land uses include single-family residential, multi-family residential, schools, churches, libraries, neighborhood commercial, office, public facilities, and open

space/park. There are several storm channels in the Project area, including one along Kitching Street, one that crosses Cottonwood Avenue to the intersection of Heacock Street and Alessandro Boulevard, and one that borders Camino Flores.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

- City of Moreno Valley: Encroachment Permit
- Riverside County Flood Control and Water Conservation District: Encroachment Permit
- California Division of Drinking Water: Amended Water Supply Permit
- Riverside County Department of Environmental Health: Well Drilling Permit
- State Water Resources Control Board: NPDES Construction General Permit for Storm Water Discharges
- Regional Water Quality Control Board: NPDES Permit for Groundwater Dewatering and NPDES Permit for Discharge of Well Test Water

11. Have California Native American tribes traditionally and culturally affiliated with the Project area requested consultation pursuant to Public Resources Code section 2180.3.1? 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.?

EMWD has consulted with Native American tribal representatives through written correspondence, based on a contact list of tribes who indicated to EMWD that they are interested in receiving notification. Additionally, EMWD staff has undertaken consultation with representatives from the Morongo Band of Mission Indians, Pechanga Band of Luiseño Indians, Soboba Band of Luiseño Indians, Rincon Band of Luiseño Indians and Agua Caliente Band of Cahuilla Indians to discuss the Project and potential effects no significant cultural resources.

Environmental Factors Potentially Affected

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

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

DETERMINATION: (To be completed by Lead Agency)

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.

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

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

[ ] I find that the proposed Project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

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

_____	_____
Signature	Date
_____	_____
Printed Name	For

3.1 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?	[ ]	[ ]	[X]	[ ]
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	[ ]	[ ]	[ ]	[X]
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	[ ]	[X]	[ ]	[ ]
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	[ ]	[X]	[ ]	[ ]

Discussion

The City of Moreno Valley occupies a flat valley floor that is surrounded by mountains and hills. The primary scenic views, as defined by the City of Moreno Valley and County of Riverside, near the Project area are the foothills and mountains located around the northern, eastern, and southern edges of Moreno Valley, including the Box Spring Mountains 2.3 miles north, the Badlands foothills 2.5 miles east, and the mountains of Lake Perris State Recreation Area 0.9 miles southeast (City of Moreno Valley 2006b;

County of Riverside 2017b). In its General Plan, the City of Moreno Valley describes the importance of maintaining a natural setting in rural and remotes areas, including the hills and mountains that surround the City, to preserve the scenic quality of the region (Moreno Valley, 2006b).

As shown in the photographs of the existing conditions of the site (*Section 2.5.8, Existing Site Conditions*), the well and treatment facility sites are disturbed and surrounded by development. The Project area would not be considered rural and remote. As shown in photos 2, 3, 4, 6, 7, and 8, views of surrounding mountains and hills are visible from the proposed Project sites; however, the views are partially obstructed by the existing, surrounding development.

The City of Moreno Valley prioritizes preserving the scenic quality of the region. The City of Moreno Valley Municipal Code contains guidelines for aesthetic quality and visual character. These guidelines provide the City's policy with respect to the quality of design expected for all projects (City of Moreno Valley, n.d.a). The City Municipal Code (Chapter 9.16 Design Guidelines) requires new developments to match and blend in with their surrounding environment and neighboring buildings. Municipal Code Section 9.16.120 states the building design shall respect the view of existing developments, building mass and scale shall be proportionate to the surrounding open spaces and developments, building walls shall be light colored, building accents shall contrast with the main building color, bricks shall be left unpainted, and the color scheme shall be simple.

The City of Moreno Valley Municipal Code Section 9.16.280 provides guidelines for proposed lighting with the purpose of reducing unnecessary light pollution and maintaining dark skies, while promoting safety and aesthetics. This Section of the Municipal Code states that light and glare should not be unnecessarily deflected onto surrounding properties; high-intensity security lighting fixtures should be concealed by landscaping or building architectural elements; and lighting fixtures placed lower than five feet in height should not produce glare.

Riverside County Ordinance Number 655 regulates light pollution by restricting the permitted use of certain outdoor light fixtures that emit light into the night sky which have a detrimental effect on astronomical observation and research. It defines various zones relative to the distance between the light source and Palomar Observatory and sets requirements for shielding for various types of outdoor lighting (e.g., decorative, parking lots, walkways, security) (County of Riverside 1988).

The State of California Department of Transportation (Caltrans) manages the State Scenic Highway Program (Caltrans, n.d.), which was created by the State Legislature in 1963 with the purpose of protecting the natural scenic beauty of California highways. State-designated scenic highways have locally adopted policies to preserve the scenic quality of the corridor. Highways receive designation based on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. The nearest

State-designated scenic highway is State Route 243, approximately 20 miles east of the Project area (Caltrans 2019). Ramona Expressway, three miles south of the Project area, is a County-eligible scenic highway, but is not designated as a State scenic highway (County of Riverside 2017).

a) Less than Significant

The primary scenic impairments associated with the Project would be temporary and would occur during the construction phase. Once the Project is completed, pipelines would be underground and the area of temporary disturbance would be restored to its original condition, thus having no long-term impact on scenic vistas. The well housing and treatment facility have the potential to result in long-term impacts on scenic vistas. However, the proposed permanent structures would be of similar height as buildings and structures in the Project area that, as shown in the photographs in *Section 2.5.8 Existing Site Conditions*, already partially obstruct scenic vistas from the sites. For example, two-story single-family homes near the Project sites can be up to 35 feet in height (City of Moreno Valley Municipal Code Section 9.03.040) and commercial buildings can be up to 30 feet tall, or higher if they accommodate additional building setbacks (City of Moreno Valley Municipal Code Section 09.04.040). The proposed well housing would be 15 feet and the treatment/blending facility would be no higher than a two-story structure.

During construction, scenic vistas near the Project sites would be temporarily altered by the construction equipment such as cranes and excavators. However, once construction is complete, the treatment facility and extraction wellhouses would be consistent in height to the surrounding, existing commercial and residential buildings that currently obstruct scenic vistas at the Project sites. Therefore, the Project would not substantially adversely impact local scenic vistas of surrounding foothills and mountains, and impacts would be less than significant.

b) No Impact

None of the potential well or treatment sites are located within the viewshed of a State scenic highway. Therefore, there would be no impact on scenic resources associated with a State scenic highway.

c) Less than Significant with Mitigation Incorporated

The Project sites are located within built-out areas of Moreno Valley. The City's policies governing scenic quality for new development are described under *Discussion*, above, and are intended to promote development that blends in with its surrounding environments and matches the aesthetics of neighboring buildings. EMWD, as a public agency, is not subject to other jurisdictional agencies' established standards or ordinances. Nonetheless, as explained under *Section 2.7 Environmental Commitments*, buildings would be designed and constructed for the well facilities and the treatment/blending facility to match surrounding buildings.

Public views in the Project area include those from roadways and from public parks and schools. Three parks have been included as optional sites for wells: Bayside Park, Victoriano Park, and Parque Amistad. Cactus Corridor Well 4 Option 2/Treatment Site Option 2 is located adjacent to Hendrick Ranch Elementary School and Cactus Corridor East Well 2 Option 1 is located adjacent to Victoriano Elementary School. Public views of the Project from roadways would be fleeting – on the order of seconds or minutes – while public views of the Project from parks and schools would be longer lasting.

Construction activities would temporarily impact the visual character and quality of the Project sites. However, once construction is complete all construction related visual impacts would be removed. The pipelines would be constructed underground within existing roadways and therefore would not permanently impact the visual quality of the area.

The aboveground extraction wells and treatment/blending facility would be visible from public vantage points of the Project sites. In accordance with the Environmental Commitments explained in *Section 2.7 Environmental Commitments*, the wells and treatment/blending facilities would be housed in structures that would conform to the surrounding aesthetic character. Additionally, the extraction well siting criteria (see *Section 2.4 Project Siting Criteria*) would ensure that optional well sites are not selected for construction if the well would substantially impact existing features and visual characteristics of the neighborhood parks. Nonetheless, to ensure these measures are implemented, **Mitigation Measure AES-1** would require that all permanent Project structures are designed to be consistent with the existing visual character of their surroundings. Therefore, Project impacts on visual character and public views would be less than significant with mitigation incorporated.

d) Less than Significant with Mitigation Incorporated

Most construction activities for the Project would occur during the day and not require lighting. Well construction would require up to two weeks of continuous drilling and additional nighttime construction activities over the following 12 weeks. Well drilling requires drill operation for 24 hours/day to prevent borehole collapse. During these nighttime construction activities, lights would be required for construction and security. Once construction is complete, permanent exterior security lights would be required but would be shielded downward to avoid light spillage onto surrounding properties. All nighttime lighting must conform to the Mount Palomar Nighttime Lighting Policy because the Project area is within the 45-mile zone radius of the Palomar Observatory and must comply with Zone B regulations. **Mitigation Measure AES-2** and **Mitigation Measure AES-3** would ensure all nighttime construction lighting and operational lighting would be shielded and directed downward to minimize impacts on neighboring residents and areas in accordance with Riverside County Ordinance No. 655. With incorporation of mitigation measures, impacts would be less than significant.

Mitigation Measures:

AES-1: Design of Aboveground Structures. To minimize visual impacts on public views, permanent, aboveground structures (treatment/blending facility, extraction well houses) shall be designed to blend into the existing visual character of their surroundings, including building and wall height, color, and exterior architectural treatments.

AES-2: Low Illumination Nighttime Construction Lighting. All nighttime construction lighting shall be of the lowest illumination necessary for Project construction, attached to motion sensors, and shielded and directed downward to avoid light spillage onto neighboring properties.

AES-3: Lighting Fixtures. All permanent nighttime lighting and fixtures shall comply with Riverside County Ordinance No. 655 for Zone B of the Mount Palomar Nighttime Lighting Policy Area.

3.2 Agriculture and Forestry Resources

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

Government Code Section 51104(g))?				
d) Result in the loss of forest land or conversion of forest land to non-forest use?	[ ]	[ ]	[ ]	[X]
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?	[ ]	[ ]	[X]	[ ]

Discussion

The Project area is designated primarily as Urban and Built-Up Land by the California Department of Conservation (CDOC) Farmland Mapping and Monitoring Program (FMMP) (CDOC 2016). There are scattered parcels in or near the Project area that are designated as Farmland of Local Importance. There is no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance in the Project area (CDOC 2016). There are no Williamson Act contracts within the City of Moreno Valley (City of Moreno Valley 2006a). There are no parcels zoned for agricultural use in the Project area. The City of Moreno Valley does not employ zoning designations related to agricultural uses. According to the City's municipal code, agricultural uses (crops only) are permitted in any zoning designation (City of Moreno Valley n.d.a). Agricultural uses involving structures are limited to areas zoned for industrial use; no industrial areas fall within the Project area. There is no designated forest land or timberland within the City of Moreno Valley (City of Moreno Valley 2006a; City of Moreno Valley 2019a).

a) Less Than Significant Impact

None of the potential Project sites (well sites, treatment facility sites, or pipeline alignments) are classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The treatment facility site option at Alessandro Boulevard and Kitching Street is designated as Farmland of Local Importance (CDOC 2016), which is a classification given to land that is important to the local agricultural economy, as determined by each county. Unlike the Prime Farmland, Unique Farmland, and Farmland of Statewide Importance designations, Farmland of Local Importance has not been identified under the FMMP as having physical and chemical features (e.g., soil quality, growing season, and moisture supply) necessary for production of the State's leading agricultural crops. In Riverside County, Farmland of Local Importance includes soils that could be classified as Prime and Statewide but lack available irrigation water; and lands producing major crops for Riverside County, including pasture, summer squash, okra, eggplant, radishes, and watermelons (CDOC 2017). The Alessandro Boulevard and Kitching Street site is not currently used for agriculture; land cover at the site consists of

bare dirt or grass, depending on the season. The potential pipeline alignment along Perris Boulevard would pass by land designated as Farmland of Local Importance; however, the pipeline would be located entirely within the existing roadway right-of-way. Furthermore, the land designated as Farmland of Local Importance on Perris Boulevard is not currently used for agriculture. The proposed Project would not convert farmland to non-agricultural use; therefore, the impact would be less than significant.

b) No Impact

None of the proposed well sites, treatment facility sites, or pipeline alignments are located on land zoned for agricultural use or protected by a Williamson Act Contract (City of Moreno Valley 2019a; City of Moreno Valley n.d.a). Therefore, no impact would occur as a result of the proposed Project.

c) No Impact

There is no land zoned for forest land or timberland within the City of Moreno Valley; therefore, the proposed Project would have no impact.

d) No Impact

There is no designated forest land or timberland within the City of Moreno Valley. The Project site options are either vacant or landscaped with grass and landscaping trees. There are no forestry or timberland resources at any of the Project sites. Therefore, the proposed Project would have no impact related to the loss of forest land or timberland.

e) Less Than Significant Impact

The proposed Project would extract groundwater from the Perris North Sub-Basin, which has the potential to affect groundwater levels of private wells in the Perris North Basin that may be used for agricultural irrigation. EMWD has been tracking groundwater use in the area since the mid-1990s as part of the Annual West San Jacinto Groundwater Management Plan report. In the Perris North Sub-Basin, a small portion of the land is dedicated to farming, but that proportion has been declining – and is expected to continue to decline – due to urbanization and growth, primarily of residential land use. Of the portion of land dedicated to agricultural production, much of it is irrigated with recycled water. Little to no private production occurs in the Basin due to groundwater contamination. About 30 private wells are active in the Perris North Sub-Basin, most of which are used for irrigation purposes, including agricultural, landscaping, and recreation (e.g., golf courses). Water levels were drawn down to historic lows in the middle of the 20th century and have been slowly rising since that time. The reasons for the rise are currently being studied; however, factors include: increased sales of EMWD recycled and municipal water; reduced groundwater extraction, primarily due to less agricultural water use; incidental recharge from EMWD recycled water facilities; and, for the portions of the Perris North Sub-Basin downstream of Lake Perris, seepage from Lake Perris.

The proposed groundwater extraction would be conducted in a manner consistent with the EMWD Groundwater Sustainability Plan (GSP), which is currently under development with an implementation date of January 2022. The GSP is being prepared pursuant to the Sustainable Groundwater Management Act (SGMA), which requires that groundwater extraction achieve sustainable levels by 2042, within 20 years of plan adoption. This would ensure sustainable use of groundwater supplies. Therefore, the proposed Project would not substantially decrease the groundwater supplies and would not impede the ability of farmers to pump groundwater for irrigation use if needed. The Project would not induce other changes in the environment that would result in conversion of agricultural land to non-agricultural use. The proposed Project would have a less-than-significant impact.

Mitigation Measures: None required or recommended.

3.3 Air Quality

	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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[X]	[ ]	[ ]
c) Expose sensitive receptors to substantial pollutant concentrations?	[ ]	[X]	[ ]	[ ]
d) Result in other emissions (such as those leading to odors or adversely affecting a substantial number of people?	[ ]	[ ]	[X]	[ ]

Discussion

The City of Moreno Valley and EMWD service area are within Riverside County and bounded by the City of Riverside to the west, the City of Perris to the south, and

unincorporated Riverside County on the remaining boundaries. The Project area is located within the SCAB, which is within the SCAQMD. The SCAQMD monitors air pollutant levels to ensure the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) are met and, if they are not met, to develop strategies to meet the standards. Air pollution in the Project area is monitored at stations located in Perris, Redlands, and Banning, located approximately nine, ten, and 19, miles from the Project area, respectively.

The NAAQS, which are required to be set by the United States Environmental Protection Agency (EPA) under the CAA, provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly (EPA 2019). Similarly, the CAAQS are established to protect the health of the most sensitive groups and are mandated by State law. EPA has set NAAQS for six pollutants, which are called "criteria pollutants:" Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO_2), Ozone (O_3), Particulate Matter (PM_{10} and $PM_{2.5}$), and Sulfur Dioxide (SO_2). In addition to these, California has added three additional criteria pollutants: Hydrogen Sulfide (H_2S), Visibility Reducing Particles, and Vinyl Chloride. In addition, California regulates about 200 different chemicals, referred to as toxic air contaminants (TACs) (CARB 2019a).

Depending on whether or not the NAAQS or CAAQS are met or exceeded, the SCAB is classified as being in "attainment" or "nonattainment." The 2016 Air Quality Management Plan (AQMP; SCAQMD 2017) assesses the attainment status of the SCAB and is summarized in **Table 3-1**. As shown therein, the SCAB is in nonattainment for the State 1-Hour Ozone, 8-Hour Ozone, PM_{10}-24 hour, PM_{10}-Annual, and $PM_{2.5}$-Annual requirements and the Federal 1-hour Ozone, 8-Hour Ozone, $PM_{2.5}$-24 hour, $PM_{2.5}$-Annual, and lead requirements. Thus, the SCAB is required to implement strategies that would reduce pollutant levels to recognized standards, which is done through the Clean Communities Plan (formerly known as the Air Toxics Control Plan). The Clean Communities Plan is designed to examine the overall direction of the SCAQMD's air toxics control program and includes control strategies aimed to reduce toxic emissions.

Table 3-1: Criteria Pollutant Attainment Status – SCAB

Criteria Pollutant	State CAAQS	Federal (NAAQS)
1-Hour Ozone	Nonattainment	Nonattainment (Extreme)
8-Hour Ozone	Nonattainment	Nonattainment (Extreme)
CO	Attainment	Attainment (Maintenance)
NO_2	Attainment	Attainment (Maintenance)
SO_2	Attainment	Attainment
PM_{10} – 24 hour	Nonattainment	Attainment (Maintenance)
PM_{10} – Annual	Nonattainment	No Criteria Defined
$PM_{2.5}$ – 24 hour	No Criteria Defined	Nonattainment (Serious)
$PM_{2.5}$ - Annual	Nonattainment	Nonattainment (Serious)
Lead	No Criteria Defined	Nonattainment (partial)
Hydrogen Sulfide (H_2S)	Attainment	No Criteria Defined
Sulfates	Attainment	No Criteria Defined
Vinyl Chloride	Attainment	No Criteria Defined

Source: SCAQMD 2018

The SCAQMD provides numerical thresholds to analyze the significance of a project's construction and operational emissions on regional air quality. These thresholds are designed such that a project consistent with the thresholds would not have an individually or cumulatively significant impact on the SCAB's air quality. These thresholds are listed in **Table 3-2**.

Table 3-2: SCAQMD Air Quality Significance Thresholds

Pollutant	Mass Thresholds – Construction Thresholds (pounds/day)	Mass Thresholds – Operation Thresholds (pounds/day)
NO_x	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_x	150	150
CO	550	550
Lead	3	3
TACs	• Maximum Incremental Cancer Risk ≥ 10 in 1 million • Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) • Chronic $ Acute Hazard Index ≥ 1.0 (project increment)	• Maximum Incremental Cancer Risk > 10 in 1 million • Cancer Burden > 0.5 excess cancer cases (in areas > 1 in 1 million) • Chronic $ Acute Hazard Index > 1.0 (project increment)
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	Project creates an odor nuisance pursuant to SCAQMD Rule 402

Source: SCAQMD 2019

In addition, the SCAQMD has developed Localized Significance Thresholds (LSTs) in response to concern regarding exposure of individuals to criteria pollutants in local communities. LSTs have been developed for nitrogen oxides (NO_X), CO, PM_{10} and $PM_{2.5}$. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or State ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area, distance to the sensitive receptor, and project size. LSTs only apply to emissions within a fixed stationary location; they are not applicable to mobile sources. The use of LSTs is voluntary, to be implemented at the discretion of local agencies (SCAQMD 2008).

The SCAQMD LSTs are defined for 37 source receptor areas (SRAs). The Project site is located in source receptor area 24 (SRA-24), Moreno Valley (SCAQMD 2008). LSTs have been developed for emissions within construction areas up to five acres in size. The SCAQMD provides lookup tables for sites that measure up to one, two, or five acres. The Project has several individual sites ranging in size from approximately one-half to eight acres. During construction, it is assumed that the entire well and treatment facility parcels would be temporarily disturbed for the purposes of this analysis, with the exception of the site options at Bayside, Victoriano, and Parque Amistad parks. The proposed Project also includes the construction of pipelines, which would proceed at a rate of approximately 150 linear feet of pipeline per day, which is equivalent to an active construction site less than one-tenth of an acre per day. Pursuant to SCAQMD guidance, LSTs for the one-

acre site should be used for sites that are less than one acre in size. Ground disturbance for the pipelines may exceed the estimated rate of 0.1 acre per day occasionally; however, the area under active construction at any given time for the pipeline would not be expected to exceed the one-acre limit set in the LST lookup table. LSTs for construction on one-acre and five-acre sites in SRA-24 are shown in **Table 3-3**. LSTs are provided for receptors at a distance of 25 meters (82 feet) from the Project site boundary, which is the most conservative LST distance (LSTs range from 25 to 500 meters).

Table 3-3: SCAQMD LSTs for Construction and Operation

Pollutant	Allowable emission from a one-acre site in SRA-24 for a receptor within 25 meters, or 82 feet (pounds/day)	Allowable emission from a five-acre site in SRA-24 for a receptor within 25 meters, or 82 feet (pounds/day)
Gradual Conversion of NO_x to NO_2	118	270
CO	602	1,577
PM_{10} – operation	1	4
PM_{10} – construction	4	13
$PM_{2.5}$ – operation	1	2
$PM_{2.5}$ – construction	3	8

Source: SCAQMD 2009

General Conformity with state implementation plans is a national (CAA) regulation that applies to most federal actions. For DWSRF funded projects, a CAA General Conformity analysis applies only to projects in a nonattainment area or an attainment area subject to a maintenance plan. It is only required for criteria pollutants for which an area has been designated nonattainment or maintenance. The General Conformity Rule ensures that actions taken by federal agencies in nonattainment and maintenance areas do not interfere with the State's plans to meet NAAQS. 40 CFR Part 93.153 defines de minimis levels, which are the minimum threshold for which a conformity determination must be performed. If the proposed Project's annual emissions from construction and/or operation are below the applicable de minimis levels, the Project is not subject to a General Conformity determination.

Based on the federal attainment statuses for the SCAB, the de minimis levels that apply to the SCAB are listed in **Table 3-4**. These levels apply to all direct and indirect annual emissions generated during construction and operation of the Project.

Table 3-4: General Conformity De Minimis Emission Rates for the South Coast Air Basin

Pollutant	SCAB NAAQS Attainment Status Designation	De Minimis Emission Rate (tons/year)
1-Hour Ozone	Extreme Nonattainment	10
8-Hour Ozone	Extreme Nonattainment	10
CO	Maintenance	100
NO_2	Maintenance	100
PM_{10}	Maintenance	100

Pollutant	SCAB NAAQS Attainment Status Designation	De Minimis Emission Rate (tons/year)
$PM_{2.5}$	Serious Nonattainment	70
Lead	Partial Nonattainment	25

Source: EPA 2020

a) Less than Significant Impact

The SCAQMD's 2016 AQMP, which assesses the attainment status of the Moreno Valley and EMWD area of the SCAB and provides a strategy for attainment of State and federal air quality standards, is the applicable air quality plan. The AQMP strategies are developed based on population, housing, and employment growth forecasts anticipated under local city general plans and the Southern California Association of Governments' (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (SCAG, 2016).

A project would conflict with or obstruct an applicable air quality plan if it would lead to population, housing or employment growth that exceeds the forecasts used in the development of the applicable air quality plan. The proposed Project would construct approximately 32,600 linear feet of pipelines, six groundwater extraction wells, and a treatment/blending facility, which would add to the EMWD water portfolio serving existing customers currently connected to EMWD water, as well as future customers from planned growth in the area. Therefore, the proposed Project would not lead to unplanned population, housing or employment growth that exceeds the forecasts used in the development of the AQMP. Potential for conflicts with the AQMP would be less than significant.

b) Less than Significant with Mitigation Incorporated

The proposed Project would result in emissions of criteria pollutants from short-term construction activities and long-term O&M activities. Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) 2016.3.2, which was developed by the SCAQMD and is used throughout California to quantify criteria pollutants and greenhouse gas emissions (GHGs).

The CalEEMod emissions scenarios were based on Project-specific information, found in *Section 2 Project Description*. In instances where Project-specific information was not available (e.g. construction equipment horsepower, length of worker trips, soil moisture content), the analysis relied on CalEEMod default values for construction activities. As explained in *Section 2 Project Description*, it is assumed that construction of all Project components (pipelines, wells, treatment/blending facility) would begin at the same time in July 2021 and occur simultaneously. SCAQMD's Rule 403 (Fugitive Dust) requires construction projects to implement measures to suppress fugitive dust emissions, such as watering of exposed soils and the preparation of a Fugitive Dust Control Plan. The construction contractor would be required to have a Fugitive Dust Control Plan approved by either the SCAQMD or Riverside County prior to grading or excavation activities.

Construction Emissions

Air emissions of criteria pollutants during construction would result from the use of construction equipment with internal combustion engines, and offsite vehicles to transport workers, deliver materials to the site, and haul export material from the site. Project construction would also result in fugitive dust emissions, which would be lessened through the implementation of the fugitive dust control measures required by SCAQMD rules. **Table 3-5** summarizes the maximum daily pollutant emissions during construction of the proposed Project.

Table 3-5: Proposed Project Maximum Daily Construction Emissions (pounds/day)

Emissions Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Construction Equipment	18	139	129	<1	20	13
Offsite emissions	0	4	3	<1	2	<1
Fugitive dust (with required fugitive dust controls)	--	--	--	--	11	6
Total Maximum Daily Emissions	**18**	**143**	**131**	**<1**	**33**	**19**
SCAQMD Regional Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**No**	**Yes**	**No**	**No**	**No**	**No**

Note: In CalEEMod, environmental commitments, including measures to control fugitive dust, must be added as "mitigation measures." Therefore, these results reflect the mitigated scenario in the output tables in Appendix A.

As shown in **Table 3-5**, Project construction would not exceed SCAQMD regional thresholds for reactive organic gases (ROG), CO, SO_x, $PM_{2.5}$, or PM_{10}. However, the proposed Project construction would exceed the NO_x threshold. With the implementation of Mitigation Measure **AIR-1**, the use of an engine fleet with 55 percent Tier 4 engines on applicable equipment[1] would reduce the emissions of NO_x. The maximum daily construction emissions with the incorporation of Mitigation Measure **AIR-1** are shown in **Table 3-6**.

Table 3-6: Mitigated Proposed Project Maximum Daily Construction Emissions (pounds/day)

Emissions Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Construction Equipment	9	94	106	<1	4	4
Offsite emissions	0	<1	2	<1	2	<1
Fugitive dust (with required fugitive dust controls)	--	--	--	--	0	0
Total Maximum Daily Emissions	**9**	**94**	**108**	**<1**	**6**	**4**

[1] Note that drill rigs with a Tier 4 engine may not be available at the time of construction. This analysis did not assume any change in the engine type for drill rigs.

Emissions Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
SCAQMD Regional Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

The implementation of Mitigation Measure **AIR-1** reduces several criteria pollutants, including NO_x, which would no longer exceed the SCAQMD regional threshold.

Additionally, while the use of LSTs is voluntary, the proposed Project emissions were compared to LSTs for the Project area and are provided in **Table 3-7**. As noted above, LSTs are only applicable to emissions within a fixed, stationary location, such as construction sites, and vary based on project site size. **Table 3-7** provides LSTs that are applicable to each construction phase of the proposed Project, as each phase has a different construction location and footprint. As explained under the ***Discussion***, above, SCAQMD provides LST lookup tables for sites that measure up to one, two, or five acres; LSTs for construction sites smaller than one acre should use the one acre threshold.

Table 3-7: Mitigated Proposed Project Maximum Daily Emissions Compared to LSTs (pounds/day)

Emissions Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Well Sites	1	11	12	<1	0	0
Well Sites LST (one-acre LST)	--	*118*	*602*	--	*4*	*3*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Pipeline	1	11	26	<1	0	0
Pipeline LST (one-acre LST)	--	*118*	*602*	--	*4*	*3*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Treatment facility	4	47	33	<1	2	2
Treatment facility LST (onsite stationary emissions only, five-acre LST)	--	*270*	*1,577*	--	*13*	*8*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

General Conformity Assessment

Table 3-8 summarizes the proposed Project's maximum unmitigated annual construction emissions and compares those to the applicable de minimis threshold for the SCAB region. As shown in **Table 3-8**, the Project's criteria air pollutant emissions would not exceed the applicable de minimis thresholds. Therefore, the general conformity requirements do not apply to these emissions and the Project is exempt from a conformity determination.

Table 3-8: Maximum Annual Project Construction Emissions Compared to De Minimis Thresholds (tons/year)

Emissions Source	Ozone (VOC/ROG)	CO	PM_{10}	$PM_{2.5}$
Construction Emissions	1	10	1	1
De Minimis Threshold	*10*	*100*	*100*	*70*
Threshold Exceeded?	**No**	**No**	**No**	**No**

Operations

Long-term emissions from the proposed Project would result almost exclusively from indirect emissions from electricity consumption in addition to a small amount of mobile and area emissions. CalEEMod only calculates direct emissions of criteria pollutants from energy sources that combust on-site, such as natural gas. The proposed Project does not propose to combust natural gas onsite. Criteria pollutant emissions from power plants are associated with the power plants themselves, which are stationary sources permitted by air districts and/or the EPA, and are subject to local, state and federal control measures. Thus, CalEEMod does not calculate or attribute emissions of criteria pollutants from electricity consumption to individual projects. Criteria pollutants associated with the proposed Project electricity facilities would be permitted stationary sources and would undergo separate permitting procedures that are assumed to result in emissions below the significance thresholds.

Operational emissions of criteria pollutants from mobile and area sources associated with O&M of the proposed Project are included in **Table 3-9**. No SCAQMD mass daily thresholds would be exceed by operation of the proposed Project.

Table 3-9: Maximum Daily Project Operational Emissions Compared to SCAQMD Thresholds

Emissions Source	(NO_x)	(VOC)	CO	SO_x	PM_{10}	$PM_{2.5}$
Operational Emissions (pounds/day)	1	<1	1	<1	<1	<1
SCAQMD Mass Daily Threshold (pounds/day)	55	55	550	150	150	55
Threshold Exceeded?	***No***	***No***	***No***	***No***	***No***	***No***

With the implementation of Mitigation Measure **AIR-1**, proposed Project emissions of criteria pollutants would be less than significant.

c) Less than Significant with Mitigation Incorporated

Sensitive receptors are typically defined as schools (preschool–12th grade), hospitals, resident care facilities, senior housing facilities, day care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality (CARB 2018). There are several sensitive receptors near the proposed Project area including: single-family residences, multi-family residences, mobile home parks, Oasis Community Church, day care centers, Armada Elementary School, Chaparral Hills Elementary School, Creekside Elementary School, Hendrick Ranch Elementary School, Ramona Elementary School, March Mountain High School, Victoriano Elementary School, Riverside County Regional Medical Center, and Kaiser Permanente Moreno Valley Medical Center.

LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or State ambient air quality standard at the nearest sensitive receptor. Therefore, projects that conform to the

LSTs are assumed to have a less than significant impact on nearby sensitive receptors. As discussed under "b" above, the proposed Project's construction and operational emissions would not exceed SCAQMD regional thresholds or LSTs with the implementation of Mitigation Measure **AIR-1**. Therefore, with mitigation, sensitive receptors would not be subjected to substantial pollutant concentrations and impacts would be less than significant.

d) Less than Significant Impact

The proposed Project would involve emissions of sulfur compounds from use of oil and diesel fuel during construction, which would potentially result in unpleasant odors. Construction would be temporary and odorous emissions from construction equipment tend to dissipate quickly within short distances from construction sites. Once the proposed Project is operational, the project pipelines, well sites and treatment/blending facility would not be associated with odors. The proposed wells and treatment/blending facilities are not a permanent land use that is typically associated with nuisance odors, such as a landfill or rendering plant (CARB 2005). Impacts would be less than significant.

Mitigation Measures:

Mitigation Measure AIR-1: Tier 4 Engines. EMWD shall use off-road equipment that meets the EPA certified Tier 4 final engines or engines that are certified to meet or exceed the emission ratings for EPA Tier 4 final or interim engines such that average daily NO_X emissions are lower than SCAQMD Regional Mass Emissions Thresholds of 100 pounds per day. One way for this to be accomplished would be for 55 percent of the construction equipment and vehicles, with the exception of drill rigs, used for the Project to be equipped with Tier 4 final engines.

3.4 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?	[ ]	[X]	[ ]	[ ]

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	[ ]	[ ]	[ ]	[X]
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?	[ ]	[ ]	[ ]	[X]
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?	[ ]	[ ]	[ ]	[X]
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	[ ]	[ ]	[ ]	[X]
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?	[ ]	[X]	[ ]	[ ]

Discussion

A Biological Resources Assessment Report was prepared in February 2020 for the proposed Project. A literature review and field survey were performed to assess the biological resources of the Project area. The complete *Biological Resources Assessment Report* is provided in **Appendix B** and is relied upon for the analysis in this IS/MND.

Regulated or sensitive resources studied and analyzed included special status plant and wildlife species, nesting birds and raptors, wildlife movement, sensitive plant communities, jurisdictional waters and wetlands, and locally protected resources (i.e.

trees). Potential impacts to biological resources were analyzed based on the following statutes:

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (FESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- City of Moreno Valley Municipal Code
- Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)

The literature review was completed to determine the environmental and regulatory setting of the proposed Project. The review included U.S. Department of Agriculture (USDA) *Soil Survey for the Western Riverside Area*, *Riverside East, CA* and *Sunnymead, CA* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles; literature detailing the habitat requirements of subject species; aerial photographs; and topographic maps (**Appendix B**). The Project area is within the boundaries of the Western Riverside County MSHCP. The MSHCP, species accounts, and other reference materials were reviewed for habitat assessment requirements and habitat suitability elements for special status species. The California Department of Fish and Wildlife (CDFW) California Natural Diversity Data Base (CNDDB), Biogeographic Information and Observation System (BIOS) and U.S. States Fish and Wildlife Service (USFWS) Critical Habitat Portal and Information, Planning, and Consultation (IPaC) system were reviewed to see if any special status wildlife and/or plant or vegetation communities were previously recorded within five miles of the Project area (**Appendix B**). National Wild and Scenic River System maps managed by the U.S. Forestry Service (USFS) were reviewed to determine if wild or scenic rivers occurred within the Project area (**Appendix B**). The *National Wetlands Inventory* (NWI) was reviewed to assess if wetlands and/or non-wetland waters had been previously recorded and mapped within in or near the Project area (**Appendix B**). Additional resources reviewed included the California Native Plant Society (CNPS) online *Inventory of Rare and Endangered Plants of California*, and CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (**Appendix B**).

Aerial photographs and the field reconnaissance survey were used to evaluate the potential presence of sensitive biological resources on and adjacent to the study area, defined as the proposed limits of work at all treatment facility, extraction well, and pipeline alignment option sites (34.22 acres) plus an additional 500 foot buffer around the proposed extraction well and treatment facility locations. A field survey of the study area was performed on January 20 and 21, 2020 to assess and document existing site

conditions and the potential presence of sensitive biological resources such as plants, wildlife, nesting birds, and jurisdictional waters and wetlands. The study area was surveyed on foot and visually inspected with the aid of binoculars (8 x 40) when needed. Survey conditions were clear skies, winds of 0-3 miles per hour, and a temperature of 64 degrees Fahrenheit. A formal jurisdictional delineation of waters and wetlands was not performed for the Project because the proposed Project would not be located within potentially jurisdictional features.

An additional burrowing owl (*Athene cunicularia*) (BUOW) habitat assessment and burrow survey were performed during both field survey days between 7:00 a.m. and 11:00 a.m. to identify potential burrows and BUOW signs throughout the study area (where accessible). The survey included a systematic search for burrows and BUOW signs by walking through potential habitat or surveying inaccessible areas with binoculars. Potential habitat included all areas with low growing vegetation, grasslands, shrub lands with low density shrub cover, earthen berms, and any large debris piles. Survey transects were spaced to have 100 percent visual coverage of the ground. Potential burrow openings were assessed for BUOW presence through the presence of indicators such as prey remains, white-wash, cast pellets, and feathers. Any potential burrows, BUOWs, and/or sign was recorded and mapped with coordinates.

The study area has limited habitat for wildlife species that commonly occur within urban communities for this region. Urban-adapted avian species including killdeer (*Charadrius vociferus*), red-tailed hawk (*Buteo jamaicensis*), Say's phoebe (*Sayornis saya*), black phoebe (*Sayornis nigricans*), mallard (*Anas platyrhynchos*), common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), bushtit (*Psaltriparus minimus*), lesser goldfinch (*Carduelis psaltria*), western kingbird (*Tyrannus verticalis*) and Anna's hummingbird (*Calypte anna*) were observed during the survey. The live animals observed were coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), and California ground squirrel (*Otospermophilus beecheyi*). The western fence lizard (*Sceloporus occidentalis*) was the only reptile observed. There were no sensitive species observed within the study area.

a) Less than Significant with Mitigation Incorporated

The Project would be located in an urban, built-out setting with the proposed sites located on highly disturbed land and surrounded by existing development. The literature review concluded there are ten sensitive plant species and 30 sensitive wildlife species within five miles of the Project area (see Table 1 in **Appendix B**). However, sensitive species are not expected to occur within the Project area due to the lack of suitable habitat as well as historical and existing disturbances. Out of the 40 plant and wildlife sensitive species identified, only two wildlife species were determined to have a low potential to occur within the Project area and included BUOW and California horned lark.

Undeveloped areas at the Project sites contain marginally suitable habitat for BUOW and California horned lark (*Eremophila alpestris actia*). Suitable habitat for these two species

has low-growing, non-native ruderal species. The California horned lark are generally ground nesters and can nest on bare ground, which is present on the Project sites. Project site Cactus Corridor Well 2, Option 1 has burrows and California ground squirrels present, an indication of suitable habitat for BUOW. However, the potential habitat is low quality, near a highly travelled urban transportation corridor, and has high levels of existing disturbance. Therefore, there is a low potential of these species being present. No horned larks, BUOW or signs of either species being present were observed at the potential Project sites during the field survey.

The potential Project sites have shrubs or trees that could provide suitable nesting habitat for several common avian species. These common species include mourning doves and house finches that have the potential to nest in shrubs even in highly disturbed areas. Additionally, some species, such as horned larks, are typically ground nesters and will nest on bare ground such as that found on some of the potential well and treatment facility sites. However, the potential Project sites consist of low-quality habitat because of the existing disturbances and proximity to heavily travelled roadways. All the common avian species, except the horned lark, are not candidate, sensitive, or special status. During the field survey there were no nests observed or birds exhibiting nesting behaviors.

The proposed Project would be located in the County of Riverside Stephen's Kangaroo Rat Plan and Fee Area (County of Riverside Ordinance No. 663). The County Ordinance requires all proposed development projects that are located within the fee area to be reviewed to assess the appropriate course of action to protect the survival of the species. Preparation of the Biological Resources Assessment (**Appendix B**) fulfills the requirements of the ordinance that the Project be reviewed. The Biological Resources Assessment determined the proposed Project area does not have the suitable grassland, costal shrub and sagebrush habitat needed to support the Stephen's Kangaroo Rat. Instead, the potential Project sites are all vacant areas that are highly disturbed and/or have dominant exotic plants, and are surrounded by urban development. Therefore, the proposed Project would not impact, or result is the loss of suitable habitat for the Stephan's Kangaroo Rat and no mitigation would be required.

Construction activities would primarily occur in areas that are highly disturbed that are surrounded by development. Such high levels of disturbance would likely deter wildlife and nesting birds from using the site long-term. Nonetheless, **Mitigation Measure BIO-1** would be implemented to ensure avoidance of direct impacts to burrowing owls and **Mitigation Measure BIO-2** would be implemented to avoid impacts to nesting birds in potential Project sites that contain trees. With **Mitigation Measures BIO-1** and **BIO-2**, there would be less than significant impacts.

b) No Impact

One sensitive plant community, sycamore alder riparian woodland, was identified approximately five miles from the Project area. Sycamore alder riparian woodland is protected under the MSHCP, CDFW, and USFWS. However, it is not present on any of the proposed Project sites, nor are the Project sites suitable to support such communities

due to the high level of disturbance and development. Sensitive plant and wildlife species typically have very specific habitat requirements, which the Project area does not support. There are no sensitive riparian or natural communities, as defined by local ordinance and CNDDB, present on the proposed Project sites. Additionally, there are no riparian/riverine habitats present within the potential Project sites. The Project sites have all been heavily disturbed and consist of either no vegetation, landscaping, recreational park facilities, or exotic upland species which are not conducive to supporting riparian/riverine habitat.

The Project area is within the boundaries of the Western Riverside County MSHCP, which identifies sensitive natural communities and seeks to protect those communities by protecting areas with biological and ecological diversity. The MSHCP identifies Criteria Areas, Public-Quasi Public Reserve Lands, and Core or Linkage Areas. These areas are defined in order to permanently preserve portions of habitat and decrease development in these areas. The Project area would not be located in an MSHCP Criteria Area, Public-Quasi Public Reserve Lands, or within a Core or Linkage (**Appendix B**). There are no riparian/riverine habitats protected by the MSHCP on the proposed Project sites; therefore, no MSHCP actions are required. Lastly, there are no jurisdictional features located within the Project area that are under jurisdiction of the USACE, RWQCB, or CDFW. Therefore, the proposed Project would have no impact on any riparian habitat or other sensitive natural community.

c) No Impact

The proposed Project would not be located anywhere with jurisdictional drainage or wetlands. At Treatment Site Option #3/Cactus Corridor East Santiago Well Site a man-made and maintained earthen retention basin was observed during the field survey; however, it was fully contained onsite with no offsite connection. No riparian vegetation was present in or around the basin such as shrubs, persistent emergents, emergent mosses, lichens, or trees. Therefore, the basin is not considered a jurisdictional feature. The proposed Project would have no impact on jurisdictional wetlands.

Additionally, the Project area was surveyed for vernal pools and fairy shrimp habitat. There were no vernal pools or fairy shrimp habitat observed. The potential Project sites have moderately well-drained soils that have been heavily disturbed due to past uses and would not be able to support vernal pools or vernal pool species. Therefore, no action would be required in regard to vernal pools. No impact would occur.

d) No Impact

There are no mapped essential habitat connectivity areas in the immediate vicinity of the Project sites (**Appendix B**). There are two mapped habitat connectivity areas located within five miles of the Project area. One is approximately 1.5 miles southeast near the Perris Reservoir and the other is approximately 3 miles northeast near the Box Springs Mountain Reserve Park. These two areas would not be impacted by the Proposed project because the Project would be confined to disturbed areas and would be separated from the conservation areas by roadways and residential areas. Therefore, the proposed Project would have no impacts on wildlife movement.

e) No Impact

There are no other biological resources protected by local policies or ordinances within the Project area. There would be no impact.

f) Less than Significant with Mitigation Incorporated

The proposed Project would be located in the Western Riverside MSHCP and portions of the potential Project sites would be located within the BUOW study area. There is low potential for BUOW to occur at the proposed Project locations because the potential sites are highly disturbed and surrounded by urban development (see response to question *a*, above, for more details*).* In addition, no BUOW or their signs were observed during the field survey. To ensure minimal impact to BUOW, **Mitigation Measure BIO-1** would be implemented. Additionally, the Project would not be located within a Criteria Cell or Public/Quasi Public conserved lands. The nearest Public/Quasi Public conserved lands are approximately one mile southeast of the Project area near the Lake Perris State Recreation Area. The proposed Project would not impact these conserved lands because of the urban development that separates them. Therefore, the proposed Project would have a less than significant impact with the implementation of **Mitigation Measure BIO-1**.

Mitigation Measures:

BIO-1: Burrowing Owl Preconstruction Clearance Survey. A qualified wildlife biologist shall conduct a pre-construction survey of the impact areas to confirm presence/absence of burrowing owl individuals no more than 30 days prior to construction. The survey methodology will be consistent with the methods outlined in the CDFW *Staff Report on Burrowing Owl Mitigation* (2012). If no active breeding or wintering owls are identified, no further action is required.

If burrowing owls are detected onsite, the following actions shall be implemented in accordance with the CDFW *Staff Report on Burrowing Owl Mitigation* (2012):

- A qualified wildlife biologist shall be onsite during initial ground-disturbing activities in potential burrowing owl habitat.
- No ground-disturbing activities shall be permitted within a buffer no less than 656 feet from an active burrow, depending on the level of disturbance, unless otherwise authorized by CDFW. Occupied burrows will not be disturbed during the nesting season (February 1 to August 31), unless a qualified biologist verifies through noninvasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival.
- During the nonbreeding (winter) season (September 1 to January 31), ground-disturbing work can proceed near active burrows as long as the work occurs no closer than 165 feet from the burrow, depending on the level of disturbance, and

the site is not directly affected by the project activity. A smaller buffer may be established in consultation with CDFW. If active winter burrows are found that would be directly affected by ground-disturbing activities, owls can be excluded from winter burrows according to recommendations made in the *Staff Report on Burrowing Owl Mitigation* (2012).

- Burrowing owls shall not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed based on the recommendations made in the St*aff Report on Burrowing Owl Mitigation* (2012). The plan shall include, at a minimum:
  - Confirmation by site surveillance that the burrow(s) is empty of burrowing owls and other species
  - Type of scope to be used and appropriate timing of scoping
  - Occupancy factors to look for and what shall guide determination of vacancy and excavation timing
  - Methods for burrow excavation
  - Removal of other potential owl burrow surrogates or refugia onsite
  - Methods for photographic documentation of the excavation and closure of the burrow
  - Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take
  - Methods for assuring the impacted site shall continually be made inhospitable to burrowing owls and fossorial mammals
- Compensatory mitigation for lost breeding and/or wintering habitat shall be implemented onsite or offsite through implementation of a Mitigation Land Management Plan based on the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) guidance. The plan shall include the following components, at a minimum:
  - Temporarily disturbed habitat on the project site shall be restored, if feasible, to pre-project conditions, including decompacting soil and revegetating;
  - Permanent impacts to nesting, occupied and satellite burrows and/or burrowing owl habitat shall be mitigated such that the habitat acreage, number of burrows and burrowing owl impacted are replaced based on a site-specific analysis which includes conservation of similar vegetation communities comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals;
  - Mitigation land acreage shall not exceed the size of the Project site;
  - Permanently protect mitigation land through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a CDFW approved

burrowing owl conservation bank, the project operator may purchase available burrowing owl conservation bank credits.

- Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment.
- Mitigation lands shall be on, adjacent or proximate to the impact site where possible and where habitat is sufficient to support burrowing owls present.

BIO-2: Preconstruction Nesting Bird Survey. If Project construction occurs during avian nesting season (February to September) then a survey for active nests must be conducted by a qualified biologist one to two weeks prior to construction activities. If active nests are identified and present onsite, clearing and construction within 50-250 feet of the nest, depending on the species (50 feet for common urban-adapted native birds and up to 250 feet for raptors), shall be postponed until the nest is vacated, the juveniles have fledged, and there is no evidence of a second attempt at nesting. The qualified biologist shall establish limits to the construction in order to avoid a nest site with flagging and stakes or construction fencing. If construction must occur within the buffer, it shall be conducted at the discretion of a qualified biological monitor to ensure indirect impacts to the nesting birds are avoided.

3.5 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 Section 15064.5?	[ ]	[X]	[ ]	[ ]
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	[ ]	[X]	[ ]	[ ]
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	[ ]	[X]	[ ]	[ ]

Discussion

A Cultural Resources Assessment Report was prepared in February 2020 for the proposed Project. The Cultural Resources Assessment Report was prepared to satisfy

CEQA-Plus investigation, Section 106 of the National Historic Preservation Act (NHPA), and the National Environmental Policy Act (NEPA). This Report included a cultural resources records search, Native American and local historic group consultation, historical map and imagery review, and a field survey on January 20 and 21, 2020. The complete report is provided in **Appendix C** and is relied upon for the analysis in this IS/MND.

On January 6, 2020 a cultural resources records search of the California Historical Resources Information System (CHRIS) at the Eastern Information Center at the University of California, Riverside was conducted to identify any previously recorded cultural resources and cultural resources studies within the Project area and a one-half-mile radius. Sixty previous cultural resources studies have been completed within a one-half-mile radius of the Project area between 1953 and 2019 (see **Appendix C**, Table 1). Five of these previous studies intersect with the Project area and cover less than ten percent of the proposed Project area. Sixteen cultural resources have been documented within the one-half-mile radius (see **Appendix C**, Table 2), which includes five prehistoric archaeological sites, two prehistoric isolated artifacts or features, three historic-period archaeological sites, and six historic-period built-environment (buildings and structures) resources. None of these cultural resources would be located within the Project area of potential effects (APE), defined as the area that would be directly impacted by the Project activities plus a one-half-mile buffer. However, two historic period buildings and a historical period loading dock are located less than 500 feet from the APE. Most of the prehistoric sites represent bedrock milling features that are clustered at the base of a set of unnamed hills east of the Project APE.

On January 15, 2020 the Moreno Valley Historical Society, City of Moreno Valley Environmental and Historical Preservation Board, Riverside African American Historical Society, and March Field Air Museum were contacted to request information regarding historical resources. Overall, no concerns regarding historic properties in or near the Project area were raised. On December 26, 2019 Section 106 Native American outreach was initiated. *Section 3.18 Tribal Cultural Resources* provides an overview of the tribal outreach and consultation in regard to the proposed Project.

An aerial photograph of the proposed Project shows that in 1966 most of the area was characterized by agricultural fields with sparse areas of residential development (**Appendix C**). During this time, the runway and buildings associated with March Air Reserve Base were present southwest of the proposed Project area. Additionally, the photograph shows there was a natural drainage running southwest to northeast of the Project area between Cottonwood Avenue and Alessandro Boulevard. Later aerial images show that the drainage was channelized sometime between 1978 and 1980. The historical imagery review also shows much of the Project area transitioned from agricultural land to residential, commercial, and light industrial development in the 1980s and 1990s (**Appendix C**).

The field survey was conducted on January 20 and 21, 2020 by a qualified archaeologist accompanied by a tribal representative from the Soboba Band of Luiseño Indians. A

pedestrian survey was conducted on proposed well and treatment site locations. All exposed ground surfaces were carefully examined with ten-meter spaced transects across each survey area. Large portions of the proposed Project pipeline alignment are already developed and covered with pavement. Ground visibility varied greatly between the well and treatment site locations by landscaping, playground equipment, homeless encampments, a retention pond, and modern refuse. A semi-subterranean vault and a cinder block structure were identified on Cactus Corridor Well Site 2, Option 1 and Treatment Site, Option 2. Neither of these structures display characteristics that indicate they are historic in age. Subsequent review of historical images of these two areas also showed no evidence of the structures being historical. No other historic-age built-environment or archaeological resources were identified within the Project area.

a) Less than Significant with Mitigation Incorporated

According to the CHRIS records and field survey conducted for the Cultural Resources Assessment (**Appendix C**), no historical structures overlap with the Project area. However, if previously unknown historical resources are encountered during Project ground-disturbing activities, with implementation of **Mitigation Measures CUL-1** through **CUL-6**, there would be no impact on historic properties or resources.

b) Less than Significant with Mitigation Incorporated

Archaeological resources are not anticipated to be encountered because no archaeological resources have been previously recorded within or immediately adjacent to the Project area and because of the high degree of existing development of the Project area. However, if ground-disturbing activities expose previously unrecorded resources, **Mitigation Measures CUL-1** through **CUL-6** would help prevent further damage to the cultural or archaeological resources. With implementation of **Mitigation Measures CUL-1** through **CUL-6**, potential impacts resulting in an adverse change to archeological resources would be less than significant.

c) Less than Significant with Mitigation Incorporated

There is always a possibility of discovering human remains during ground disturbing activities. **Mitigation Measure CUL-7** would be implemented to ensure proper procedures are in place if human remains are discovered during construction. With **Mitigation Measure CUL-7**, the impacts would be less than significant.

Mitigation Measures:

> **CUL-1: Cultural Resources Treatment and Monitoring Agreement.** At least 30 days prior to the start of any ground-disturbing activities, EMWD shall contact the Consulting Tribe(s) to develop Cultural Resource Treatment Monitoring Agreement(s) ("Agreement"). The Agreement(s) 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 reimbursements.

CUL-2: Develop a Cultural Resources Monitoring Plan. Prior to any grading activities, a Cultural Resources Monitoring Plan shall be prepared by a qualified archaeologist in consultation with the Consulting Tribe(s). The plan shall identify the location and timing of cultural resources monitoring. The plan shall also contain an allowance that the qualified archaeologist, based on observations of subsurface soil stratigraphy or other factors during initial grading, and in consultation with the Native American monitor and EMWD, may reduce or discontinue monitoring as warranted if the archaeologist determines that the possibility of encountering archaeological deposits is low. The plan shall outline the appropriate measures to be followed in the event of unanticipated discovery of cultural resources during Project implementation (including during the survey to occur following vegetation removal and monitoring during ground-disturbing activities). The plan shall identify avoidance as the preferred manner of mitigating impacts to cultural resources. The plan shall establish the criteria utilized to evaluate the historic significance (per CEQA) of the discoveries, methods of avoidance consistent with CEQA Guidelines Section 15126.4(b)(3), as well as identify the appropriate data recovery methods and procedures to mitigate the effect of the Project if avoidance of significant historical or unique archaeological resources is determined to be infeasible. The plan shall also include reporting of monitoring results within a timely manner, disposition of artifacts, curation of data, and dissemination of reports to local and state repositories, libraries, and interested professionals. A qualified archaeologist and 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 in the event that cultural material is encountered.

CUL-3: Tribal Monitoring Agreements. A qualified archaeological monitor and a Consulting Tribe(s) monitor shall be present for ground-disturbing activities associated with the Project, and both the Project archaeologist and Tribal Monitor(s) will make a determination as to the areas with a potential for encountering cultural material. At least seven business days prior to Project grading, EMWD shall contact the tribal monitors to notify the Tribe of grading/excavation and the monitoring program/schedule, and to coordinate with the Tribe on the monitoring work schedule. Both the archaeologist and the tribal monitor shall have the authority to stop and redirect grading activities in order 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 predetermined between EMWD and the Consulting Tribe(s), details of which shall be addressed in the Cultural Resources Treatment and Monitoring Agreement in **Mitigation Measure CUL-1**. Treatment may also include curation of the

cultural resources at a tribal curation facility, as determined in discussion among EMWD, the Project archaeologist, and the tribal representatives and addressed in the Cultural Resources Treatment and Monitoring Agreement referenced in **Mitigation Measure CUL-1**.

CUL-4: Evaluation of Discovered Artifacts. All artifacts discovered at the development site shall be inventoried and analyzed by the Project archaeologist and tribal monitor(s). A monitoring report will be prepared, detailing the methods and results of the monitoring program, as well as the disposition of any cultural material encountered. If no cultural material is encountered, a brief letter report will be sufficient to document monitoring activities.

CUL-5: Disposition of Inadvertent Discoveries. In the event that 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. EMWD 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:

4. 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.

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

6. In the event that on-site reburial is not feasible, EMWD will enter into a curation agreement with an appropriate qualified repository within Riverside County that meets federal standards per 36 Code of Federal Regulations 800 Part 79 and therefore would be curated and made available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within Riverside County, to be accompanied by payment of the fees necessary for permanent curation.

CUL-6: 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.

CUL-7: Human Remains. If Native American human remains are encountered, Public Resources Code 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 origin. Further, pursuant to California Public Resources Code Section 5097.98(b), 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 NAHC within 24 hours. Subsequently, the NAHC shall identify the person or persons it believes to be the "most likely descendant." The most likely descendant (MLD) shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in Public Resources Code Section 5097.98

3.6 Energy

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	[ ]	[ ]	[X]	[ ]
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	[ ]	[ ]	[X]	[ ]

Discussion

MVU was established in 2001 to provide electrical service to new residents and businesses within areas of the City of Moreno Valley that are being converted from fallow or agricultural lands to housing, commercial and industrial uses. MVU's service area extends from the City boundary in the south up to Bay Avenue, covering the majority of the proposed Project area. Electrical service for the proposed Project alignment between Bay Avenue and Cottonwood Avenue (bound by Heacock Street and Indian Street) is provided by SCE. Natural gas service for the entire proposed Project area is provided by the Southern California Gas Company (City of Moreno Valley Financial and Management

Services n.d.) MVU power content mix specifies that 26 percent of power comes from renewable sources, and 74 percent comes from unspecified sources through transactions with other energy suppliers. SCE's power content mix utilizes 36 percent renewables, 4 percent large hydroelectric, 17 percent natural gas, 6 percent nuclear, and 37 percent from unspecified power sources through transactions.

The City produced both an energy Efficiency and Climate Action Strategy and a Greenhouse Gas Analysis in 2012, in addition to participating in the Western Riverside Council of Governments Subregional Climate Action Plan (CAP). The Efficiency and Climate Action Strategy outlines and prioritizes numerous energy efficiency and energy reduction measures, while the Greenhouse Gas Analysis establishes goals and policies that incorporate environmental responsibility to reduce GHG emissions. The Greenhouse Gas Analysis sets a goal to reduce the City's emissions to 1990 levels by 2020 which is equal to 798,693 metric tons carbon dioxide equivalent (CO_2e), which is consistent with the State's emissions reduction targets.

a) Less Than Significant Impact

Construction of the proposed Project would involve construction-related fossil fuel consumption from operation of diesel-powered construction equipment, and fossil fuel consumption from material hauling, delivery, and worker vehicle trips. **Table 3-10** summarizes the anticipated construction fleet for the proposed Project.

Table 3-10: Construction Fleet Summary

Construction Phase	Duration (days)	Anticipated Fleet	Anticipated Trips
Extraction Wells (Site Preparation)	132	Tractors/Loader/Backhoes (1) – 8 hrs/day Off-Highway Trucks – Utility Trucks (1) – 4 hrs/day Off-Highway Trucks – Water Trucks (1) – 2 hrs/day	Workers – 8 trips/day Hauling – 1 trip/day
Extraction Wells (Grading/Drilling)	84	Bore/Drill Rig (1) – 24 hrs/day Crane (1) - 24 hrs/day Off-Highway Trucks – Utility Trucks (1) – 12 hrs/day Welder (1) – 18 hrs/day Compressor (1) – 18 hrs/day Pump (1) – 18 hrs/day Generator (1) – 18 hrs/day	Workers – 18 trips/day Hauling – 1 trip/day
Extraction Wells (Pump Installation)	265	Crane (1) - 7 hrs/day Off-Highway Trucks – Utility Trucks (1) – 4 hrs/day Welder (1) – 8 hrs/day Compressor (1) – 6 hrs/day Pump (1) – 6 hrs/day Generator (1) – 8 hrs/day	Workers – 11 trips/day Hauling – 3 trip/day
Pipeline Construction	218	Tractor/Loader/Backhoe (1) – 6 hrs/day Hydraulic Excavator (1) – 6 hrs/day	Workers – 30 trips/day Hauling – 7 trip/day

Construction Phase	Duration (days)	Anticipated Fleet	Anticipated Trips
		Crane (1) – 4 hrs/day Off-Highway Trucks – Utility Trucks (1) – 4 hrs/day Off-Highway Trucks – Water Trucks (1) – 2 hrs/day Welder (1) – 6 hrs/day Compressor (1) – 6 hrs/day Pump (1) – 6 hrs/day Concrete/industrial Saw (1) – 6 hrs/day Sweeper (1) – 6 hrs/day Paver (1) – 6 hrs/day Generator (1) – 6 hrs/day	
Treatment Site (Site Preparation)	32	Tractors/Loader/Backhoes (2) – 8 hrs/day Off-Highway Trucks – Utility Trucks (1) – 4 hrs/day Off-Highway Trucks – Water Trucks (1) – 2 hrs/day	Workers – 8 trips/day Hauling – 0 trip/day
Treatment Site (Grading)	29	Tractors/Loader/Backhoes (2) – 8 hrs/day Off-Highway Trucks – Utility Trucks (1) – 4 hrs/day Off-Highway Trucks – Water Trucks (1) – 2 hrs/day	Workers – 10 trips/day Hauling – 9 trip/day
Treatment Site (Building Construction)	288	Tractor/Loader/Backhoe (2) – 6 hrs/day Crane (1) – 7 hrs/day Off-Highway Trucks – Utility Trucks (1) – 4 hrs/day Excavator (2) – 6 hrs/day Forklift (2) – 6 hrs/day Welder (1) – 6 hrs/day Compressor (1) – 6 hrs/day Pump (1) – 6 hrs/day Generator (1) – 6 hrs/day Concrete Pumper/mixer (1) – 6 hrs/day	Workers – 15 trips/day Hauling – 0 trip/day
Treatment Site (Paving)	23	Off-Highway Trucks – Utility Trucks (1) – 4 hrs/day Concrete Pumper/mixer (1) – 6 hrs/day	Workers – 5 trips/day Hauling – 0 trip/day
Treatment Site (Architectural Coating	331	Off-Highway Trucks – Utility Trucks (1) – 4 hrs/day Compressor (1) – 6 hrs/day Generator Sets (1) – 6 hrs/day	Workers – 4 trips/day Hauling – 0 trip/day

Sources: Project-specific information provided by Kennedy-Jenks design engineers and duration based on total construction timeframe. See *Section 2 Project Description*. CalEEMod Version 2016.3.2; see Appendix A for model output. When project-specific equipment not available in CalEEMod, alternate construction equipment selected based on similar horsepower.

Operation of the proposed Project would involve consumption of electricity from the local utility to power the well pumps and other equipment. **Table 3-11** summarizes the estimated operation energy consumption. In addition to the equipment identified in **Table 3-11**, each well site would be provided with a portable generator connection, at a minimum, for emergency scenarios. Emergency generators may be installed at the well sties at a later date. For the purposes of this analysis, it was assumed that each emergency generator would be diesel powered and would operate 24 hours in any given year.

Table 3-11: Operation Energy Consumption

Equipment	Qty	hp	hrs/day	kWh/day	Comments
Cactus Corridor Wells	4	50-75	24	3,500–5,400	Range depends on the type of well pump provided (vertical vs submerged)
Cactus Corridor East Wells	2	200-250	24	7,100–9,000	Range depends on the type of well pump provided (vertical vs submerged)
Potable Water Booster Pumps	2+1 standby	150-175	12	2,600–3,200	Potable Water Booster Pumps
Backwash Booster Pumps	1+1 standby	25-30	3	55–70	Backwash Booster Pumps
Air Compressor	1	5	12	45	Air Compressor
Blend Tank Mixer	1	5	12	45	Blend Tank Mixer

Sources: Project-specific information provided by Kennedy-Jenks design engineers and expected equipment to be installed. See *Section 2 Project Description*.

The proposed Project would implement typical construction practices such as trenching and repaving. As shown in **Table 3-10**, the Project would not require unusual or excessive construction equipment or practices that would result in wasteful, inefficient, or unnecessary consumption of energy compared to projects of similar type and size. In addition, the construction fleet contracted for the proposed Project would be required to comply with the CARB In-Use Off-Road Diesel-Fueled Fleets Regulations, which would limit vehicle idling time to five minutes, restrict adding vehicles to construction fleets with older-tier engines, and establish a schedule for retiring older, less fuel-efficient engines from the construction fleet. Once construction is complete, the proposed Project would involve operational energy consumption, as detailed in **Table 3-11**. So as not to incur unnecessary costs, EMWD would be incentivized to use the most energy efficient pumps, compressors, and other equipment possible to minimize operational costs. As such, construction and operation of the proposed Project would not result in wasteful, inefficient, or unnecessary consumption of energy during construction and impacts would be less than significant.

b) Less Than Significant Impact

The City of Moreno Valley Energy Efficiency and Climate Action Strategy (City of Moreno Planning Division 2012) focuses on reducing energy and emissions from the City as an organization and how to encourage community members to reduce their own energy and GHG emissions. The City of Moreno Valley Energy Efficiency and Climate Action Strategy includes suggested measures to reduce emissions and GHGs through energy use reduction, water use reduction, recycling and diversion, alternative transportation, and renewable energy utilization. Operation of the proposed Project would not involve a substantial number of new vehicle trips. Long-term, the Project would generate up to one additional trip per day for O&M activities (bi-weekly visits by an EMWD operator to the treatment facility, monthly routine maintenance at the treatment facility, monthly chemical delivery, annual inspection of the GAC Media, and monthly inspections of the wells) and approximately five tanker truck trips to dispose of brine wastewater from the treatment facility every four to five days. The Project would not involve land use changes that would indirectly result in an increase in vehicle trips or vehicle miles travelled, for example from relocation of an existing road. As explained under question “a” above, the Project would not involve wasteful or inefficient energy consumption. Therefore, the Project would not conflict with the City strategy, which was developed to keep Citywide GHG emissions in line with State reduction targets. Therefore, the proposed Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Impacts would be less than significant and no mitigation would be required.

Mitigation Measures: None required or recommended.

3.7 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	[ ]	[ ]	[ ]	[X]

of a known fault? Refer to Division of Mines and Geology Special Publication 42.				
ii) Strong seismic ground shaking?	[ ]	[ ]	[X]	[ ]
iii) Seismic-related ground failure, including liquefaction?	[ ]	[ ]	[X]	[ ]
iv) Landslides?	[ ]	[ ]	[X]	[ ]
b) Result in substantial soil erosion or the loss of top soil?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[ ]	[X]
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	[ ]	[X]	[ ]	[ ]

Discussion

The City of Moreno Valley is located in a valley which is surrounded by hills and mountains along the northern, eastern, and southern side. The proposed Project sites themselves would be located on the valley floor, which is relatively flat with minimal slope. The Project area is located in the Hanford-Tujunga-Greenfield soil area, which consists of well-drained to somewhat excessively drained soils developed in granitic alluvium (City of Moreno Valley 2006a and 2006b).

As with most regions in Southern California, the Project area is located in areas of several known active earthquake faults. The San Jacinto Fault Zone runs through the eastern portion of the City of Moreno Valley. The San Andres Fault Zone is approximately 15 to 20 miles north of the City of Moreno Valley and the Elsinore Fault Zone is approximately 12 to 18 miles south of the City.

There are several regions of the City known to have unstable soils and/or be susceptible to landslides. The Badlands in Moreno Valley, located on the eastern edge of the City, consist of shale and siltstone that is highly porous and does not hold together when wet, which can cause slope instability and landslides during earthquake events (City of Moreno Valley 2006b). Other known unstable soils include the mountain slopes located in the southern portion of Moreno Valley which have loose granitic boulders that could slide down the slopes (City of Moreno Valley 2006a and 2006b).

a.i) No Impact

The Project would not be associated with significant levels of risk of loss, injury or death from rupture of a known earthquake fault. Based on California's Geological Survey's Earthquake Fault Zone Map (CGS 2018), the Project area is not within a Fault Zone. The nearest potentially active fault mapped in accordance with the Alquist-Priolo Earthquake Fault Zoning Act is the San Jacinto Fault Zone. The shortest distance between this Fault Activity Zone and the proposed Project facilities (pipelines) is 4.20 miles. Due to the distance between the Fault Zone and Project area, there is no potential for surface fault rupture.

a.ii) Less than Significant Impact

The San Jacinto Fault Zone, which runs through the eastern portion of the City of Moreno Valley and as close as 4.2 miles to proposed Project facilities, is one of the most active faults in Southern California. Additionally, the San Andres Fault Zone is approximately 15 to 20 miles north of Moreno Valley and the Elsinore Fault Zone is approximately 12 to 18 miles south. The Project area has a 0.857 gravity (g) for potential ground shaking based on CDOC Ground Motion Interpolator (2008). Ground shaking potential is calculated as the potential for ground shaking that has a two percent chance of being exceeded in 50 years and is measured on a ratio scale to signify the severity of the earthquake. Typically, potential ground shaking will be seen on a scale of 0g to 1.3g or even greater – there is no set scale because this measurement uses a ratio. The Peak Ground Acceleration (pga) for the Project area is relatively high due to the close proximity to the San Jacinto Fault Zone. Therefore, the Project components would likely be subject to seismic ground shaking in a measurable seismologic event. Seismic activity is common in California, generally, and the Project facilities would be designed per EMWD's Engineering Standards and Specifications, which would ensure structural resiliency. The Project would also be designed and constructed pursuant to applicable American Water Works Association (AWWA) standards, and would incorporate measures to accommodate seismic loading pursuant to guidelines such as the "Greenbook" Standard Specifications for Public Works Construction (Greenbook Committee of Public Works

Standards, Inc. 2018) and the International Building Code (IBC; International Code Council 2018). These guidelines are produced through joint efforts by industry groups to provide standard specifications for engineering and construction activities, including measures to accommodate seismic loading parameters. These standards and guidelines are widely accepted by regulatory authorities and are regularly included in related standards such as municipal building and grading codes. In addition, the Project design would follow guidelines within the California Building Code (CBC; California Code of Regulations, Title 24, Part 2), which is based on the IBC with amendments to reflect conditions specific to California. Because building and construction codes related to seismic shaking would be followed, there would be less potential for structural damage or loss due to seismic ground shaking. Even if structural damage does occur during a seismic event it would be isolated to the various Project facilities and Project areas; the Project would not exacerbate a risk of seismic-related damage to other existing resources in the vicinity. Impacts would be less than significant.

a.iii) Less than Significant Impact

Liquefaction is the process by which clay-free soil, such as sands and silts, temporarily lose cohesion and strength and turn into a fluid state during a severe ground shaking event. This primarily occurs in areas saturated with high groundwater levels and recent deposits of sands and silts. Although the City of Moreno Valley has seen no evidence of liquefaction events occurring in the area (City of Moreno Valley 2006b), western portions of the City have shallow groundwater. Therefore, the Project area may be susceptible to liquefaction. A soils and geotechnical report would be prepared for all Project components by a California licensed geotechnical engineer. The geotechnical report would evaluate various geotechnical characteristics, including determining whether there is a liquefaction risk for the Project area, and provide recommendations for materials and design that should be incorporated into the specifications for each Project facility and component. In addition, all Project facilities would be designed in accordance to EMWD's Engineering Standards and Specifications and the other standards and guidelines described under "a.ii" above, that would ensure structural resiliency during earthquakes and other ground instability events, such as liquefaction. Therefore, impacts would be less than significant.

a.iv) Less than Significant Impact

Landslide risk is typically associated with high slopes and unstable soils. The majority of the Project sites are flat or have a minimal slope, according to the County of Riverside General Plan's Figure S-5 (County of Riverside 2019). Therefore, the potential for the Project to exacerbate the risk of landslides in the Project area, or be impacted by a landslide, is low. In addition, the proposed Project facilities are not in a region known to have unstable soils, such as the "Badlands." The Badlands in Moreno Valley, located on the eastern edge of the City, consist of shale and siltstone that is highly porous and does not hold together when wet, which can cause slope instability and landslides during earthquake events (City of Moreno Valley 2006b). Other known unstable soils include the mountain slopes located in the southern portion of Moreno Valley which have loose granitic boulders that could slide down the slopes. The Project facilities are approximately

0.8 miles away from these mountain slopes and, therefore, there is a low probability that the Project could be impacted. Finally, all Project facilities would be designed in accordance to EMWD's Engineering Standards and Specifications and the other standards and guidelines described under "a.ii" above and a soils and geotechnical report would be prepared for all Project components that would evaluate soil stability of the Project area. Therefore, impacts would be less than significant.

b) Less than Significant Impact

Construction of the Project components would require soil-disturbing activities such as excavation, which would expose soil. The soil exposed by construction would be subject to erosion if exposed to strong winds, heavy rains, or other storm events. Proposed Project construction activities would disturb one acre or more in total and would require an NPDES Construction General Permit. A SWPPP would be prepared and implemented in compliance with the Construction General Permit. BMPs would be identified in the SWPPP to control and reduce pollutant discharges associated with construction and erosion and sediment control. Once construction is complete, all pipelines disturbance areas would be returned to pre-Project conditions and therefore would not result in further soil erosion. The wells and treatment/blending facility sites would be paved or landscaped. All stormwater that occurs on the sites would be collected as runoff and conveyed and discharged to the street in accordance with applicable storm water drainage design and water quality control requirements. Therefore, impacts would be less than significant.

c) Less than Significant Impact

The Project components would be located in the Hanford-Tujunga-Greenfield soil area, which consists of well-drained to somewhat excessively drained soils developed in granitic alluvium (City of Moreno Valley 2006a and 2006b). The topsoil layer consists of coarse sandy loam with underlying layers of coarse sandy loam and loamy sand (City of Moreno Valley 2006a and 2006b). Soil stability is poor to fair with significant erosion potential (City of Moreno Valley 2006a and 2006b). These soils are found at nearly level to moderately steep slopes of 5 to 15 percent, which lowers the risk of on- or off-site landslides (City of Moreno Valley 2006a and 2006b).

Additional landslide impacts were addressed in response a.iv above. Lateral spreading is caused by earthquake-induced liquefaction, which has been determined to be a less than significant impact. Liquefaction and lateral spreading are a risk associated with the Project area due to the well-drained, clay-free soils and shallow groundwater levels. However, the Project would be withdrawing groundwater, which would help regulate groundwater levels and minimize the potential risk of liquefaction. Additionally, the geotechnical report produced and adherence to EMWD's Engineering Standards and Specifications and other standards and guidelines would ensure structural resiliency to earthquake events and associated lateral spreading and liquefaction. Therefore, implementation of the Project is not expected to result in significant risk of landslide, lateral spreading, or liquefaction.

Subsidence and collapse are a known risk in the southeast corner of Moreno Valley (Figure 5.6-2, City of Moreno Valley, 2006b); however, no proposed Project facilities would be located in this area. The proposed Project would extract groundwater, which, when conducted in an unregulated manner, has been known to cause land subsidence and collapse in other parts of California. However, as explained in further detail under question "b" in *Section 3.10 Hydrology and Water Quality*, the Project would extract groundwater in a sustainable, regulated manner that would not lead to the extreme levels of overproduction that has caused land subsidence and collapse in other parts of California. EMWD has been managing groundwater levels in the western portion of the San Jacinto Groundwater Basin via the Annual West San Jacinto Groundwater Management Plan since 1995. Water levels were drawn down to historic lows in the middle of the 20th century and have been slowly rising since that time. The reasons for the rise are currently being studied; however, factors include: increased sales of EMWD recycled and municipal water; reduced groundwater extraction, primarily due to less agricultural water use; incidental recharge from EMWD recycled water facilities; and, for the portions of the Perris North Sub-Basin downstream of Lake Perris, seepage from Lake Perris. The proposed Project would extract approximately 3,700 AFY in a manner consistent with the GSP, currently under development, which will require groundwater to be produced in a sustainable manner. Therefore, it is not expected to be susceptible to risks associated with land subsidence or collapse; impacts would be less than significant.

d) Less than Significant Impact

Expansive soils have the ability to significantly change their volume, shrink and swell, due to their soil moisture content. Expansive soils can crack rigid structures and potentially create pipeline rupture. Typically, expansive soils are very fine grained with a high to very high percentage (60 percent or more) of clay. Potentially expansive soils in the City are found in the Badlands–San Timoteo geological region (Moreno Valley, 2006b); however, none of the proposed Project sites would be located in this area. The Project would be in a soil area that is well-drained and consists of sandy loam soils with 1.5-15 percent clay particles (USDA 2019). Based on the clay particle content of the soil, the potential Project sites would not be located on expansive soils. With the project-specific geotechnical report, expansive soils would be identified, and design specification would be implemented to avoid damage to Project facilities. The geotechnical report would include necessary design specifications that the Project shall incorporate, including recommendations for materials and design, to avoid infrastructure damage from expansive soils. Additionally, the Project would be designed in accordance with EMWD's Engineering Standards and Specifications, as well as other State and International buildings standards and guidelines, which would ensure structural resiliency and minimize the potential effects of expansive soils. Therefore, impacts would be less than significant.

e) No Impact

The Project does not propose the construction or use of septic tanks or alternative wastewater disposal systems. Therefore, there would be no impact.

f) Less than Significant Impact with Mitigation Incorporated

Fossils are valuable and nonrenewable resources of remains of ancient, commonly extinct organisms that help us understand the evolutionary history of life on earth. A paleontological study was completed in compliance with CEQA, federal, state, and local regulations to determine the potential Project impacts to paleontological resources in the Project area (**Appendix D**).

Federal regulations are applicable to projects on federal lands or to projects that involve a federal agency license, permit, approval, or funding. These regulations include the National Environmental Policy Act (United State Code, Section 4321 et seq.; 40 Code of Federal Regulations, Section 1502.25), which instructs federal agencies to "preserve important historic, cultural, and natural aspects of our national heritage (Section 101(b)(4))." As well as the Paleontological Resources Preservation Act (PRPA), a part of the Omnibus Public Land Management Act of 2009 (Public Law 111-011 Subtitle D), which instructs for paleontological resources to be managed and protected on federal lands and to develop plans for inventorying, monitoring, and deriving scientific and education use of these resources. PRPA also prohibits the removal of paleontological resources from federal lands. State regulations include the California Public Resources Code (Section 5097.5) which prevents an individual from removing, destroying, or altering any paleontological resources found on public lands without the permission of the public agency that has jurisdiction over the lands. The City of Moreno Valley contains a policy (Policy 7-6) for paleontological resources in its General Plan which states that areas expected to have paleontological or archaeological resources, based on the survey conducted by the University of California, Riverside Archaeological Research Unit, should follow its report to reduce potential impacts (**Appendix D**).

A Paleontological Resource Assessment Report was prepared in February 2020 for the proposed Project (the complete Report is provided in **Appendix D**). Paleontological sensitivity of the geological units underneath the Project area was assessed through a literature review and a paleontological locality search. A request was submitted to the National History Museum of Los Angeles County for a list of known fossil localities for the Project area and immediate vicinity. The potential for impacts to significant paleontological resources was assessed based on the potential for ground disturbance to directly impact paleontological sensitive geologic units as defined by the Society of Vertebrate Paleontology (SVP) (2010).

The Project area is located in the central Perris Block of the northern portion of the Peninsular Ranges Province, which is one of the eleven major geomorphic provinces in California (**Appendix D**). The Perris Block consists of Pleistocene and Holocene alluvial fan deposits deriving from the San Gabriel Mountains to the north of the City and fluvial deposits from the Santa Ana River (Norris and Webb 1990; Morton and Miller 2006). The Project site and its surrounding areas include Holocene alluvium, Pleistocene alluvium, and Cretaceous Plutonic rocks of Peninsular Ranges. Pleistocene alluvium, located northeast and southeast of the Project site, has high paleontological activity because there are records of vertebrate fossils recovered at depths of 11 to 13 feet in this type of

rock within the vicinity of the Project site (**Appendix D**). Cretaceous Plutonic rocks of Peninsular Ranges, located east of the Project site, have no paleontological sensitivity because this type of rock does not preserve fossils (**Appendix D**). Areas with younger Holocene sedimentary deposits (less than 5,000 years old), such as the Project site, are generally too young to have fossilized material and therefore have low paleontological sensitivity. However, Holocene sediments that have shallow Pleistocene alluvium (as shallow as 11 feet below ground surface) have potential for vertebrate fossils based on past discoveries.

There are no previously recorded fossil localities in the Project site at the Natural History Museum of Los Angeles County; however, one vertebrate locality, LACM 4540, which yielded a horse (*Equus* sp.) from Pleistocene alluvium deposits, was documented in the gravel pits of the San Jacinto Valley east of the Project site (**Appendix D**). Records from the Western Science Center also show several fossil localities approximately four miles northeast of the Project site of a fossil ground sloth (*Megalonyx jeffersonii*), lamine camel (*Hemiauchenia* sp.), and a horse (*Equus* sp.) (**Appendix D**).

Ground-disturbing activities in previously undisturbed portions of the Project site underlain by geologic units with a high paleontological sensitivity (i.e., Pleistocene alluvial deposits) may result in significant impacts to paleontological resources under Appendix G of State CEQA Guidelines. Impacts would be significant if construction activities result in the destruction, damage, or loss of scientifically important paleontological resources and associated stratigraphic and paleontological data. The activities may include grading, excavation, or other activities that disturb substantial quantities of the subsurface geologic units with a high paleontological sensitivity.

Construction of the Project would require temporary ground disturbance that would impact 100 percent of the site (except Project facilities at the existing public parks). Ground disturbance would reach a maximum depth of seven feet during open cut trenching, up to 40 feet during “bore and jack” drilling, and 1,100 feet during well drilling. Well drilling would have negligible impacts on paleontological resources or unique geological features because the well drill auger has a small diameter which would limit disturbances to intact Pleistocene sediments. “Bore and jack” drilling would also have negligible impacts on paleontological resources or unique geological features because this type of ground disturbance does not typically remove observable geologic sediments. The Project site has Holocene deposits overlying Pleistocene sediments at a depth of approximately 11 feet (**Appendix D**). Fossiliferous deposits have the potential to occur at greater depths than the anticipated Project ground disturbance, which leaves low potential for encountering fossils, and impacts on paleontological resources are not anticipated. To ensure proper procedures are in place in the event of an unanticipated fossil discovery, **Mitigation Measure GEO-1** would be implemented during all construction phases of the Project. **Mitigation Measure GEO-1** would ensure any unanticipated fossil discovered onsite would be preserved, and potential impacts on paleontological resources would be less than significant.

Mitigation Measures:

GEO-1: Unanticipated Fossil Discovery. In the event of an unanticipated fossil discovery made during the construction of the Project, in accordance with SVP (2010) guidelines, it is the responsibility of any worker who observes the fossil within the Project site to stop work within the fossil's immediate vicinity and notify a qualified professional paleontologist. The paleontologist shall evaluate the discovery, determine the fossil's significance, and decide if additional mitigation or treatment is needed. Work within the area of the fossil discovery will resume once the find is documented and authorization to resume construction work is given. Any significant paleontological resources discovered during construction monitoring will be prepared, identified, analyzed, and permanently curated in an approved regional museum repository.

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

Discussion

GHGs are pollutants that are known to increase the greenhouse effect in the earth's atmosphere thereby adding to global climate change impacts. Several pollutants have been identified as GHGs, and the State of California definition of a GHG in the Health and Safety Code, Section 38505(g) includes carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Water vapor is also a GHG, however, it is short lived, and concentrations are largely determined by natural processes such as evaporation. Other GHGs such as fluorinated gases are created and emitted through anthropogenic sources. The most common anthropogenic sourced GHGs are CO_2, CH_4, and N_2O.

Measuring how much energy the emissions of one ton of a gas will absorb over a given period of time relative to the emissions of one ton of CO_2 is called the Global Warming

Potential (GWP). CO_2e is the amount of GHG emitted multiplied by its GWP. CO_2 has a 100-year GWP of one; CH_4 has a GWP of 25; and N_2O has a GWP of 298.

In 2005, (EO) S-3-05 set GHG emission reduction targets:

- 2010 should have 2000 levels;
- 2020 should have 1990 levels; and
- GHG emissions should be 80 percent below 1990 levels by 2050.

Senate Bill (SB) 32, passed in 2016, required that the California Air Resources Board (CARB) include in its next update to the Assembly Bill (AB) 32 Scoping Plan, "ensure that statewide GHG emissions are reduced to at least 40 percent below the statewide GHG emissions limit no later than December 31, 2030." (EO) B-55 set a GHG emission reduction target for California to be carbon neutral by 2045.

CARB adopted the *Scoping Plan* in December 2008 and a *Scoping Plan Update* in December 2017. The *Scoping Plan* contains the strategies California will implement to achieve a reduction of 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. In the *Scoping Plan*, "CARB recommends that lead agencies prioritize onsite design features that reduce emissions, especially from vehicle miles travelled (VMT), and direct investments in GHG reductions within the proposed Project's region that contribute potential air quality, health, and economic co-benefits locally."

The City of Moreno Valley has also produced both an *Energy Efficiency and Climate Action Strategy* and a *Greenhouse Gas Analysis* in 2012. The *Energy Efficiency and Climate Action Strategy* outlines and prioritizes numerous energy efficiency and energy reduction measures, while the *Greenhouse Gas Analysis* establishes goals and policies that incorporate environmental responsibility to reduce GHG emissions. The Greenhouse Gas Analysis sets a goal to reduce the City's emissions back to 1990 levels by 2020 which is equal to 798,693 metric tons CO_2e, which is consistent with the State's emissions reduction targets per AB 32 and SB 32.

The City of Moreno Valley is also a member of the Western Riverside Council of Governments (WRCOG). Several member governments of WRCOG are actively participating in the development of a Subregional CAP. However, the City of Moreno Valley has elected to utilize its existing *Energy Efficiency and Climate Action Strategy*. In addition to the WRCOG CAP, the County of Riverside adopted a CAP in 2015 for unincorporated areas of Riverside County.

The County of Riverside adopted a CAP in 2015 to establish goals and policies that incorporate sustainability and GHG reduction targets into its management process. The County set a goal to reduce emissions to 1990 levels by 2020 in line with the State's AB 32 GHG reduction targets. The CAP was updated in 2019 to contain further guidance on Riverside County's GHG Inventory reduction goals, thresholds, policies, guidelines, and implementation programs including 2030 thresholds to reduce emissions to 40 percent below 1990 levels. In particular the CAP elaborates on the County's *General Plan* goals

and policies relative to GHG emissions and provides a specific implementation tool to guide future decisions of the County. The County's CAP includes a review process procedure for evaluating individual project GHG impacts and determining the significance under CEQA. The County's CAP is qualified for CEQA tiering and streamlining of individual projects' CEQA review. The County's CAP has set a threshold of 3,000 metric tons (MT) CO_2e per year to be used to identify projects that, when combined with the modest efficiency measures (e.g., energy efficiency matching or exceeding the Title 24 requirements in effect as of January 2017; water conservation measures that match the California Green Building Standards Code in effect as of January 2017) are considered less than significant.

The City of Moreno Valley, EMWD, and the proposed Project lie within the jurisdiction of the SCAQMD. On December 5, 2008, the SCAQMD Board approved interim CEQA GHG significance thresholds for stationary sources, rules, and plans using a tiered approach for determining significance. Tier 3, the primary tier the SCAQMD board uses for determining significance, set a screening significance threshold of 10,000 $MTCO_2e$/year for determining whether a stationary source project would have a less than significant cumulative GHG impact (SCAQMD 2008b). While useful for a reference, this threshold is meant to apply to industrial projects where SCAQMD is the lead agency (Radlein, personal correspondence 2020). Therefore, for the purposes of this analysis, the County of Riverside screening level is used as a threshold to determine significance of the proposed Project under CEQA.

a) Less Than Significant Impact

The Project would emit both construction and operation GHG emissions. Construction is expected to last approximately 22 months, and the Project's life expectancy is 30 years. Construction impacts would include emissions associated with staging and site preparation; pilot boring and well construction; pipeline trenching and installation, and treatment facility construction. Operation emissions would result from regular well inspections and testing and routine treatment facility operations and maintenance. Further details can be found in *Section 2 Project Description*.

Modeling of air emissions from construction and operation was completed in CalEEMod version 2016.3.2 for construction of the wells, pipeline, and treatment facility. Details on construction, including timing, duration, equipment, and worker trips can be found in *Section 2 Project Description*. Operational emissions would result from the tanker truck trips for disposal of brine wastewater from the treatment facility (approximately five trips every four to five days) and O&M trips (bi-weekly visits by an EMWD operator to the treatment facility, monthly routine maintenance at the treatment facility, monthly chemical delivery, annual inspection of the GAC Media, and monthly inspections of the wells). For modeling purposes, it was assumed O&M would result in one vehicle trip per day associated with ongoing activities. Operational emissions of GHG would result from energy consumption associated with the wells and treatment facility. Unlike criteria pollutants, GHG emissions are not regulated through stationary source permitting; therefore, CalEEMod assigns indirect GHG emissions associated with electricity

consumption to individual projects. Total operational energy requirements, as detailed in **Table 2-2** and **Table 2-4**, is a maximum of 17,760 kWh/day, or 6,482,400 kWh/year. In addition to the equipment identified in **Table 2-2** and **Table 2-4,** each well and treatment facility site would be provided with a portable generator connection, at a minimum, for emergency scenarios. Emergency generators may be installed at the well sites at a later date. For the purposes of this analysis, it was assumed that each emergency generator would be diesel powered and would operate 24 hours in any given year. In CalEEMod, emergency generators are modeled as stationary sources of GHG emissions. No or negligible energy requirements are expected for the operation of the pipelines. Other Project details necessary for GHG emission modeling were obtained from CalEEMod and design engineer estimates (e.g., equipment horsepower, load factors, fleet mix, and vehicle emissions factors).

As explained above, the Riverside County CAP has set a threshold of 3,000 $MTCO_2e$ to identify small projects that are considered less than significant and would not require mitigation. The results of the inventory for GHG emissions, as shown in the CalEEMod output tables in **Appendix A**, are presented in **Table 3-12** along with the significance threshold. Consistent with the methodologies in the County CAP, total GHG emissions from construction have been amortized over the 30-year lifetime of the Project.

Table 3-12: Proposed Project GHG Emissions per Year ($MTCO_2e$/year)

Source	$MTCO_2e$
Energy	1,422
Stationary	6
Mobile	844
Area	Negligible
Construction (amortized over 30 years)	96
Total	**2,368**
Threshold	3,000
Exceed Threshold?	*No*

Note: CalEEMod's default CO_2e intensity factor for Southern California Edison is 702.44 lb/MWhr. However, recent information provided by SCE (2019) specifies a CO_2e intensity factor of 467.38 lb/MWhr for SCE, which was used in this analysis.

During construction, the proposed Project would emit a total of 2,872 $MTCO_2e$ (96 $MTCO_2e$ per year when total construction emissions are divided over the 30 year lifetime of the Project). The Project would adhere to existing energy efficiency requirements during construction, including CARB's In-Use Off-Road Diesel-Fueled Fleets Regulations that limit vehicle idling time to five minutes, restrict adding vehicles to construction fleets that have lower than Tier 3 engines, and establish a schedule for retiring older and less fuel-efficient engines (CARB 2019b).

Long-term GHG emissions from the proposed Project would result from energy consumption and mobile sources. The State of California has set targets for renewable energy from the energy sector through the Renewable Portfolio Standard. The Renewable Portfolio Standard directs energy utilities to source half of their electricity

sales from renewable sources by 2030 (CEC 2017). To date, SCE has met or exceeded the Renewable Portfolio targets (SCE 2017). Total energy related GHG emissions are 1,422 $MTCO_2e$ annually, which is below the 3,000 $MTCO_2e$ threshold. Given that SCE has exceeded their Renewable Portfolio targets, and total Project related emissions (inclusive of energy related emissions) are well below the threshold, impacts are less than significant.

b) Less than Significant Impact

California's 2017 Climate Change Scoping Plan focuses on reducing energy demand, and GHG emissions, that result from mobile sources and land use development. The proposed Project would not involve a considerable increase in new vehicle trips or land use changes that would result in an increase in vehicle trips, such as urban sprawl. The Scoping Plan also recognizes that about two percent of the total energy used in the state is related to water conveyance; it calls for, "increased water conservation and efficiency, improved coordination and management of various water supplies, greater understanding of the water-energy nexus, deployment of new technologies in drinking water treatment, groundwater remediation and recharge, and potentially brackish and seawater desalination." The proposed Project utilizes local water supplies thus requiring less energy than alternative water supplies such as imported water.

The proposed Project would not interfere with existing City, County, or regional programs intended to reduce energy and improve water use efficiency. It would not result in emissions higher than the Riverside County CAP significance screening thresholds. The proposed Project would not, therefore, conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Impacts would be less than significant, and no mitigation would be required.

Mitigation Measures: None required or recommended.

3.9 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?	[ ]	[ ]	[X]	[ ]
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and	[ ]	[X]	[ ]	[ ]

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?	[ ]	[X]	[ ]	[ ]
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?	[ ]	[ ]	[X]	[ ]
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	[ ]	[ ]	[ ]	[X]
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	[ ]	[X]	[ ]	[ ]
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	[ ]	[ ]	[X]	[ ]

Discussion

a) Less than Significant Impact

Construction machinery (i.e. cranes, trucks, excavators) would be used throughout construction in order to drill, excavate, grade, install pipelines, and build facility buildings. This equipment may leak small amounts of petroleum products (i.e. gasoline, diesel) and automotive fluids during transportation, equipment use, and storage. Additionally, other

chemicals (i.e. paints, adhesives, solvents) would be required during construction. The treatment/blending facility would include GAC contactors, a blending facility, a potable water distribution pump station and a chlorine residual injection system. The chemical storage room at the facility would also house an onsite sodium hypochlorite generation system and store of aqueous ammonia. These two chemicals (the salt and aqueous ammonia) would be delivered approximately once a month.

To minimize the risks of exposure to hazardous materials from routine use or accident conditions, federal, State and local regulations have been put into place to regulate hazardous material use, storage, transportation, and handling. EMWD would be required to be in compliance with all applicable federal, State, and local regulations pertaining to hazardous materials (Federal Code Title 40 and 49; Occupational Safety and Health Administration (OSHA) 29 CFR 1910; California code section 5001, 5401, 5701, and 25507; California Health and Safety Code Division 20, Chapter 6.5, Article 6.5, Article 6.6, and Article 13; and Riverside County ordinance 651). Conformance with the above regulations would include such things as a SWPPP to address the discharge of contaminants (including construction-related hazardous materials) through appropriate BMPs. While specific BMPs would be determined during the SWPPP process based on site-specific characteristics (equipment types, etc.), they would include standard industry measures and guidelines contained in the NPDES Construction General Permit text. Conformance with federal hazardous materials transportation law (49 U.S.C. 5101 et seq.) and California Health and Safety Code Division 20, Chapter 6.5, Article 6.5 would require precautionary measures be taken during the routine transport of hazardous materials, such as testing and preparation of a transportation safety plan. According to California Health and Safety Code Division 20, Chapter 6.5, Article 13, used oil that may be produced from construction or operation of the Project would be recycled. With compliance with existing regulations, impacts would be less than significant and no mitigation would be required.

b) Less than Significant with Mitigation Incorporated

There are sensitive receptors surrounding potential Project sites, as stated in Section *2.4 Environmental Setting*, which increases the risk of impact. **Mitigation Measure HAZ-1** would minimize the risk of hazardous material exposure through material use and accidents by requiring EMWD and its construction contractor to develop a Hazardous Materials Management and Spill Prevention and Control Plan to ensure Project-specific contingencies are in place. With the implementation of **Mitigation Measure HAZ-1** the impacts from hazardous materials to the public or the environment from potential accidents would be less than signification.

During operation of the Project, there is low risk of an accidental chemical spill during transport or use at the treatment facility. The Project would be required to comply with various existing regulations (see response to “a” above) that would minimize the risk of accidental hazardous material release during operations. In addition, a Hazardous Materials Business Plan, Emergency Response Plan, and Risk Management Plan would need to be prepared and implemented based on the State of California Accidental

Release Prevention (CalARP) requirements. The CalARP Program incorporated and modified the Federal Risk Management Plan and designed it to minimize harm to people and the environment through enforcing regulations that minimize risks for facilities that handle hazardous material. Safety measures would be put in place to ensure proper storage containers, safety labeling, materials needed to readily absorb spills, and training for site workers. Impacts would be less than significant and mitigation would not be required.

c) Less than Significant with Mitigation Incorporated

There are existing schools, as found in *Section 2.5 Environmental Setting*, located within one-quarter mile of the Project sites and pipeline locations. During operation, the treatment facility would store chemicals and require transportation of hazardous chemicals to the facility once a month. Both treatment facility option sites are located within one-quarter mile of multiple schools. As explained under responses “a” and “b” above, the treatment/blending facility would be compliant with local regulations, and there would be less than significant impacts related to hazardous material release associated with long-term Project O&M activities. For operation of pipelines and extraction wells, no hazardous materials would be handled or emitted on a regular basis. Impacts would be less than significant. During construction, there would be emissions of toxic air pollutants, such as diesel particulate matter, within one-quarter mile of schools. As explained in *Section 3.3 Air Quality*, emissions would be below SCAQMD LST thresholds and less than significant. As explained in response to “b” above, there is a risk of accidental release of hazardous materials during project construction, including within one-quarter mile of schools. Implementation of **Mitigation Measure HAZ-1** would reduce impacts to less than significant.

d) Less Than Significant Impact

Regulatory records were searched through the SWRCB GeoTracker database (SWRCB 2015) and the DTSC EnviroStor database (DTSC 2020). These databases provide information on potential, confirmed, and closed hazardous waste and substances sites in California. None of the Project locations are proposed on a site that is included on a list of hazardous materials sites per Government Code Section 65962.5 (DTSC 2020 and SWRCB 2015).

Recent and currently active clean-up sites in the Project area are summarized below:

- M&M Dry Cleaners located at 23080 Alessandro Boulevard (Envirostor ID # T10000004432) - This site is located approximately 0.62 mile from Cactus Corridor Well 1 Option #1 Site, the closest proposed Project facility. The site has been under investigation and remediation for the release of dry cleaning solvent, tetrachloroethene (also known as perchloroethylene or PCE), in soil and groundwater. The site has been remediated and confirmation soil sampling and groundwater monitoring is ongoing. The case has not yet been closed by the RWQCB.

- ARCO #6345 located at 2624 E Alessandro Boulevard (Envirostor ID # T0606500497) – This Leaking Underground Storage Tank (LUST) site is located approximately 2.1 miles from Cactus Corridor Well 1 Option #1 Site, the closest proposed Project facility. The site has undergone remediation for release of petroleum hydrocarbons in soil, soil vapor and groundwater. Confirmation soil sampling and groundwater monitoring is ongoing. The case has not yet been closed by the RWQCB.
- Shell Moreno located at 13260 Old Frontage Road (Envirostor ID # T0606500255) – This LUST site is located approximately 2.26 miles from Cactus Corridor Well 1 Option #1 Site, the closest proposed Project facility. The site has undergone remediation for release of petroleum hydrocarbons (gasoline) in soil and groundwater. Underground storage tanks were removed, and monitoring was completed. The RWQCB issued a notice of case closure in May 2019.
- MOBIL #18-A3E located at 24440 Alessandro Boulevard (Envirostor ID # T0606599291) – This LUST site is located approximately 0.025 mile (130 feet) from the Alternative Raw Water Pipeline alignment in Indian Street, and 0.076 mile (400 feet) from Cactus Corridor Well 3, Option #1 Site, the closest proposed project facilities. The site has undergone remediation for release of petroleum hydrocarbons (gasoline) in soil and groundwater. Underground storage tanks were removed, and monitoring was completed. No further action /case closure was issued by the RWQCB in May 2019.
- Shell Perris Boulevard located at 15980 Perris Boulevard (Envirostor ID # T0606517323) – This LUST site is located 0.2 mile from the Alternative Pipeline Alignment on Santiago Drive and Perris Boulevard, and just beyond one-quarter mile for the Santiago Well Site and Option 3 Treatment facility site. The site has undergone remediation for release of hydrocarbons in soil and groundwater. Groundwater monitoring is ongoing. Recent correspondence from the Santa Ana RWQCB (letter from Hope Smythe, RWQCB Executive Director dated December 23, 2019) requests that the site owner conduct a short-term groundwater extraction test to demonstrate that the areal extent and mass of the residual plume of MTBE- and TBA-affected groundwater is limited. The RWQCB is interested in better understanding the stability of the residual plume and the results of EMWD hydrological modeling to determine if there is any potential for the plume to be affected by EMWD's proposed Santiago well site.

Because soil and groundwater at the cleanup sites have been remediated and closed, or are being remediated and monitored, no significant hazards to the public would be expected. Compliance with RWQCB requirements for any ongoing monitoring would ensure that impacts to the public would be less than significant. Additionally, none of the proposed Project facilities would be located on a clean-up site undergoing or awaiting remediation. Impacts would be less than significant.

e) No Impact

The Project area is near the MARB, which has its own airport. The Project area is located in Zone E of the Airport Influence Area for the MARB, which is the outer limits of the influence area (Riverside County Airport Land Use Commission 2014). Zone E is the outer portion of the flight corridor and is only occasionally used, which leads to low noise disturbances. Additionally, there are no restrictions on development for this outer area. Even so, the Project would not include tall structures that could interfere with airport safety measures. There would be no impacts.

f) Less than Significant with Mitigation Incorporated

The City of Moreno Valley Emergency Operations Plan (EOP) provides guidance for the City's response to extraordinary emergency situations associated with natural, man-made and technological disasters. While the EOP is a preparedness document and is designed to be read, understood, and exercised prior to an emergency, emergency evacuation plans should be viewed as living documents because communities change and integrating the needs of individuals with differing access and functional needs is a dynamic process. The Office of Emergency Management (OEM) is responsible for working and communicating with local community stakeholders to practice, review, revise, and update plans to reflect changes in technology, personnel, and procedures (City of Moreno Valley 2019a).

The City of Moreno Valley Local Hazard Mitigation Plan (LHMP) is designed to reduce or eliminate long-term natural or man-made hazard risks and communicate the City's corresponding mitigation strategy. Components of the plan include hazard identification, asset inventory, risk analysis, loss estimation, and a mitigation strategy to reduce the effects of hazards in the City. Figure 12-2 of the LHMP shows the Moreno Valley Evacuation Routes Map 2016 (City of Moreno Valley 2017).

During construction of the Project components, roads would be temporarily altered, blocked, or impaired such that they would conflict with the adopted emergency response plan and emergency evacuation plan (the City EOP and LHMP). Major roads that would be impacted by installation of the proposed pipelines include Kitching Street, Perris Boulevard, Alessandro Boulevard, Bay Avenue, Cottonwood Avenue, Indian Street, and Heacock Street. With the implementation of **Mitigation Measure TRA-1**, coordination with local emergency responders would be required regarding lane closures. During operation, the Project facilities would require monthly site visits for the wells and treatment facility as well as a monthly chemical delivery. These minimal operational activities would not interfere with an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant with the incorporation of **Mitigation Measure TRA-1**.

g) Less than Significant

The proposed Project would not involve the installation or maintenance of infrastructure that is typically associated with fire risk (*see Section 3.20 Wildfire*). Additionally, the proposed Project sites are all located within the Moreno Valley Local Responsibility Area (LRA) and designated as a non–Very High Fire Hazard Severity Zone (VHFHSZ) (FRAP

2009). Therefore, the proposed Project would have a less than significant impact on exposing people or structures to a significant risk of loss, injury or death involving wildland fires.

Mitigation Measures:

TRA-1: Traffic Control Plan (see *Section 3.17*)

Mitigation Measure HAZ-1: Hazardous Materials Management and Spill Prevention and Control Plan. Before construction begins, EMWD shall prepare a Hazardous Materials Management Spill Prevention and Control Plan that includes a project-specific contingency plan for hazardous materials and water operations. The Plan will be applicable to construction activities and will establish policies and procedures according to applicable codes and regulations, including but not limited to the California Building and Fire Codes, and federal and OSHA regulations. The Plan will include, but is not limited to the following:

- A discussion of hazardous materials management, including delineation of hazardous material storage areas, access and egress routes, waterways, emergency assembly areas, and temporary hazardous waste storage areas;
- Notification and documentation of procedures; and
- Spill control and countermeasures, including employee spill prevention/response training.

3.10 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 ground water quality?	[ ]	[ ]	[X]	[ ]
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	[ ]	[ ]	[X]	[ ]

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;	[ ]	[ ]	[X]	[ ]
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	[ ]	[ ]	[X]	[ ]
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	[ ]	[ ]	[X]	[ ]
iv) impede or redirect flood flows?	[ ]	[ ]	[X]	[ ]
In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	[ ]	[ ]	[X]	[ ]
Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	[ ]	[ ]	[X]	[ ]

Discussion

Surface Water

The proposed Project is located in the Santa Ana River Basin, which includes portions of San Bernardino, Riverside, and Orange counties. Within the Basin, the Project is located in the San Jacinto River Watershed, which drains approximately 540 square miles into Canyon Lake. Canyon Lake discharges into Lake Elsinore, and Lake Elsinore discharges into a tributary of the Santa Ana River; however, discharges from these two lakes are very rare. Drainage in the City of Moreno Valley is provided by local storm drain channels (including the Sunnymead Channel and Kitching Channel) which convey storm flows to

the Perris Valley Storm Drain, and subsequently into the San Jacinto River. (City of Moreno Valley 2006b).

The RWQCB prepares and maintains the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan). The Basin Plan sets water quality standards in the Santa Ana River Basin by establishing beneficial uses for specific water bodies and designating numerical and narrative water quality objectives. Intermittent beneficial uses of the San Jacinto River downstream of the Project area have been identified, and include municipal and agricultural water supply, groundwater recharge, recreation, and freshwater habitat and wildlife uses (Santa Ana RWQCB 2019). Beneficial uses of Canyon Lake and Lake Elsinore include municipal and agricultural supply, recreation, commercial uses, and freshwater habitat and wildlife uses (Santa Ana RWQCB 2019).

The State Water Resource Control Board also maintains the 303(d) List of Impaired Water Bodies, which identifies water bodies where water quality indicators exceed acceptable thresholds. The Project sites do not directly drain to 303(d)-listed impaired water body (SWRCB 2019). However, Lake Elsinore appears on the 303(d) list for the following water quality issues: nutrients, organic enrichment/low dissolved oxygen, toxicity, dichlorodiphenyltrichloroethane (DDT), and polychlorinated biphenyls (PCBs) (SWRCB 2016). Canyon Lake is 303(d)-listed for nutrients (SWRCB 2016). The Santa Ana RWQCB develops and implements total maximum daily loads (TMDLs) to address water quality impairments and help achieve water quality standards. Water quality is also governed through NPDES stormwater discharge permits issued to municipalities, construction sites, and industrial facilities to control non-point-source pollutants in stormwater discharges to surface waters.

The U.S. Department of Homeland Security Federal Emergency Management Agency (FEMA) identifies flood hazard areas on Flood Insurance Rate Maps prepared for the National Flood Insurance Program. These areas, known as Special Flood Hazard Areas (SFHAs), are defined as areas where there is a one percent chance of flooding in any given year (also referred to as a 100-year flood). FEMA maps also identify moderate flood hazard areas, which are areas outside the one-percent flood area where there is a 0.2 percent chance of flooding in a given year (also referred to as a 500-year flood). Areas outside the 100-year and 500-year flood zones are considered areas of minimal flood hazard. Existing drainage channels in the Project area contain the 100-year flood (i.e., along Kitching Street, near the intersection of Alessandro Boulevard and Heacock Street, and along Camino Flores). A flood zone also exists just south of Iris Avenue near the Moreno Valley Ranch community and its associated lake. See **Figure 3-1**. None of the proposed well and treatment facility sites are located in a flood zone.

Groundwater

The Project site overlies the San Jacinto Groundwater Basin (California Department of Water Resources [DWR] Basin Number 8-05). The basin generally encompasses the areas of Moreno Valley, Perris, Hemet, San Jacinto, Sun City, and Menifee, and has an estimated storage capacity of roughly three million acre-feet (DWR 2006). The Basin has

been divided into smaller management areas. The Perris North Groundwater Management Zone underlies the Project site.

The San Jacinto Groundwater Basin is designated by DWR as a high priority basin. The eastern portion of the Sub-Basin is adjudicated, but the western portion (which includes the Perris North Groundwater Management Zone) is subject to the provisions of the Sustainable Groundwater Management Act (SGMA). EMWD acts as the Groundwater Sustainability Agency (GSA) for the western portion of the Sub-Basin. The GSA is required to develop a GSP by 2022. The GSP will document basin conditions, and basin management will be based on measurable objectives and minimum thresholds defined to prevent significant and unreasonable impacts on the sustainability indicators defined in the GSP.

The Santa Ana RWQCB designates beneficial uses for the San Jacinto Groundwater Basin, including the Perris North Groundwater Management Zone. Designated beneficial uses are municipal and agricultural supply, industrial service supply, and industrial process supply. Groundwater in the Perris North Groundwater Management Zone is contaminated. COCs include PCE, Volatile Organic Compounds (VOCs), nitrate, perchlorate, TDS, fluoride, and manganese (co-mingled VOC-Nitrate Plume).

The Perris North Basin is a source of potable water for EMWD. Active potable water wells within the Project area include EMWD's Well 55 and Well 59. EMWD Well 56 is currently shut down due to detection of per- and polyfluoroalkyl substances (PFAS). The groundwater aquifer in the Project area has been a source of potable water for nearly 100 years. However, over the last several decades, contaminates in the groundwater have resulted in numerous potable wells being shut down and unavailable for potable use. The Project area was primarily used for agricultural production, but over the last several decades it has transitioned to primarily urban uses.

The original source of potable water for the MARB was groundwater wells located on the base. Over time, the wells were shut down and the water supply was converted to municipal water due to contamination of the groundwater. EMWD has had 10 potable water wells shut down over the last two decades due to groundwater contamination. When local groundwater cannot be used due to contamination, EMWD must replace this water supply with imported water from MWD. The groundwater contamination is nonpoint source pollution associated with previous agricultural operations, equipment maintenance, and urban activities in the region. Potential chemicals of concern (COCs) in the Basin aquifer include volatile organic compounds (VOCs), perchlorate, nitrate, fluoride, manganese, and, tetrachloroethylene (PCE). Potential contamination sources were identified by EMWD through implementation of the DWSAP, as well as GeoTracker and EnviroStor database research, in developing a comingled plume map**.**

EMWD is not currently treating contaminated groundwater in the Project area but has been developing plans to mitigate the contaminated groundwater and prevent the flow of contaminated groundwater toward areas where the groundwater is not contaminated. EMWD has one potable well, Well 59, that is currently being equipped with GAC to

address contamination from perfluorinated compounds (PFCs). EMWD Well 55 does not require treatment for use in the potable water system. The Air Force/EPA have ongoing efforts to address point source plumes coming from MARB, but their efforts are separate and distinct from EMWD plans.

a) Less than Significant Impact

The proposed Project would disturb an area greater than one acre in size and would therefore be required to obtain coverage under the NPDES Stormwater Construction General Permit during Project construction. Each of the proposed well and treatment facility site options are at least two acres in size, with the exception of Cactus Corridor Well 1 Option 1, which is half of an acre. The total limits of disturbance of the Project, including all site options, is 34.22 acres. As part of the Permit conditions, EMWD would be required to prepare a SWPPP, which would identify BMPs to control sediment and other construction-related pollutants in stormwater discharges. Typical BMPs include housekeeping practices such as proper waste disposal, covering stockpiles with tarps, containment of building materials, and inspection of construction vehicles to prevent leaks or spills. Contractors would be required to comply with the Construction General Permit throughout construction. Construction dewatering and well test water would be either discharged to land in accordance with RWQCB Waste Discharge Requirements for construction dewatering; or discharged to the local storm drain system per Riverside County Flood Control and Water Conservation District (RCFCWCD) requirements; or discharged to the EMWD sewer system. Compliance with these permits, including implementation of BMPs would ensure the Project would not violate water quality standards or waste discharge requirements, nor significantly degrade surface water quality. Impacts on surface water quality would be less than significant.

Operation of the proposed Project would consist of extracting and treating groundwater from the Perris North Groundwater Management Zone. The extracted groundwater would be treated, blended and conveyed for distribution in EMWD's potable water system. Extraction of contaminated water proposed by the Project would assist in reducing the migration of the groundwater contaminants and help remediate groundwater areas of concern in the Perris North Basin. Operation of the Project would help improve and protect groundwater quality of the Perris North Basin over time and is considered a beneficial effect. No adverse impacts on groundwater quality would be expected.

b) Less than Significant Impact

The proposed Project would extract and treat contaminated groundwater for beneficial use. EMWD has been managing groundwater quantity and quality in the western portion of the San Jacinto Groundwater Basin via the Annual West San Jacinto Groundwater Management Plan since 1995; EMWD prepares annual reports documenting the implementation of the plan and activities in groundwater management zones. In addition to the existing groundwater management program, EMWD is required to complete a GSP by January 2022. Water levels were drawn down to historic lows in the middle of the 20th century and have been slowly rising since that time. The reasons for the rise are currently

being studied; however, several factors include increased sales of EMWD recycled and municipal water; reduced groundwater extraction, primarily due to less agricultural water use; incidental recharge from EMWD recycled water facilities; and, for the portions of the Perris North Sub-Basin downstream of Lake Perris, seepage from Lake Perris. The Project is part of EMWD's ongoing groundwater management in the basin. The Project would extract approximately 3,700 AFY in a manner consistent with the GSP, currently under development, which will be completed one year prior the Project becoming operational. The SGMA requires that groundwater be produced in a sustainable manner within 20 years of GSP adoption. The groundwater extracted as part of the Project would offset the use of imported water supplies. The Project would produce water from the basin in a sustainable manner consistent with the San Jacinto Groundwater Management Plan, the GSP and consistent with the siting criteria described in *Section 2.4 Project Siting Criteria*. Therefore, the Project would not substantially decrease groundwater supplies or interfere with groundwater recharge and would have a less than significant impact.

c) Less than Significant Impact

The pipeline components of the Project would be constructed in existing roadways and thus would not increase total impervious surface area. All potential well and treatment facility sites are currently covered by bare dirt, grass, or landscaping. Project construction may result in disturbance or exposure of soil that could be subjected to erosion and sedimentation during a rain event. However, implementation of BMPs as required by the NPDES Stormwater Construction General Permit and SWPPP would limit erosion and sedimentation. The proposed wells and treatment facility would replace existing pervious surfaces with pavement and other facilities that would lead to slightly increased surface runoff from sites. The impervious extraction well footprints would be minimal and would have a negligible effect on surface runoff. However, the treatment facility would be designed in accordance with Riverside County drainage design requirements to prevent potential for flooding on- and off-site and adhere to applicable NPDES municipal storm water permit requirements to control water quality in site runoff. The proposed pipeline alignments may be required to cross existing concrete-lined drainage channels. However, in these locations, pipelines would be constructed using trenchless methods (e.g., jack and bore). Using this technique, ground surface disturbance would not occur, except at the pits used to site the jack and bore equipment (which would be located away from the channels).

Project facilities would have relatively minor above ground surface profiles and would be entirely unoccupied other than occasional short term visits by EMWD maintenance staff. As a result, the proposed Project facilities would not impede or redirect flood flows. The Project would not alter drainage patterns of the sites or Project area, cause substantial erosion, substantially increase surface runoff, generate runoff in excess of the existing storm drainage systems, or be a source of polluted runoff. Therefore, the proposed Project would have a less than significant impact.

d) Less than Significant Impact

A tsunami is a large ocean wave, caused by earthquakes or major ground movement. The proposed Project site is located approximately 40 miles from the Pacific Ocean; at this distance, a tsunami would not impact the Project vicinity. A seiche is a large wave generated in an enclosed body of water such as a lake, which is also typically caused by an earthquake. Approximately 500 feet south of the southernmost well site (Cactus Corridor East Well 2, Option 1), lies the Moreno Valley Ranch community, which is situated around a 35-acre lake; however, potential for a damaging seiche to be generated at this lake is considered to be low. There are no significant documented seiche hazards for any water bodies within Riverside County (County of Riverside, 2014). Additionally, the well sites would not house sources of pollutants that could be released in the event of inundation (although the treatment/blending facility would). Perris Reservoir is located south of the Project area (approximately two miles south of the southernmost well site). Due to the distance between the reservoir and the Project site, the potential for inundation by seiche is low. As discussed in *Section 3.9 Hazards and Hazardous Materials*, CalARP requires that the treatment/blending facility have plans in place which would ensure safe handling, transport, and storage of hazardous materials (i.e., a Hazardous Materials Business Plan, Emergency Response Plan, and Risk Management Plan). With these plans in place, inundation of the treatment/blending facility would not cause releases of pollutants.

According to FEMA maps (see **Figure 3-1**), areas near the Project sites that fall within the 100- or 500-year floodplain are the storm channel that travels along Kitching Street, the storm channel that travels southwest across Cottonwood Avenue to the intersection of Heacock Street and Alessandro Boulevard, and the storm channel along Camino Flores (FEMA 2008) which are sized to contain the 100-year flood. Areas outside the storm channels themselves, including well and treatment facility sites, are not located in flood areas. Therefore, risk of floods inundating these sites is low. Additionally, once operational the Project would remove existing contamination from the groundwater, which would reduce the risk of pollutant release in the event of heavy rains or flooding. The Project sites are unlikely to become inundated and the potential for release of pollutants is low. Therefore, the impact would be less than significant.

e) Less than Significant Impact

As noted previously, the Basin Plan sets water quality objectives for the Project area. Water quality thresholds identified in the Basin Plan are intended to reduce pollutant discharge and ensure that water bodies are of sufficient quality to meet their designated beneficial uses. The Project would not conflict with the water quality standards outlined in the Basin Plan or worsen water quality conditions in any 303(d)-listed water body. As discussed above, pollutant discharge during construction would be avoided via compliance with the Construction General Permit and SWPPP and NPDES permits for construction dewatering and well test water discharges. Once operational, the Project would extract and treat groundwater, which would then be conveyed for use in EMWD's service area. The Project would not discharge extracted or treated water. The Project would not be a source of pollutants for downstream water bodies (e.g., San Jacinto River,

Canyon Lake, Lake Elsinore). Therefore, the proposed Project would not conflict with the Basin Plan.

Under SGMA, a GSP must be prepared for the San Jacinto Groundwater Basin. The EMWD Board of Directors is the GSA for the West San Jacinto Groundwater Basin and is responsible for development and implementation of a GSP. The GSP must be completed by January 2022 per SGMA regulations, which would be prior to the start of Project operation. The GSP will establish sustainability indicators for the groundwater basin; however, no indicators or thresholds have been established to date. Therefore, the proposed Project would not conflict with the GSP. Currently, groundwater in the Project area carries contaminants and the groundwater table is elevated; the Project is expected to aid in alleviating these issues by extracting and treating groundwater for potable use. The Project would not conflict with applicable water quality control plans or groundwater management plans, and therefore its impact would be less than significant.

Mitigation Measures: None required or recommended.

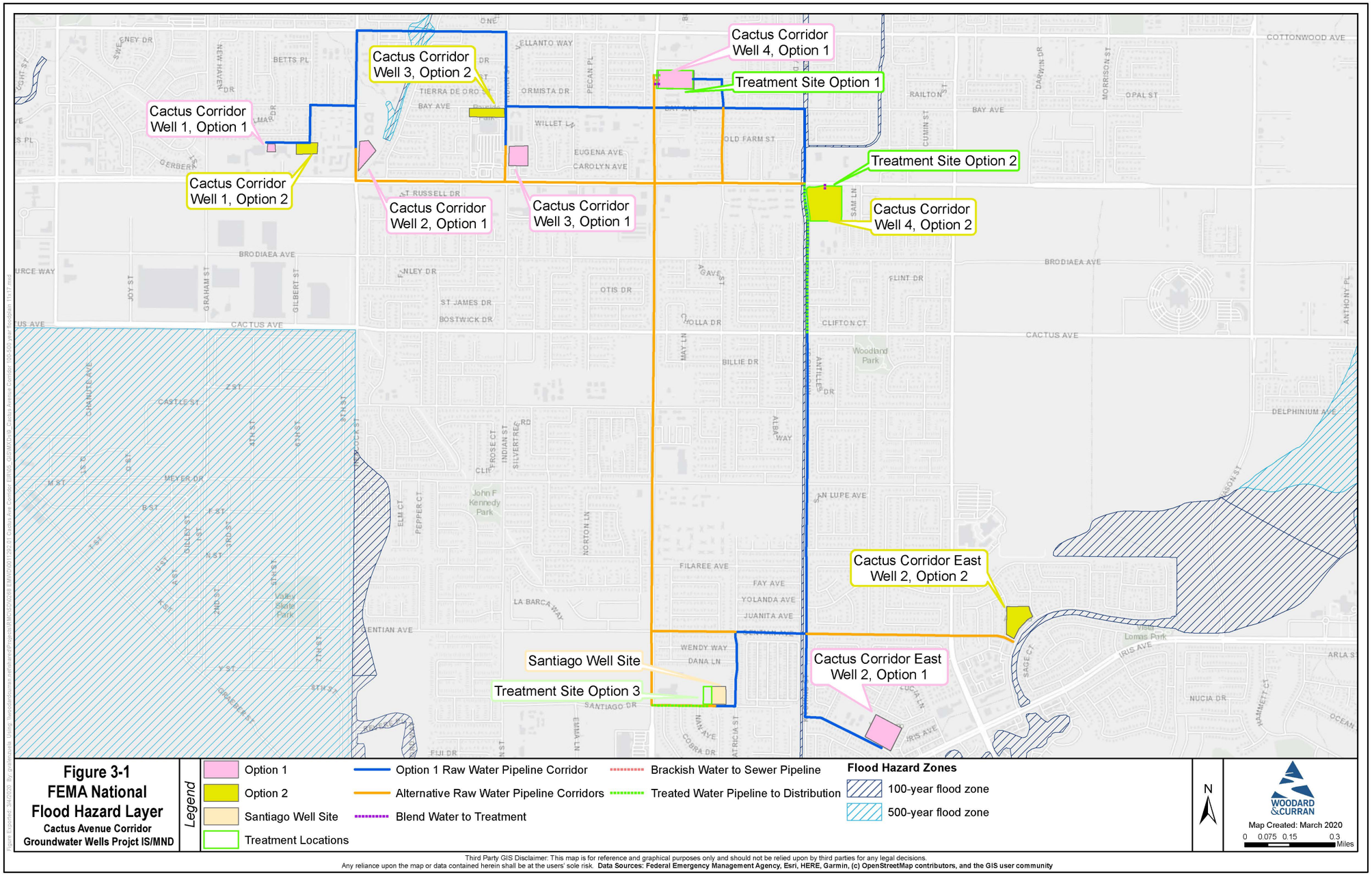

Figure 3-1: Flood Hazard Areas

3.11 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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[ ]	[X]

Discussion

The proposed Project is located in the City of Moreno Valley. Land use in the City is governed by the zoning designations established in the General Plan and by municipal ordinances that outline acceptable uses in each zone. According to the City of Moreno Valley Land Use Map and Zoning Map, land use designations at the proposed potential well sites are neighborhood commercial, office, public facilities, and open space/park uses (City of Moreno Valley 2019b and 2019c). Both of the potential treatment facility sites are zoned for office use. The zoning for each potential well site and treatment facility site are summarized in **Table 3-13**. Pipelines would be constructed in existing roadway rights-of-way. The facilities associated with the proposed Project would be considered "public utility stations, yards, wells and similar facilities" under Title 9 of the Moreno Valley Municipal Code (City of Moreno Valley n.d.a). Such facilities are permitted in areas zoned as open space with a conditional use permit. Wells and treatment facilities are permitted in areas zoned for neighborhood commercial, office, and public use, provided that they are not within 300 feet of a residence or residential use. If facilities are located nearer to residences, a conditional use permit is needed. However, according to California Government Code Section 53091(d) and (e), building and zoning ordinances of a county or city do not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water.

Table 3-13: Zoning and Land Use Designations at Potential Well and Treatment Facility Sites

Site	Land Use	Zoning
North Sub-Area		
Well 1, Option 1	Commercial	Neighborhood Commercial
Well 1, Option 2	Commercial	Neighborhood Commercial

Site	Land Use	Zoning
Well 2, Option 1	Office	Office
Well 3, Option 1	Commercial	Neighborhood Commercial
Well 3, Option 2	Open Space	Open Space/Park
Well 4, Option 1/Treatment Facility Option #1	Residential/Office	Office
Well 4, Option 2/Treatment Facility Option #2	Residential/Office	Office
East Sub-Area		
Santiago Well Site/Treatment Facility Option #3	Public Facilities	Public Facilities
Well 2, Option 1	Open Space	Open Space/Park
Well 2, Option 2	Open Space	Open Space/Park

a) Less Than Significant Impact

The proposed Project facilities would be constructed within established communities. The pipelines would be constructed in existing roadway rights of way and would temporarily affect adjacent land uses through increased dust, noise, and traffic, but impacts would end upon completion of construction, and roadways would be restored to pre-construction condition. All of the well sites currently consist of vacant, disturbed land or public parks with landscaped open space. The wells would have minimal footprints (roughly 20,000 square feet per site) and would not create a physical barrier in the existing communities. The treatment/blending facility site option on Perris Boulevard is currently vacant and located in an existing community comprised of a mix of residential and commercial land uses. The treatment facility site option at Kitching Street is also vacant, and surrounded by office, residential, and commercial land uses (including a school, zoned as office, north of the site across Alessandro Boulevard). The treatment/blending facility site on Santiago Drive is also vacant and surrounded by residential and public facilities land uses. Construction of a treatment/blending facility at each site would not divide the existing surrounding communities. According to the siting criteria, described in *Section 2.4 Project Siting Criteria*, the sites would be accessible by existing public roadways and would not develop new roads that could divide an established community. The proposed Project would not permanently interfere with the pedestrian, bicycle or vehicle circulation of the neighborhoods or community. The proposed Project would have a less than significant impact related to physically dividing an established community.

b) No Impact

The proposed Project would construct wells at existing vacant sites that have various land use designations, including neighborhood commercial, office, open space, and public uses. The well sites, if selected for the proposed Project, would be owned by EMWD and operated for the purposes stated in *Section 2.1 Project Overview*. No other land use would be constructed at the site in the future. The wells and the treatment facility would have a footprint of roughly 20,000 square feet and would prevent the remainder of the chosen site to be developed for its zoned purpose. However, under the City of Moreno Valley's zoning ordinance, facilities such as wells and treatment facilities are permitted at the proposed sites. Therefore, the proposed Project would not conflict with the City of Moreno Valley's zoning policies.

The City of Moreno Valley is located within the Western Riverside MSHCP. However, EMWD is not a participant in the MSHCP, and is therefore not subject to its conditions. The proposed Project would be implemented entirely within disturbed lands within the City of Moreno Valley; it would not impact criteria resource areas identified in the MSHCP. Therefore, the Project would not conflict with applicable land use plans, policies, or regulations intended to avoid or mitigate an environmental effect. No impact would occur.

Mitigation Measures: None required or recommended.

3.12 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?	[ ]	[ ]	[ ]	[X]
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?	[ ]	[ ]	[ ]	[X]

Discussion

The Surface Mining and Reclamation Act of 1975 (SMARA) mandates a process for classification and designation of lands containing potentially important mineral deposits. Classification is carried out by the California Geological Survey (CGS) State Geologist and designation is a function of the CGS State Mining and Geology Board. Lands are given a priority listing through classification into Mineral Resource Zones (MRZs). These MRZs are based on geological appraisals which include the use of literature, geological maps, and publications and data from the CDOC Division of Mines and Geology, USGS, the former U.S. Bureau of Mines, and the U.S. Bureau of Land Management. It also includes site investigations that determine the chemical and physical components of the area. An area can be classified as:

- Areas of Identified Mineral Resource Significance
- Areas of Undetermined Mineral Resource Significance
- Areas of Unknown Mineral Resource Significance
- Areas of No Mineral Resource Significance

The Division of Mines and Geology has identified Moreno Valley has an area with no significant mineral resources (City of Moreno Valley 2006b). There are sand and gravel resources located near Moreno Valley and within Riverside County; however, there are no operating quarries for these resources (City of Moreno Valley 2006a and 2006b). Additionally, the sand and gravel resources found in the nearby areas are not considered to be important local resources (City of Moreno Valley 2006a and 2006b).

a, b) No Impact

The CDOC, Division of Mines and Geology has not identified significant mineral resources within Moreno Valley (Moreno Valley 2006b). The CGS classifies the Project area as sand and gravel resource areas based on SMARA Special Report 143: Part VII (CDOC 2019). The common mineral materials found in the area are sand, gravel, and rock, which are not considered valuable mineral resources locally, to the region, or to residents of the State (Moreno Valley 2006a and 2006b). The Project area is not currently used as a mineral resource recovery site and the proposed Project would not involve mining or the production of mineral resources. No impact on the availability of a known mineral resource or the availability of a locally-important mineral resource recovery site would occur as a result of construction or operation of the proposed Project.

Mitigation Measures: None required or recommended.

3.13 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?	[ ]	[X]	[ ]	[ ]
b) Generation of excessive groundborne vibration or groundborne noise levels?	[ ]	[ ]	[X]	[ ]
c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where	[ ]	[ ]	[ ]	[X]

such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

Discussion

Noise is generally defined as unwanted sound. Noise can cause hearing impairment for humans, and may also disrupt everyday activities such as sleep, speech, and activities requiring concentration. Noise can also interfere with the activities of wildlife, especially nesting birds. Noise-sensitive land uses are generally those where excess noise would disrupt how humans and/or wildlife use the land. Land uses such as schools, churches, and hospitals would typically be considered noise-sensitive. Noise may be generated by mobile (i.e., line) sources (for example, cars, trains, and aircraft) or stationary (i.e., point) sources (for example, machinery, airports, and construction sites).

Noise is described using specific terminology, as summarized below. The following explanations are adapted from the U.S. Department of Transportation Federal Highway Administration (FHWA) *Construction Noise Handbook* (FHWA 2006a) and the U.S. Department of Transportation Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018):

- **A-Weighting.** A method used to account for changes in level sensitivity as a function of frequency. A-weighting de-emphasizes the high (6.3 kilohertz [kHz] and above) and low (below 1 kHz) frequencies and emphasizes the frequencies between 1 kHz and 6.3 kHz, in an effort to simulate the relative response of the human ear.
- **Community Noise Equivalent Level (CNEL).** A 24-hour time-averaged sound exposure level adjusted for average-day sound source operations. The adjustment includes a 5-dB penalty for noise occurring between 7:00 p.m. and 10:00 p.m., and a 10-decibel (dB) penalty for those occurring between 10:00 p.m. and 7:00 a.m., to adjust for the increased impact of nighttime noise on human activities.
- **Day-Night Average Sound Level (DNL, denoted by the symbol, L_{dn}).** L_{dn} describes a receiver's cumulative noise exposure from all events over 24 hours. Events between 10:00 p.m. and 7:00 a.m. are increased by 10 dB to account for humans' greater nighttime sensitivity to noise.
- **Decibel (dB).** A unit of measure of sound level. dB are calculated by comparing sound pressure to a sound pressure reference (the threshold of human hearing) and are measured using a logarithmic scale. A-weighted decibels are expressed as dBA or dB(A).
- **Equivalent Sound Level (L_{eq}).** The equivalent sound level describes a receiver's cumulative noise exposure from all events over a specified period of time.

- **Ground Effect.** The change in sound level, either positive or negative, due to intervening ground between source and receiver. Ground effect is influenced by multiple factors, including ground characteristics, source-to-receiver geometry, and the spectral characteristics of the source. A commonly used rule-of-thumb for propagation over soft ground (e.g., grass) is that ground effects will account for about 1.5 dB per doubling of distance. However, this relationship is quite empirical and tends to break down for distances greater than about 100 to 200 ft.
- **Line Source.** A source of noise that is created by multiple point sources moving in one direction; for example, a continuous stream of roadway traffic, which radiates sound cylindrically. Sound levels measured from a line source decrease at a rate of 3 dB per doubling of distance.
- **Noise Barrier.** The structure, or structure together with other material, that potentially alters the noise at a site.
- **Point Source.** A source that radiates sound spherically. Sound levels measured from a point source decrease at a rate of 6 dB per doubling of distance.
- **Ten-Percentile Exceeded Sound Level (L_{10}).** The sound level exceeded 10 percent of a specific time period. For example, from a 50-sample measurement period, the fifth (10 percent of 50 samples) highest sound level is the 10-percentile exceeded sound level. Other similar descriptors include L_{50} (the sound level exceeded 50 percent of a specific time period), L_{90} (the sound level exceeded 90 percent of a specific time period), etc.

Groundborne vibration may occur when heavy equipment or vehicles create vibrations in the ground, which can then propagate through the ground to buildings, creating a low-frequency sound. Groundborne vibrations can be a source of annoyance to humans due to a “rumbling” effect, and such vibrations may also cause damage to buildings. Groundborne vibration is discussed in terms of these impacts on humans and structures. The annoyance potential of groundborne noise is typically characterized with the A-weighted sound level. Due to its low frequency, groundborne noise sounds louder than airborne noise at the same noise level; therefore, the impact thresholds for groundborne noise are typically lower than those for airborne noise. The following vibration terminology have been adapted from the FTA’s *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018):

- **Vibration Decibels (VdB)**. The vibration velocity level in decibel scale.
- **Peak Particle Velocity (PPV)**. The peak signal value (maximum positive or negative peak) of the vibration signal. PPV is often used in monitoring of construction vibration (such as blasting) because it is related to the stresses that are experienced by buildings and is not used to evaluate human response. PPV is usually expressed in inches/second in the United States.
- **Root Mean Square (rms)**. The rms is used to describe the smoothed vibration amplitude. The rms amplitude is used to convey the magnitude of the vibration signal felt by the human body, in inches/second. The average is typically calculated over a

one-second period. The rms amplitude is always less than the PPV and is always positive.

Transportation is the major source of noise in the City of Moreno Valley. Sources include roadways (especially along SR-60 and arterial roadways due to high traffic volumes) and the joint-use airport at the MARB (City of Moreno Valley 2006a). Sensitive receptors in the Project vicinity include residences, schools, and churches. Sensitive receptors neighbor proposed pipeline alignments, well sites, and treatment facility sites.

Noise Standards

The proposed Project would be located entirely within the City of Moreno Valley. The noise standards for this jurisdiction are summarized herein. For construction noise, the City of Moreno Valley Municipal Code, Sections 8.14.040 and 11.80.030, restricts construction within the City to between 7:00 a.m. and 7:00 p.m. on weekdays, and from 8:00 a.m. to 4:00 p.m. on Saturdays. The City Municipal Code also prohibits sound within the City that exceeds levels determined by the Centers for Disease Control and Prevention and the National Institute for Occupational Safety and Health to cause permanent hearing loss. For a sound that lasts 8 hours per day, that limit is 90 dBA.

For long-term operational noise, the City of Moreno Valley prohibits non-impulsive, maximum noise levels which exceed the following limits measured at a distance of 200 feet or more from the source of the sound, if the sound occurs on public right-of-way, public space or other publicly owned property (**Table 3-14**) (City of Moreno Valley n.da.).

Table 3-14: City of Moreno Valley Noise Guidelines

Residential (in dBA)		Commercial (in dBA)	
Daytime	Nighttime	Daytime	Nighttime
60	55	65	60

City of Moreno Valley General Plan (City of Moreno Valley 2006a) has several policies and objectives related to minimizing noise impacts in the land use planning process.

- Policy 2.2.17: Discourage nonresidential uses on local residential streets that generate traffic, noise or other characteristics that would adversely affect nearby residents.
- Policy 2.10.11: Screen and buffer nonresidential projects from adjacent residential property and other sensitive land uses when necessary to mitigate noise, glare and other adverse effects on adjacent uses.
- Objective 6.3: Provide noise compatible land use relationships by establishing noise standards utilized for design and siting purposes.
- Policy 6.3.1: The following uses shall require mitigation to reduce noise exposure where current or future exterior noise levels exceed 20 CNEL above the desired interior noise level: single- and multiple family residential buildings shall achieve an interior noise level of 45 CNEL or less….New libraries, hospitals and extended

medical care facilities, places of worship and office uses shall…achieve interior noise levels of 50 CNEL or less; New schools shall…achieve interior noise levels of 45 CNEL or less.

- Policy 6.3.2: Discourage the siting of residential land uses where current or projected exterior noise due to aircraft over flights will exceed 65 dBA CNEL.
- Policy 6.3.6: Building shall be limited in areas of sensitive receptors.
- Objective 6.4: Review noise issues during the planning process and require noise attenuation measures to minimize acoustic impacts to existing and future surrounding land uses.
- Objective 6.5: Minimize noise impacts from significant noise generators such as, but not limited to, motor vehicles, trains, aircraft, commercial, industrial, construction, and other activities.
- Policy 6.5.1: New commercial and industrial activities (including the placement of mechanical equipment) shall be evaluated and designed to mitigate noise impacts on adjacent uses.
- Policy 6.5.2: Construction activities shall be operated in a manner that limits noise impacts on surrounding uses.

The City of Moreno Valley is located within Riverside County. The County of Riverside General Plan Noise Element specifies the sound levels for land use compatibility as summarized in **Table 3-15** (Riverside County 2015). These standards are intended to be used for the siting of new land uses.

Table 3-15: Riverside County Sound Levels for Land Use Compatibility

Land Use Type	Normally Acceptable (L_{dn} or CNEL dBA)	Conditionally Acceptable (L_{dn} or CNEL dBA)
Single-family housing; Duplex multi-family housing; Mobile homes	50-60	55-70
Multi-family housing	50-65	60-70
Schools, libraries, churches, hospitals, nursing homes	50-70	60-70
Playgrounds, Neighborhood parks	50-70	not defined
Office buildings; Business; Commercial; and Professional	50-70	67-77

Note: “Conditionally Acceptable” means new development should be allowed only after detailed analysis and incorporation of noise reduction requirements; outdoor environment will seem noisy.

The State of California Department of Health Services also establishes community noise exposure compatibility levels, which are comparable to the County of Riverside land use compatibility noise standards (OPR 2017).

EMWD, as a public agency, is not subject to other jurisdictional agencies' established noise standards. Likewise, as a public agency, EMWD is not subject to the City or County ordinances and would not be required to obtain variances. EMWD has not established an applicable noise standard of its own for permanent or temporary ambient noise levels. The noise standards of the City of Moreno Valley are provided for reference. However, for the purposes of this analysis, noise associated with construction and operation of the proposed Project is not compared quantitatively to the local standards because EMWD, as a public agency, is not subject to them.

Existing Conditions

The Project is located in a suburban area with residential, commercial, office, and open space land uses. Noise-sensitive receptors adjacent to or in the vicinity of well, treatment facility sites and pipeline alignments include residences, schools, and churches. The surrounding receptors and existing attenuation features at each potential Project site are summarized below:

- North sub-area wells sites
    - Cactus Corridor Well 1, Option 1: To the north, a surface parking lot and delivery driveway abut the well site. Across the parking lot are single-family homes, which are behind a 6-foot masonry wall. To the east and south are commercial buildings. West of the site is more surface parking and the side of a commercial building.
    - Cactus Corridor Well 1, Option 2: Single-family homes are located north of the site. The line of sight from the houses to the site is blocked by a 6-foot masonry wall. Along the east border of the site is a chain-link fence, with surface parking and commercial buildings beyond the fence. To the south and west of the site are commercial land uses with no attenuating features. A former preschool is located to the west/southwest of the site and appeared to be abandoned during a site visit in December 2019. One commercial building to the southeast of the site houses the Oasis Community Church; there are no noise attenuation features between the church and the well site. Oasis Community Church holds Sunday service as well as other events for its congregation throughout the week (Oasis Community Church n.d.)
    - Cactus Corridor Well 2, Option 1: This site has uneven ground that may provide sound attenuation. To the north, the site is bordered by a surface parking lot, with commercial buildings beyond. Along the southeast edge, the site is bordered by a masonry wall approximately 4 feet tall, with a storm channel on the opposite side of the wall. Across the storm channel are single-family residences. These residences have masonry or wood walls, approximately 6 feet tall, which provide an additional barrier. West of the site, across Heacock Street, are commercial buildings, multi-family residential buildings, and a privately-owned playground and

off leash dog run for the multi-family residential community. A masonry wall (approximately 4 feet tall) near the residential buildings and playground partially blocks the line of sight between the site and buildings.

- Cactus Corridor Well 3, Option 1: To the north, the site is immediately bordered by commercial buildings (a self-storage facility). To the east are single-family residences with a 6-foot wood fence adjoining the site. To the south are commercial areas, including a gas station. To the west are commercial areas and associated surface parking on the opposite side of Indian Street.
- Cactus Corridor Well 3, Option 3: The site is bordered to the north by Bay Avenue. Across Bay Avenue are single-family residences which generally have no existing noise attenuation features, with the exception of the two residences located at the northern corners of Bay Avenue and Indian Street each have a 6-foot masonry wall along Bay Avenue and Indian Street. Indian Street borders the site to the east. Across Indian Street is a multi-family residential building; parts of the building are blocked by a masonry wall approximately 4 feet tall. Commercial land uses border the southern edge of the site. To the west are masonry walls between the park playground area and residences.
- Cactus Corridor Well 4, Option 1: The north edge of the site abuts single-family homes, with wood or chain-link fences between the site and houses. Residences are located to the east of the site, with wood fences providing separation from the site. The eastern edge of the site is open to Sweetgrass Drive, but the line of sight between houses and the site is blocked by the existing wooden fences. The south side of the site is bordered by a chain-link fence with a military training-focused public charter high school on the opposite side. The west edge of the site is bounded by a chain-link fence and Perris Avenue. Across Perris Avenue are single-family homes surrounded by a 6-foot masonry wall.
- Cactus Corridor Well 4, Option 2: Alessandro Boulevard borders the site to the north. Across Alessandro Boulevard is a school, with the main school building set approximately 300 feet back from Alessandro Boulevard. East of the site is a mobile home park which is generally separated by a wood fence, although the northernmost part of the border has a chain link fence. South of the site, separated by a chain link fence, is Hendrick Ranch Elementary School. Kitching Street borders the site to the west. A storm channel parallels the west side of Kitching Street. Beyond the channel are multi-family residential buildings. These are generally shielded from view of the site by detached garage buildings that are oriented parallel to Kitching Street. The Moreno Valley Public Library is located on the north west corner of Alessandro Boulevard and Kitching Street. A 6-foot masonry wall separates the library from the storm channel and Kitching Street.

- East sub-area well sites
    - Santiago Well Site: The site is located at the City of Moreno Valley Corporate Yard, which extends north and west of the site. To the east, the site abuts single-family homes, which are separated by a 6-foot masonry wall. The site is bounded by a chain-link fence to the south, with Santiago Drive beyond. Across Santiago Drive to the south, houses are shielded by an existing masonry wall (roughly 4 feet tall).
    - Cactus Corridor East Well 2, Option 1: Along the northeast and southeast sides of the site (the existing Victoriano Park), single-family homes are shielded by a 6-foot masonry wall. Los Cabos Drive forms the southwest border of the site. Residences across Los Cabos Drive from the site have no noise-attenuating features. Victoriano Elementary School is located northwest of, adjacent to the site. A chain-link fence separates the site from Victoriano Elementary School.
    - Cactus Corridor East Well 2, Option 2: The site, at the existing Parque Amistad, is immediately bordered on all sides by surface streets. Landscaping trees are present along the edges of the park. To the north, east, and west of the site are single-family residences with no additional noise attenuation features. To the southeast of the site (along Camino Flores) is a storm channel. Houses on the opposite side of the storm channel are shielded by vertical steel, chain link or wood fences.
- Treatment facility sites
    - Option #1 Treatment Facility Site, Perris Boulevard between Cottonwood Avenue and Bay Avenue: This site is at the same location as Cactus Corridor Well 4, Option 1.
    - Option #2 Treatment Facility Site, Alessandro Boulevard at Kitching Street: This is at the same location as Cactus Corridor Well 4, Option 2.
    - Option #3 Treatment facility Site, Santiago Drive: This is the same location as Cactus Corridor East Santiago Well Site.
- Pipeline alignment
    - The pipeline alignment would pass by residential areas, schools, commercial areas, and open spaces (i.e., existing parks). The pipeline alignment would be located in the existing roadway right-of-way, typically at least 25 feet from the nearest receptor.

Ambient noise measurements were conducted in January 2020 at two locations that were deemed representative of the overall Project due to proximity to multiple types of noise-sensitive receptors (**Appendix E**). A 24-hour measurement was conducted at the Treatment Facility Option #1/Cactus Corridor Well 4 Option #1 site and at the Cactus Corridor East Well 2 Option #1 site. The observed CNEL and L_{dn} at the Treatment Facility Option #1/Cactus Corridor Well 4 Option #1 Site were 77 dBA and 76.7 dBA, respectively, and the 24-hour average L_{eq} was 71.5 dBA. The observed CNEL and L_{dn} at the Cactus

Corridor East Well 2 Option #1 Site were 53.2 dBA and 53.1 dBA, respectively and the 24-hour average L_{eq} was 47.0 dBA.

a) Less than Significant with Mitigation Incorporated

Construction

Construction of the proposed Project is expected to last 22 months and would involve noise-generating activities such as excavation, well drilling, and installation of facilities. The construction equipment that would be used for any particular Project component can be found in *Section 2.6 Proposed Project Description*. The typical noise level of each piece of construction equipment that would be used for the Project is shown in **Table 3-16**.

Table 3-16: Typical Construction Equipment Noise Levels

Equipment	Typical Noise Levels (dBA, at 50 feet)
Auger Drill Rig	85
Backhoe/Loader	78
Compressor	78
Concrete Pumper	81
Concrete Saw	90
Crane	81
Drilling Rig	90[1]
Generator	81
Hydraulic Excavator	81
Pavement Breaker	89[1]
Paver	77
Pick-up Trucks	75
Pump	81
Sweeper	82
Utility Truck	74[1]
Water Truck	84[1]
Welder	74

Source: FHWA 2006a

1. Pavement breaker noise level was assumed to be comparable to a jackhammer. Drill rig noise level provided by contractor. Water truck noise was assumed to be comparable to a tractor. Utility truck noise was assumed to be comparable to a flat-bed truck.

Construction of the proposed pipelines would occur in the roadway right-of-way during daytime hours. Potential pipeline alignments are shown in **Figure 2-2**. Potential pipeline alignments may travel along Alessandro Boulevard, Bay Avenue, Cottonwood Avenue, Heacock Street, Indian Street, Perris Boulevard, Kitching Street, Gentian Avenue, Santiago Drive, and/or Los Cabos Drive. Pipelines would be constructed using an open cut method except at crossings of facilities, utilities, and storm channels where trenchless jack-and-bore methods would be used. Pipeline construction would include noise-generating activities such as saw cutting of the pavement, trench excavation, trench backfill and compaction, boring (where required) and site restoration/pavement

replacement. Pipeline construction is expected to occur at a rate of 150 feet per day, and construction would move along the pipeline alignment as it is completed. Therefore, noise levels would affect any one receptor for a short duration. In the limited locations where jack-and-bore methods may be used, construction would occur in one location for a longer period of time and could expose people to increased noise levels.

During Project construction, truck trips would generate noise along haul routes. Project construction would require approximately 105 round-trip worker trips per day and an average of approximately 20 round-trip hauling trips per day. Noise-sensitive land uses along haul routes, including residences and schools, would be exposed to truck noise during construction. The amount of noise generated is affected by the vehicle speed, load, road condition, and other factors. As noted in the City of Moreno Valley General Plan, road noise is a major noise source in the City. Construction truck noise that occurs in noisy locations is generally less disruptive than the same noise would be in a quieter location.

Construction of the treatment facility is expected to last 18 months. Construction would occur during daytime hours and include activities such as site preparation, grading, facilities construction and equipping, and paving. Noise-generating equipment used during treatment facility construction would include a backhoe, welder, compressor, generator, pump, and various truck types. Both potential treatment facility sites are located on vacant parcels adjacent to residences and schools. Daytime construction noise would be generated at the treatment facility site and would expose these nearby sensitive receptors to increased noise levels.

Extraction wells would be constructed in two phases: well drill and well equipping. Well drilling would last nine months per well, including a period of two weeks of continuous drilling to avoid borehole collapse. Well drilling would include additional nighttime construction activities for well development and testing occurring over an additional 12 weeks. Well equipping would last 12 months per well and be conducted during daytime hours. Well sites are located near residences, schools, and churches that would be exposed to elevated noise levels during well construction. In particular, 24-hour construction work has the potential to disturb residents adjacent to the well sites.

Because EMWD is exempt from other jurisdictional agencies' noise ordinances, sound emanating from the proposed Project construction would not be subject to the City of Moreno Valley ordinances. With the exception of well drilling work noted previously, construction activities would occur during daytime hours in accordance with City noise standards. Furthermore, existing ambient noise levels in the City of Moreno Valley are elevated due to existing traffic noise, (e.g., the observed 24-hour average L_{eq} at Treatment Facility Option #1/Cactus Corridor Well 4 Option #1 was 71.5 dBA [**Appendix E**]) which would dampen the perceived noise from the Project's construction activities. Due to the proximity of construction activities to residences and other noise-sensitive land uses, impacts from construction noise would be potentially disruptive to daily activities. With the implementation of **Mitigation Measure NOI-1**, which requires the

construction contractor to implement BMPs for noise control, daytime construction noise impacts would be reduced to less than significant.

Extended nighttime construction work associated with well drilling has the potential to create a significant noise impact on nearby residences. Residential land use would be sensitive to construction noise during nighttime hours because it could be disruptive to sleep. Noise attenuates with distance, and at each parcel selected for a well site, the well would be located within the site such that it is as far as practicable from residential property lines.

Existing features in the area can also attenuate noise to residential receptors. The approximate range of noise attenuation from existing features was estimated based on the Federal Highway Administration Roadway Construction Noise Model User Manual, which provides the guidance on shielding as summarized in **Table 3-17** (FHWA 2006b).

Table 3-17: Noise Shielding Guidance References

dBA of Shielding	Equivalent to the following between noise source and receptor
0	No barriers or breaks in the line of sight between the noise source and the receptor.
3	A noise barrier or other obstruction (like a dirt mound) just barely breaks the line-of-sight between the noise source and the receptor.
5	Noise source is enclosed or shielded with a solid barrier close to the source, but the barrier has some gaps in it.
8	Noise source is enclosed or shielded with a solid barrier close to the source
10	Noise source is completely enclosed and shielded with a solid barrier close to the source.
15	A building stands between the noise source and receptor and completely shields the noise source.

Source: FHWA 2006b

Table 3-18 summarizes existing attenuation features at each site.

Table 3-18: Existing Attenuation Features at Proposed Well and Treatment Site Options

Site	Existing Attenuation Features	Approximate Attenuation Factors (dBA)
Cactus Corridor Well 1, Option 1	6-foot masonry walls	5
Cactus Corridor Well 1, Option 2	6-foot masonry walls	5
Cactus Corridor Well 2, Option 1	Two brick or masonry walls, approximately 4 feet tall, and uneven grassy surface.	5
Cactus Corridor Well 3, Option 1	4-6 foot wood fencing	3
Cactus Corridor Well 3, Option 3	4-6 foot tall masonry walls along corner residence and ground-level apartments. No walls on other lots.	0-3
Cactus Corridor Well 4, Option 1	Wood fences, 6-foot masonry walls or chain link fencing	0-3

Site	Existing Attenuation Features	Approximate Attenuation Factors (dBA)
Cactus Corridor Well 4, Option 2	Wood fences, chain link fencing, partial 6-foot masonry wall	0-3
Santiago Well Site	6-foot masonry walls	5
Cactus Corridor East Well 2, Option 1	6-foot masonry wall	0-5
Cactus Corridor East Well 2, Option 2	Surface streets, trees, storm channel	0-3

The noise from the well drill rig would originate at least 50 feet from residential property lines to accommodate the approximate 150-feet by 150-feet permanent well footprint, and some parcels have existing attenuation features (e.g., masonry walls). However, the well drilling activities (consisting of a drill rig, pickup truck, and backhoe) operating simultaneously would be expected to generate noise levels up to 90.2 dBA L_{eq} at a distance of 50 feet (with no shielding present). Exposing residents to this level of noise over an extended timeframe would constitute a significant impact. In order to mitigate this impact, EMWD shall require that its contractor implement **Mitigation Measure NOI-2**, which requires that sound barriers providing at least 25 dBA of noise attenuation be used during well drilling and nighttime construction activities. With the use of all feasible sound barriers, the noise from well drilling activities would be reduced to 65.2 dBA L_{eq} at a distance of 50 feet (as calculated using the Federal Highway Administration's Roadway Construction Noise Model), which is close to what the City and County consider acceptable noise levels for residential land uses. At a distance of 200 feet from the source, such a sound barrier would reduce construction noise levels to 53.1 dBA L_{eq}, which is within the range of what the City and County consider acceptable nighttime noise levels for residential land uses. With the implementation of **Mitigation Measure NOI-2**, construction noise impacts resulting from the nighttime well drilling activities would be reduced to a less than significant level.

Operation

Once operational, the below-ground conveyance pipelines would not generate noise. Operation of the treatment facility involves use of pumps and an air compressor which typically generate 81 and 78 dBA of noise, respectively at a distance of 50 feet (see **Table 3-16**). To provide noise attenuation, all large equipment (including the well and potable water booster pumps) would be housed within a CMU building, which would provide approximately 10 dBA of attenuation (see **Table 3-17**). In addition, the treatment facility site would be surrounded by a 6-foot tall CMU perimeter wall, which would provide another 5 dBA of shielding. With the shielding from the CMU building and six-foot CMU perimeter wall, noise from the treatment facilities would be less than significant. Well operation would require 24-hour pumping, which would generate noise. To minimize noise from the pumps, they would be enclosed within a CMU well house. In addition, a six-foot tall CMU wall would surround each well house, and wells would be sited at least 50 feet from the nearest adjacent land use. With shielding from the CMU well house and six-foot CMU wall, as well as attenuation due to distance, noise from operation of the well

facilities would be less than significant. Operation and maintenance of the pipelines would be incorporated into EMWD's existing operation and maintenance activities; no new significant vehicle use or associated noise would result from the proposed Project. Ongoing O&M activities at the treatment facility would involve bi-weekly visits by an EMWD operator, monthly routine maintenance, monthly chemical delivery, and annual inspection of the GAC Media. Ongoing O&M for the wells would involve monthly inspections. Long-term noise associated with these minor additional vehicle trips would not result in a noticeable increase in permanent ambient noise above existing levels. With the environmental commitments and project design features, operational noise from the proposed facilities would be less than significant.

b) Less than significant impact

Construction activities associated with the proposed Project would have the potential to generate low levels of groundborne vibration. Groundborne vibrations propagate through the ground and decrease in intensity quickly as they move away from the source. Vibrations with a PPV of 0.2 inches/second or greater have the potential to cause damage to non-engineered timber and masonry buildings (FTA 2018). The *Transit Noise and Vibration Impact Assessment Manual* provides average source levels for typical construction equipment that may generate groundborne vibrations; vibration source levels for construction equipment associated with the proposed Project are summarized in **Table 3-19**. None of the construction equipment to be used would exceed the PPV threshold at a distance of 25 feet, which is the closest that the Project construction would be to adjacent, existing land uses.

Table 3-19: Vibration Source Levels for Construction Equipment

Equipment	PPV at 25 feet (inches/second)	Approximate VdB at 25 feet
Backhoe/Loader	N/A	N/A
Auger Drill Rig	0.089[1]	87[1]
Compressor	N/A	N/A
Concrete Pumper	N/A	N/A
Concrete Saw	N/A	N/A
Crane	N/A	N/A
Drilling Rig	0.089[1]	87[1]
Generator	N/A	N/A
Hydraulic Excavator	N/A	N/A
Pavement Breaker	0.035	79
Paver	N/A	N/A
Pick-up Trucks	0.076[1]	86[1]
Pump	N/A	N/A
Sweeper	N/A	N/A
Utility Truck	0.076[1]	86[1]
Water Truck	0.076[1]	86[1]
Welder	N/A	N/A

Source: FTA 2018
Most construction equipment is not expected to generate vibration; these are denoted with "N/A."
1. Drill rig PPV was assumed to be comparable to caisson drilling. Pavement breaker was assumed to be comparable to a jackhammer. Pickup trucks, utility trucks, and water trucks were assumed to be comparable to "loaded trucks" as listed in the *Transit Noise and Vibration Impact Assessment Manual.*

According to the FTA's *Transit Noise and Vibration Impact Assessment Manual*, 80 VdB is the threshold for human annoyance from groundborne vibration noise when events are infrequent. Typical vibration dB levels for construction equipment are summarized in **Table 3-19**. The proposed Project would not involve use of high-impact activities, such as piledriving or blasting, that typically generate high levels of groundborne vibration. However, loaded trucks and well drilling rigs would produce levels of vibration noise that exceed the threshold for human annoyance at a distance of 25 feet. Groundborne vibration noise from the most impactful piece of equipment (drilling rig) would attenuate to below 80 VdB at a distance of 43 feet ($VdB_{distance} = VdB_{reference} - 30\log(distance/25)$) (FTA 2018). Vibration noise from trucks would attenuate to below 80 VdB at a distance of 40 feet. Sensitive receptors are located at least 50-feet from the noise source, so the impact would be less than significant.

Pipeline construction would occur near sensitive receptors including residences and schools. Pipeline construction would occur only between the hours of 7:00 a.m. and 7:00 p.m. on weekdays, and from 8:00 a.m. to 4:00 p.m. on Saturdays in accordance with City Code. The pipeline would be constructed at least 25 feet from the nearest sensitive receptors. Loaded trucks which may generate groundborne vibration noise may be used during pipeline construction. These trucks could generate vibration noise above 80 VdB at receptors within 40 feet of the construction sites. Vibrations associated with pipeline construction would occur infrequently and would be short in duration. Additionally, pipeline construction would move along the alignment at a rate of 150 linear feet per day and would not remain in the same location for an extended period of time; therefore, sensitive receptors near the pipeline alignment would not experience vibrations for the entire duration of Project construction. Exposure would be temporary, sporadic, and limited in duration. Once operational, the pipeline would not produce groundborne vibration or groundborne noise.

Multiple well sites would be located near sensitive receptors, including schools, churches and residential areas. Vibrations may be generated by loaded trucks traveling to or from the well sites or moving about at a site. However, each well would be located at least 50 feet (i.e. more than 43 feet, the distance at which groundborne noise would dissipate to less than 80 VdB) from the nearest sensitive receptors, therefore ongoing vibration noise generated by the drill rig would not meet the threshold for human annoyance at sensitive receptors. Once operational, the wells would not produce groundborne vibration or noise.

Construction of the treatment facility would require the use of loaded trucks that could generate intermittent groundborne vibration noise. Treatment facility construction would

be limited to daytime hours. Both potential treatment facility sites are at least 40 feet, the distance at which groundborne noise would dissipate to less than 80 VdB, from the nearest sensitive receptors; therefore, vibration noise generated during construction activities would not meet the threshold for human annoyance. Once operational, the treatment facility would not produce groundborne vibration noise.

Construction of the proposed Project may generate low levels of vibration noise; however, the potential impacts on surrounding land uses would be infrequent, temporary and short in duration. Vibration and vibration noise would not be damaging or excessive, therefore the impact would be less than significant.

c) No impact

There is one airport in the Project vicinity, the MARB/March Inland Port. The base is located southwest of the City of Moreno Valley, roughly one-half mile from the Project site; the runways at the base are approximately 1.75 miles from the Project site. The Project site would be outside the 60-CNEL noise contour for the airport (City of Moreno Valley 2006b). Therefore, the Project would not expose residences or workers to excessive aircraft noise and there would be no impact.

Mitigation Measures:

To mitigate possible noise impacts of the Project, EMWD shall implement **Mitigation Measure NOI-1** and **Mitigation Measure NOI-2**. With these mitigation measures incorporated, the Project impacts are considered less than significant.

Mitigation Measure NOI-1: Construction Noise Reduction Measures

EMWD shall require its contractor to implement the following actions relative to construction noise:

- EMWD shall conduct construction activities between 7:00 a.m. and 7:00 p.m. on weekdays and 8:00 a.m. and 4:00 p.m. on Saturdays, in accordance with the City of Moreno Valley Municipal Code, Sections 8.14.040 and 11.80.030, with the exception of specific well drilling and testing activities, which require 24-hour continuous work.
- Prior to construction, EMWD in coordination with the construction contractor, shall provide written notification, to all properties within 100 feet, as determined by the maximum 90 dBA noise contour, of the proposed Project facilities informing occupants of the type and duration of construction activities. Notification materials shall identify a method to contact EMWD's program manager with noise concerns. Prior to construction commencement, the EMWD program manager shall establish a noise complaint process to allow for resolution of noise problems. This process shall be clearly described in the notifications.
- Stationary noise-generating equipment shall be located as far from sensitive receptors as possible. Such equipment shall also be oriented to minimize noise

that would be directed toward sensitive receptors. Whenever possible, other non-noise generating equipment (e.g., water tanks, roll-off dumpsters) shall be positioned between the noise source and sensitive receptors.

- Equipment and staging areas shall be located as far from sensitive receptors as possible. At the staging location, equipment and materials shall be kept as far from adjacent sensitive receptors as possible.
- Construction vehicles and equipment shall be maintained in the best possible working order; operated by an experienced, trained operator; and shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds).
- Unnecessary idling of internal combustion engines shall be prohibited. In practice, this would require turning off equipment if it would idle for five or more minutes.
- Electrically powered equipment shall be used instead of pneumatic or internal-combustion powered equipment, where feasible.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.

Mitigation Measure NOI-2: Noise Barriers

EMWD shall require its contractor to install temporary construction noise barriers prior to the start of well construction activities that would occur outside the hours specified by the City of Moreno Valley Municipal Code Sections 8.14.040 and 11.80.030. These barriers shall block the line of sight between the equipment and the noise-sensitive receptor(s) and shall provide a minimum of 25 dBA of noise attenuation. Due to the height of the drill rig, the noise barrier shall be at least 24 feet tall. The construction noise barrier shall be constructed of a material with a minimum weight of one pound per square foot with no gaps or perforations. It shall remain in place until conclusion of the nighttime construction activities. The Project plans and specifications shall include documentation from a noise consultant verifying the inclusion of an appropriate noise barrier.

3.14 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	[ ]	[ ]	[ ]	[X]

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?	[ ]	[ ]	[ ]	[X]

Discussion

In 2015, EMWD served an estimated retail population of 546,146 through approximately 136,200 single family accounts, 4,300 multi-family accounts, and other commercial, industrial, institutional, landscape, and irrigation accounts. EMWD's service area is currently 40 percent built out, making it one of the few regions in Southern California that will see significant population growth in the coming decades. As planned for in the EMWD 2015 Urban Water Management Plan (UWMP), EMWD's retail service area population will increase to approximately 939,100 in 2040 with an estimated 230,500 single family accounts and 7,300 multi-family accounts (EMWD 2016).

a) No Impact

The proposed Project would not directly induce unplanned population growth because no new housing or permanent employment are proposed. The proposed Project involves expansion of EMWD's water service infrastructure within its existing service area to augment water supply reliability and offset imported water. This supply would accommodate existing water demand and is consistent with planned growth anticipated in the 2015 UWMP. Therefore, the proposed Project would not directly or indirectly induce unplanned population growth and no impact would occur.

b) No Impact

Construction and operation of all proposed Project features would occur within existing roadways or on vacant lots or parks. The Project would not displace existing people or houses or require the construction of replacement housing. At the parks, the approximate 150 feet by 150 feet well sites would be accommodated in the existing, open grassy spaces and would not displace people or housing. For these reasons, no impact would occur.

Mitigation Measures: None required or recommended.

3.15 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 following public services:	[ ]	[ ]	[X]	[ ]
i) Fire protection?	[ ]	[ ]	[ ]	[X]
ii) Police protection?	[ ]	[ ]	[ ]	[X]
iii) Schools?	[ ]	[ ]	[ ]	[X]
iv) Parks?	[ ]	[ ]	[X]	[ ]
v) Other public facilities?	[ ]	[ ]	[ ]	[X]

Discussion

Fire Protection

The City of Moreno Valley provides fire protection and emergency services within the proposed Project area and is part of the California Department of Forestry and Fire Protection (Cal Fire)/Riverside County Fire Department's regional, integrated cooperative fire protection organization. The Moreno Valley Fire Department has seven fire stations that service the City (City of Moreno Valley n.d.e).

Police Protection

The City of Moreno Valley contracts police services from the Riverside County Sheriff's Department to provide police protection and crime prevention services. The Moreno Valley Police Department operates out of the Public Safety Building located at 22850

Calle San Juan de Los Lagos, approximately one mile west of the Project area. The department also uses satellite offices in strategic locations throughout the City (City of Moreno Valley n.d.f).

Schools

Children who reside in the City of Moreno Valley attend schools within two different school districts: the Moreno Valley Unified School District and the Val Verde Unified School District. A satellite campus of Riverside Community College is also located within Moreno Valley, 0.65 miles from the proposed Project sites at 16130 Lasselle Street. The Moreno Valley Unified School District operates 39 preschools, elementary schools, middle schools, high schools, and alternative schools within Riverside County (Moreno Valley Unified School District 2019). The Val Verde Unified School District operates 24 preschools, elementary schools, middle schools, high schools, and alternative schools within Riverside County (Val Verde Unified School District 2019).

Parks

The Moreno Valley Parks and Community Services Department manages and provides maintenance services for City Parks and Facilities, and provides a wide range of recreation activities, programs and services throughout the community. There are 38 parks and recreational facilities operated by the Moreno Valley Parks and Community Services District (City of Moreno Valley, n.d.c). The City of Moreno Valley Parks, Recreation and Open Space Comprehensive Master Plan (2010) defines local park and recreation facilities as Community Parks, Neighborhood Parks, Mini Neighborhood Parks, Greenways and Specialty Parks. The proposed Project has identified three City of Moreno Valley parks as optional well sites. These three parks are classified as Neighborhood and Mini Neighborhood; therefore, background information provided herein is focused on these two park classifications.

Neighborhood Parks typically range from five to 20 acres in size and are geared to serve residents living within three-quarters of a mile. Amenities typically programmed into a Neighborhood Park include informal open play areas; children's play apparatus; picnic tables and shelters; barbecues; practice sports fields; basketball, tennis and volleyball courts; public restrooms; and onsite parking. Mini Neighborhood Parks typically range from one-quarter to five acres in size and are intended to meet specialized recreational needs. Site amenities at Mini Neighborhood Parks can include both active and passive features including landscaped use in industrial or commercial areas; children's play apparatus; picnic areas and sitting areas. The City (2010) recognizes the need to ensure park facilities are evenly distributed throughout the city by identifying service radius standards. The service radius for Neighborhood Parks is three-quarter to one mile. Due to the limited amenities included in Mini Neighborhood Parks, they are not typically included in the service radius count.

The proposed Project has identified three parks as options for well sites. Cactus Corridor Well 3, Option 2 would be located in Bayside Park. The 2.04-acre site is designated as a Mini Neighborhood Park and includes a half-court basketball court, horseshoe pits,

playground equipment, picnic tables and shelter, barbecues, drinking fountains, security lighting, a concrete walking trail and open landscaped green space. Most of the park's hardscape facilities, including benches, picnic tables, and playground equipment, are clustered together on the western half of the park. The walking path, a park bench, landscape grass, and landscape trees occupy the eastern half. The site abuts Food 4 Less grocery store to the south, and two residences to the west. Bay Avenue runs north along the site, with residences on the north side of Bay Avenue. Indian Street forms the east border of the site. This park is 100 percent built out (City of Moreno Valley 2010), with 28 percent (0.57 acre) dedicated to hardscape features and 72 percent (1.47 acres) dedicated to green space features.

Cactus Corridor East Well 2, Option 1 would be constructed in Victoriano Park. The five-acre site is designated as a Neighborhood Park and includes a soccer field, multi-purpose field, and open green space with landscaping trees. Hardscape features include barbecues, a paved walking trail, picnic tables and shelter, vending machine, drinking fountains, security lighting, a restroom, and parking. Victoriano Elementary School is located northwest of the park. To the north and east, single-family residences surround the park. To the southwest, Los Cabos Drive borders the site. This park is 100 percent built out (City of Moreno Valley 2010), with 10 percent (0.51 acre) dedicated to hardscape features and 90 percent (4.49 acres) dedicated to green space features.

Cactus Corridor East Well 2, Option 2 would be located in Parque Amistad. The 4.24-acre site is designated as a Neighborhood Park and includes two softball fields, and open landscaped green space. Hardscape features include two basketball half-courts, playground equipment, barbecues, picnic tables and a shelter, drinking fountains, and security lighting. The park is bordered on all sides by paved roads (Camino Flores, Calle Camelia, Calle Alto, and Caballo Road). Residential neighborhoods surround the park. This park is 100 percent built out (City of Moreno Valley 2010) with 10 percent (0.43 acre) dedicated to hardscape features and 90 percent (3.81 acres) dedicated to open, landscaped green space features.

Libraries

There are two public libraries accessible to Moreno Valley residents. The main 16,000 square foot Moreno Valley Public Library is located at 25480 Alessandro Boulevard, on the northwest corner of Alessandro Boulevard and Kitching Street. A branch location is at the Moreno Valley Mall on 22500 Town Circle (City of Moreno Valley n.d.b).

Hospitals

There are two hospitals located within Moreno Valley. The Riverside County Regional Medical Center (26520 Cactus Avenue) and the Kaiser Permanente Moreno Valley Medical Center (27300 Iris Avenue) (City of Moreno Valley 2006a).

a.i.) No Impact

The proposed Project would not construct new or physically altered fire protection facilities, nor would it substantially change response times or service ratios for fire protection services and facilities. Fire protection requirements during construction of the proposed Project would be short-term and the demands would be filled by the existing local work force. Existing fire protection services provided by the Riverside County Fire Department would be sufficient to provide fire or other emergency response to the proposed Project sites. In addition, operation of the proposed Project would not directly or indirectly induce unplanned population growth that would require construction of new fire departments or expansion of fire protection facilities. No additional or increased fire protection facilities to maintain response times, service ratios, or other measures of performance would be required. As a result, no impact on fire protection services would occur.

a.ii.) No Impact

The proposed Project would not construct new or physically altered police protection facilities, nor would it substantially change response times or service ratios for police services and stations. In the event of an emergency at a proposed Project site, existing police services provided by the Riverside County Sheriff's Department would be sufficient. In addition, operation of the proposed Project would not directly or indirectly induce unplanned population growth that would require construction of a new or expansion of the existing police station to maintain response ratios, service ratios, or other measures of performance. As a result, no impact to police services would occur.

a.iii.) No Impact

The proposed Project would not change existing demand on schools because the Project would serve existing and planned communities. Construction of the proposed Project does not include housing and operation would not result in new employment or population growth that would result in an influx of students. No new school facilities would need to be built in order to maintain class size ratios or other performance objectives. As a result, no impact on schools would occur.

a.iv.) Less than Significant Impact

Three parks have been selected as options for installation of two proposed groundwater extraction wells: One at Bayside Park (Cactus Corridor Well 3 Option 2), and one at either Victoriano Park or Parque Amistad (Cactus Corridor East Well 2 Option 1 and Option 2), as shown in **Figure 2-2**. Each well site would have a footprint of 150 feet by 150 feet when completed. Installation of a well at any of these park locations would occur within open, landscaped green space portions of the parks and would not require removal of any park facilities or equipment. The wells would be secured with a CMU well housing structure and a perimeter wall around the well site. Impacts would result from temporary construction activities, which would adhere to standard EMWD BMPs (see *Section 2.7 Environmental Commitments*). In total, the Project would result in replacement of up to

approximately 20,000 square feet (one-half acre) of open, landscaped public park area for each of the groundwater extraction wells.

If Cactus Corridor Well 3 is located at Option #2, Bayside Park, it would occupy one-half acre of the park's 1.47 acres, or 34 percent, of green space area, leaving 0.97 acre of open green space area available. The percentage of the park dedicated to open green space would decrease from 72 percent to 48 percent. If Cactus Corridor East Well 2 is located at Option #1, Victoriano Park, it would occupy one-half acre of the park's 4.49 acres, or 11 percent, of green space area, leaving 3.99 acres of open green space area available. The percentage of park dedicated to open green space would decrease from 90 percent to 80 percent. If Cactus Corridor East Well 2 is located at Option #2, Parque Amistad, it would occupy one-half acre of the park's 3.81 acres, or 13 percent, of green space area, leaving 3.31 acres of open green space area available. The percentage of park dedicated to open green space would decrease from 90 percent to 78 percent.

The City of Moreno Valley's General Plan policy 4.2.7 establishes the City level of service (LOS) standard as 3 acres of developed parkland for every 1,000 residents, which is the minimum parkland dedication allowed by the Quimby Act for residential subdivisions (City of Moreno Valley 2010). The City of Moreno Valley has two methods to determine its park acreage ratio. The first method only counts City-owned parkland in its calculation of total parkland acres. The second method counts City-owned parkland and school fields and facilities available for park and recreation uses. The City is heavily dependent on school fields and facilities to meet the demand for sports fields, after-school recreation programs and cultural programs; it makes up for a lack of City-owned parkland by utilizing school fields and facilities for park and recreation purposes. Therefore, it relies on the second method in evaluating its level of service. These two methods are calculated in **Table 3-20**.

Table 3-20: Analysis of Current Parkland Acreage Requirements

City of Moreno Valley	Method 1 (Not counting school fields)	Method 2 (Counting school fields)
Population	184,000 people	184,000 people
General Plan Recommended Park Standard	3 acres/1,000 people	3 acres/1,000 people
Park Acres Required to meet General Plan Standard	552 acres	552 acres
Actual Park Acres	393 acres	608 acres
Actual Acres/1,000 Population Ratio	2.14 acres/1,000 people	3.304 acres/1,000 people
Total parkland acreage required for development of the Project	1	1

City of Moreno Valley	Method 1 (Not counting school fields)	Method 2 (Counting school fields)
Acre/1,000 Population Ratio after implementation of the Project	2.13	3.30

Source: City of Moreno Valley 2010

As shown in **Table 3-20**, the proposed Project would not significantly reduce the City's park service ratio. In addition, the City (2010) intends to build more parks in the future, including Lasselle Sports Park, Cottonwood Park, and Patriot Park, which would lessen the impacts of the proposed Project.

In addition to the 3 acres/1,000 residents service ratio, City (2010) also recognizes the National Recreation and Park Association recommendation that urban cities strive to reach a goal of 10 acres per 1,000 of population counting local, regional and state/federal parkland and facilities within the agencies' sphere of influence. This ratio is presented for the City of Moreno Valley in **Table 3-21**.

Table 3-21: Analysis of Current Local, Regional and State/Federal Open Space Requirements

City of Moreno Valley	Metric
Moreno Valley Parkland	393 acres
School District Land	215 acres
County Regional Parkland	1,155 acres
State Park Recreation Area	1,821 acres
Total Parkland Available	3,584 acres
Desired acre/1,000 population ratio	10 acres
Population	184,000
Actual acres/1,000 population ratio	19.48 acres
Total parkland acreage required for development of the Project	1 acre
Acres/1,000 population ratio after implementation of the Project	19.47

Source: City of Moreno Valley 2010

As shown in **Table 3-21**, the proposed Project would not significantly reduce the desired acres per 1,000 population ratio designated by the National Recreation and Park Association.

In total, the proposed Project could replace up to one acre of open green space park land within the City of Moreno Valley. However, Cactus Corridor Well 3 may be sited at Option 1, a vacant parcel near the intersection of Alessandro Boulevard and Indian Street. In the event that Cactus Corridor Well 3 is sited at Option 1, instead of at Option 2 (Bayside Park) the Project would avoid impacting one-half acre of parkland and would, overall, result in replacement of only one-half acre of open, landscaped public park area associated with Cactus Corridor East Well 2. If Cactus Corridor Well 3 is sited at Bayside Park (Option 2), the total area of landscaped park that would be replaced by the proposed Project would be approximately one acre (one-half acre for Cactus Corridor Well 3 plus one-half acre for Cactus Corridor East Well 2). Overall, this would not have a significant

impact on the City's target of 3 acres per 1,000 residents of parks and open space because the City currently has a ratio of 3.304 acres of park and open space for every 1,000 residents and the Project would reduce that ratio to 3.30 acres per 1,000 people (see **Table 3-21**). It would also not impact the City's service radius objectives for Neighborhood Parks. As mentioned in the *Discussion*, above, the City aims to provide a mix of both hardscape and open green space at its Neighborhood and Mini Neighborhood parks. With implementation of the proposed Project, each of the three parks would continue to offer a mix of hardscape features (playground equipment, basketball courts, picnic tables and shelters, etc.) and open landscape features (multi-purpose fields, walking paths, etc.). Furthermore, the Project does not propose new housing or employment that would result in an increase in the demand for park facilities in the area or a further reduction in the park service ratio. Finally, the City (2010) intends to build more park land in the future, including Lasselle Sports Park, Cottonwood Park, and Patriot Park, which would lessen the impacts of the proposed Project. As a result, a less than significant impact on parks would occur. This impact is also addressed under *Section 3.16 Recreation*.

a.v.) No Impact

The proposed Project would not change existing demand on other public facilities because the Project does not propose new housing units, nor would it directly or indirectly induce population or employment within the area. Construction and operation of the Project would not necessitate expansion of existing or construction of new public facilities such as libraries or hospitals. Therefore, no impact to other public facilities would occur.

Mitigation Measures: None required or recommended.

3.16 Recreation

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
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?	[ ]	[ ]	[X]	[ ]
Does the Project include recreational facilities or require the construction or expansion of	[ ]	[ ]	[ ]	[X]

recreational facilities which might have an adverse physical effect on the environment?

Discussion

While implementation of the proposed Project does not include new housing or employment that would increase use of existing recreation facilities, three proposed Project site options occur within existing parks. These are Victoriano Park (Cactus Corridor East Well 2 Option 1), Parque Amistad Park (Cactus Corridor East Well 2 Option 2), and Bayside Park (Cactus Corridor Well 3 Option 2). Each of these parks is described above in *Section 3.15*.

a) Less than Significant Impact

Victoriano Park and Parque Amistad contain approximately 4.49 acres and 3.81 acres open landscaped green space area, respectively. The proposed Cactus Corridor East Well footprint would occupy approximately one-half acre of green space areas at one of the sites. The percentage of park dedicated to open landscaped green space would decrease from 90 percent to 80 percent at Victoriano Park and 78 percent at Parque Amistad. The proposed well would avoid impacting existing park hardscape features, which include picnic benches, barbecues, and playground equipment. Construction would have a temporary impact on access to and use of the recreational facilities. However, the Project would not result in a permanent physical deterioration of the existing recreational facilities and, once construction is complete, the park would continue to offer a mix of both hardscape and open green space features deemed valuable in the City Parks, Recreation and Open Space Comprehensive Master Plan (2010).

Bayside Park is approximately two acres and most of the park's facilities including benches, picnic tables, and playground equipment, are clustered together on the western half of the park. A walking path, a park bench, and landscape trees occupy the eastern half. Installation of the well would occur within the open, landscaped portion of the park and would not involve removal of the park hardscape features on the western half of the park. The percentage of Bayside Park dedicated to open green space would decrease from 72 percent to 48 percent if Cactus Corridor Well 3 is located at this site. Construction would have a temporary impact on access to and use of the recreational facilities. However, the Project would not result in a permanent physical deterioration of the existing recreational facilities and, once construction is complete, the park would continue to offer a mix of both the hardscape and open green space features deemed valuable in the City Parks, Recreation and Open Space Comprehensive Master Plan (2010) for this park.

Construction of the wells would occur within open, landscaped areas of the parks and would not involve removal of recreational facilities or equipment. Impacts from construction and operational activities would be minimized through adherence to standard EMWD BMPs (see *Section 2.7 Environmental Commitments*). Ongoing O&M activities would be minimal (monthly site visits from EMWD operators to inspect the site) and would not interfere with regular use of the parks and park facilities. Well operation would require

24-hour pumping, which would generate noise. To minimize noise from the pumps, they would be enclosed within a CMU well house and a 6-foot tall CMU wall would surround each well house. In addition, as explained under *Section 3.15*, the Project would not reduce the City's park service ratio target below 3 acres per 1,000 residents (see **Table 3-21**) and it would not impact the City's service radius objectives for Neighborhood Parks. The proposed Project does not include residential housing and would not induce population growth that would permanently increase the use of the parks and recreational facilities. Therefore, the proposed Project would have a less than significant impact.

b) No Impact

Implementation of the proposed Project would not require construction or expansion of recreational facilities which could have an adverse physical impact on the environment. As a result, no impact would occur.

Mitigation Measures: None required or recommended.

3.17 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?	[ ]	[X]	[ ]	[ ]
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	[ ]	[ ]	[X]	[ ]
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	[ ]	[X]	[ ]	[ ]
d) Result in inadequate emergency access?	[ ]	[X]	[ ]	[ ]

Discussion

The major roadways that provide regional access to the Project site are State Route 60 (SR-60), which runs east-west through the City of Moreno Valley, and Interstate 215 (I-215), which is located immediately west of the City and is the primary route for north-south travel. Local access within the Project area is provided by Cottonwood Avenue, Alessandro Boulevard, Cactus Avenue, Perris Boulevard, Kitching Street, and others. Public transportation in the Project area consists of bus service provided by the Riverside Transit Authority; bus stops exist in the Project vicinity, such as along Alessandro Boulevard. Class 2 bike lanes and Class 3 bike routes also exist in the Project area.

The City of Moreno Valley General Plan Circulation Element establishes goals, objectives, and policies for transportation in the City. The General Plan identifies acceptable LOS standards for roadways in the City. Acceptable levels of service in the Project vicinity are LOS C or D, depending on the roadway (City of Moreno Valley, 2006a).

The RCTC works to plan and implement transportation improvements throughout the County, including assisting local governments with funding. RCTC maintains a Congestion Management Program, which is periodically updated and was last updated and adopted in 2011. RCTC has also prepared a Long Range Transportation Study (LRTS), which incorporates the Congestion Management Plan (CMP). The LRTS aims to develop strategies to address transportation challenges, provide a vision of future transportation in Riverside County, and develop a list of high-priority projects to be implemented. The LRTS evaluates highways, major roadways, transit, freight transport, and active transportation in Riverside County. The CMP portion of the LRTS indicates that all intersections and segments evaluated in the Project area are operating at LOS D or better (RCTC 2019).

The WRCOG conducts various transportation studies and develops plans to help address transportation, transit, and active transportation issues in Western Riverside County. WRCOG has prepared the Western Riverside County Active Transportation Plan, which is intended to improve transportation choices within the subregion (WROCG 2018). The Active Transportation Plan is not a policy document; it is meant to serve as a resource for WRCOG's member agencies in pursuing funding for active transportation projects.

The SCAG Regional Transportation Plan/Sustainable Communities Strategy (SCAG 2016) identifies strategies to meet mobility of all modes, legislative, financial and air quality requirements in Southern California. It is updated every four years, most recently in June 2016. Most projects in the City of Moreno Valley focus on roadway improvements such as resurfacing and widening (SCAG 2016).

a) Less Than Significant with Mitigation Incorporated

Project construction is estimated to last 22 months. Construction of the treatment facility and pipelines would occur on weekdays between 7:00 a.m. and 8:00 p.m., in accordance with the City of Moreno Valley Municipal Code Section 11.80.030.(D)(7). Well drilling would be conducted continuously for 24 hours per day for two weeks in order to prevent borehole collapse, with additional nighttime construction activities occurring over an additional 12 weeks. Additional details on the construction schedule can be found in

Section 2.6 Proposed Project Description. During construction, truck trips would be associated with construction crews and materials deliveries. Construction is estimated to generate approximately 125 round-trip trips per day, which includes trips for off-hauling of export material, delivery of materials, and construction worker commuting. All construction activities would occur within the City of Moreno Valley roadway rights of way, areas adjacent to the roadways, and on the parcels selected for well and treatment facility sites.

Construction-related traffic would be temporary. Potential traffic-related impacts associated with pipeline construction would move along the pipeline alignment over the 22-month construction period, and disturbed areas would be restored to original condition. For treatment facility and well construction, construction would occur at the sites and would not impede circulation on the adjacent roadways. Construction traffic is expected to consist of 125 round trips per day, distributed across all of the proposed Project sites, which would not produce a significant impact to the LOS of roadways in the Project area. Therefore, Project construction would not conflict with policies outlined in the City of Moreno Valley General Plan.

Operation of the proposed Project would not conflict with regional transportation plans or the City of Moreno Valley General Plan because it would install below-ground pipelines, wells, and a treatment facility that would not have a permanent impact on circulation. EMWD would continue operating its water system, including the new wells and treatment facility, using standard vehicles. The proposed Project's long-term impacts on the circulation system would therefore be less than significant.

Although construction impacts would be temporary and have limited footprints, construction of the proposed Project may require temporary closures of roadways, bicycle lanes, and sidewalks. Potential traffic impacts related to these closures shall be mitigated through the implementation of a Traffic Control Plan as **Mitigation Measure TRA-1**, which would ensure that appropriate traffic controls are implemented and potential traffic impacts related to these closures are less than significant.

b) Less Than Significant Impact

CEQA Guidelines Section 15064.3, subdivision (b) outlines criteria for analyzing transportation impacts in terms of VMT for land use projects and transportation projects. VMT refers to the amount and distance of automobile travel attributable to a project. The City of Moreno Valley has not yet adopted local VMT significance criteria.

Construction of the proposed Project would involve temporary trips associated with workers, delivery of construction supplies and equipment, and hauling materials to and from the site. These trips would be temporary, occurring during the 22-month construction period, and would not cause a notable increase in VMT that would exceed a City or County threshold of significance. Operation of the proposed Project is expected to require truck trips, which consists of monthly visits to well sites and biweekly visits to the treatment facility site. These trips would be incorporated into EMWD's existing operation and maintenance program and would not significantly increase in VMT in the Project area.

Therefore, the Project would be consistent with CEQA Guidelines Section 15064.3, subdivision (b) and the impact would be less than significant.

c) Less Than Significant with Mitigation Incorporated

The Project would not construct new roadways, and existing roadways would be restored to their prior condition once construction is complete. Therefore, the Project would not create roadway hazards as a result of operation.

Project construction may require some incompatible uses on roadways in the Project area (i.e., transportation of heavy construction equipment), which could temporarily increase hazards near Project sites such as the staging location at the treatment facility site. The Traffic Control Plan implemented under **Mitigation Measure TRA-1** would include measures to ensure that vehicle ingress and egress from construction sites and the staging area occurs safely. With the implementation of **Mitigation Measure TRA-1**, the impacts from the proposed Project would be less than significant.

d) Less Than Significant with Mitigation Incorporated

Construction of the proposed Project may require lane closures along the pipeline alignment and would generate trips associated with construction (worker travel and delivery of materials and equipment). Lane closures have the potential to hinder access for emergency vehicles. Traffic control measures implemented during Project construction would require that emergency crews be able to access sites and surrounding areas. The contractor would coordinate to ensure that emergency responders are informed of construction locations. Traffic control measures would also require that the contractor make a reasonable effort to preserve access to business and properties during construction. In order to prevent Project construction from interfering with emergency responders, **Mitigation Measure TRA-1** would be implemented. With this mitigation measure incorporated, impacts would be reduced to less than significant.

Mitigation Measures:

To mitigate possible impacts to circulation and emergency access during construction, EMWD shall implement **Mitigation Measure TRA-1**. The Project impacts are considered less than significant with mitigation incorporated.

Mitigation Measure TRA-1: Traffic Control Plan

Prior to Project construction, EMWD shall require its construction contractor to implement a Traffic Control Plan, to be approved by the EMWD construction inspector and the City of Moreno Valley. The Traffic Control Plan shall:

- Identify staging locations to be used during construction
- Identify safe ingress and egress points from staging areas
- Identify potential road closures

- Establish haul routes for construction-related vehicle traffic
- Identify alternative safe routes to maintain pedestrian and bicyclist safety during construction

EMWD's project manager shall coordinate with emergency services (police, fire, and others) to notify these entities regarding construction schedule, Project alignment and siting, and potential delays due to construction. EMWD shall identify roadways and access points for emergency services and minimize disruptions to or closures of these locations.

The Traffic Control Plan shall include provisions for traffic control measures including barricades, warning signs, cones, lights, and flag persons, to allow safe circulation of vehicle, bicycle, pedestrian, and emergency response traffic. The Traffic Control Plan shall be reviewed and approved by EMWD's project manager and the construction inspector prior to Project construction. EMWD's construction inspector shall also provide the construction schedule and Traffic Control Plan to the City of Moreno Valley for review to ensure that construction of the proposed Project does not conflict with other construction projects that may be occurring simultaneously in the Project vicinity.

3.18 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	[ ]	[X]	[ ]	[ ]

	Resources Code section 5020.1(k), or				
ii)	A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	[ ]	[X]	[ ]	[ ]

Discussion

A Cultural Resources Assessment Report was prepared in February 2020 for the proposed Project. On January 6, 2020 a cultural resources records search of the CHRIS was conducted at the Eastern Information Center at the University of California, Riverside. *Section 3.5 Cultural Resources* provides a summary of the CHRIS and other database searches that were conducted for the Project, which concluded that no known cultural resources are located within the Project area. A field survey was conducted on January 20 and 21, 2020. No cultural resources were discovered during the field survey. The Cultural Resources Assessment Report is provided in **Appendix C**.

On December 26, 2019 Section 106 Native American outreach was initiated. The Native American Heritage Commission (NAHC) was contacted to request a Sacred Lands File search of the Project area and a one-half-mile radius surrounding it. A list of Native American groups and/or individuals culturally affiliated with the area who may have knowledge of the cultural resources in the Project area was also requested. The results of the Sacred Lands File search by the NAHC did not indicate the presence of Native American sacred lands within the vicinity of the Project area. The NAHC provided a list of 32 Native American contacts. On January 15, 2020, letters were prepared and mailed to each of these groups. On January 28, 2020 and February 3, 2020, follow-up phone calls were conducted with the Native American contacts who had not responded to the initial letter. A total of eight responses were received from outreach efforts. A summary of each response received as of February 5, 2020 follows.

- On January 17, 2020, an email was received from Alexandra McCleary, Tribal Archaeologist for the San Manuel Band of Mission Indians (SBMI), noting the proposed Project is located outside of the Serrano ancestral territory. Ms. McCleary

stated SBMI will not be requesting consulting party status with the lead agency or requesting to participate in the scoping, development, and/or review of documents created pursuant to legal and regulatory mandates.

- On January 28, 2020, a letter was received from Bobby Ray Esparza, Cultural Coordinator for the Cahuilla Band of Indians, stating the Cahuilla Band of Indians do not have knowledge of any cultural resources near or within the Project area. Although the Project is outside the Cahuilla reservation boundary, it is within the Cahuilla traditional land use area. Therefore, Mr. Esparza stated the Cahuilla Band of Indians have an interest in the Project and would like to consult in the Section 106 process. Additionally, Mr. Esparza requested a tribal monitor be present during all ground disturbing activities. Finally, the tribe asked they be notified of all updates with the Project moving forward.
- On January 28, 2020, the Project was discussed with Robert Dorame of the Gabrielino/Tongva Indians of California Tribal Council. He requested a copy of the notification letter be emailed to him. The letter was emailed to Mr. Dorame on January 28, 2020. On February 3, 2020, Mr. Dorame stated he would review the copy of the notification letter. On February 5, 2020, Mr. Dorame stated on a phone call that in the event that cultural resources and/or artifacts pertaining to the Tongva people are impacted or unearthed, that he would like to be notified. Additionally, he noted that if human remains are unearthed and identified by the Coroner as indigenous people, the Gabrielino Tongva Indians of California Tribal Council would like to be contacted regardless of the MLD designation from the NAHC.
- On January 28, 2020, Chairman Steven Estrada of the Santa Rosa Band of Cahuilla Indians was called. Mercedes Estrada in the tribal administration office stated that the tribe does not have any comments regarding the Project at this time.
- On January 28, 2020, Co-Chairman Mark Cochrane of the Serrano Nation of Mission Indians was called. He stated that the Tribe does not have any comments regarding the Project at this time.
- On January 28, 2020, Chairman John Christman of the Viejas Band of Kumeyaay Indians was called and a message was left. Ray Turan returned the call and stated the Project is outside of the Tribe's area of cultural interest.
- On January 30, 2020, An email from Travis Armstrong, Tribal Historic Preservation Officer (THPO) for the Morongo Band of Mission Indians was received. Mr. Armstrong stated that the THPO acknowledges the letter sent on behalf of the Project. Mr. Armstrong stated the proposed Project is within a particularly sensitive area of the ancestral territory of the Cahuilla and Serrano people of the Morongo Band of Mission Indians. Mr. Armstrong noted the one-half-mile search radius was inadequate to evaluate resource patterning and potential for buried deposits. He requested a search radius of at least one mile. Mr. Armstrong asked that the THPO be furnished with copies of the site records for all prehistoric archaeological resources within the one-

mile radius. Additionally, Mr. Armstrong requested a listing of all cultural studies or surveys previously conducted within the one-mile radius be provided.[2]

- On February 3, 2020, Chairwoman Donna Yocum of the San Fernando Band of Mission Indians was called. Chairwoman Yocum stated that the Tribe would like to defer to the local tribes regarding this Project and does not have further comments.

Appendix C provides further information on contact efforts and provides copies of all non-confidential Native American outreach correspondence.

Assembly Bill (AB) 52 Consultation

AB 52 establishes a formal consultation process between the lead agency, EMWD, and all California Native American Tribes within the area regarding tribal cultural resource evaluation. AB 52 mandates that the lead agency must provide formal written notification to the designated contact of traditionally and culturally affiliated California Native American tribes that have previously requested notice. Native American tribes are notified early in the project review phase by written notification that includes a brief description of the proposed Project, location, and the lead agency's contact information. The Tribal contact then has 30 days to request project-specific consultation pursuant to this section (Public Resources Code Section 21080.1).

As a part of the consolation pursuant to Public Resources Code (PRC) Section 21080.3.1(b), both parties may suggest mitigation measures (PRC Section 21082.3) that can avoid or substantially lessen potential significant impacts to tribal cultural resources or provide alternatives that would avoid significant impacts to a tribal cultural resource. The California Native American tribe may request consultation on mitigation measures, alternatives to the project, or significant effects. The consultation may also include discussion on the environmental review, the significance of tribal cultural resources, the significance of the project's impact on the tribal cultural resources, project alternatives, or the measures planned to preserve or mitigate. Consultation shall end when either: 1) both parties agree on the mitigation measures to avoid or mitigate significant effects on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

EMWD has consulted with Native American tribal representatives through written correspondence, based on a contact list of tribes who indicated to EMWD that they are interested in receiving notification. Consultation initiation letters went out to the Pechanga Band of Luiseño Indians, Soboba Band of Luiseño Indians, Morongo Band of Mission Indians, San Manuel Band of Mission Indians, Rincon Band of Luiseño Indians and the

[2] Although it is not dictated by any specific legal code, a one-half-mile radius surrounding a project's impact area is considered industry standard for the NAHC Sacred Lands File records search because it generally tends to capture the presence of Native American sacred lands within the vicinity of a project. Given the highly disturbed condition of the proposed Project area, a one-half-mile search radius was considered sufficient for the Project.

Agua Caliente Band of Cahuilla Indians on October 1, 2019. EMWD subsequently consulted with representatives from the Pechanga Band of Luiseño Indians (1/27/20), Soboba Band of Luiseño Indians (11/26/19), Rincon Band of Luiseño Indians (12/3/19), and Agua Caliente Band of Cahuilla Indians (12/13/19) to discuss the proposed Project and potential effects on cultural resources.

a) Less than Significant with Mitigation Incorporated

The results from the Cultural Resources Assessment Report (**Appendix C**) determined there are no cultural resources, Native American or historical, within the Project area. The assessment consisted of Native American and historical society consultation, historical map and imagery review, and a field survey. Most of the Project area includes areas highly disturbed by urban development, which makes the possibility of encountering intact surface tribal cultural resources low. However, the lack of surface evidence of archaeological remains does not mean there are no cultural resources to be found below the surface. There is potential for construction ground-disturbing activities to expose previously unrecorded tribal cultural resources.

No archaeological resources have been previously recorded within or immediately adjacent to the Project area. The majority of the archaeological sites documented within the record search area are of prehistoric bedrock milling features which are located approximately a half-mile away from the Project area. These results suggest that there is a relatively low potential for encountering substantial prehistoric archaeological remains during construction activities. To avoid or lessen potential risk of impacting tribal cultural resources, **Mitigation Measures CUL-1** through **CUL-7** would be implemented. **Mitigation Measures CUL-1**, **CUL-2**, and **CUL-3** would require agreements and monitoring plans be established prior to any ground-disturbing activities; **Mitigation Measures CUL-4, CUL-5**, and **CUL-6** would require appropriate treatment of any inadvertently discovered artifacts. **Mitigation Measure CUL-7** would ensure proper procedures are in place if human remains are discovered during construction and for the remains to be analyzed to determine origin and disposition pursuant to PRC Section 5097.98. With the implementation of **Mitigation Measures CUL-1** through **CUL-7** impacts to tribal cultural resources would be less than significant.

Mitigation Measures: Refer to **Mitigation Measures CUL-1** through **CUL-7** in *Section 3.5 Cultural Resources.*

3.19 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 storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	[ ]	[X]	[ ]	[ ]
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?	[ ]	[ ]	[ ]	[X]
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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	[ ]	[ ]	[X]	[ ]

Discussion

Water Supply

EMWD is the primary water purveyor in Moreno Valley and provides potable water, recycled water, and wastewater services for the proposed Project area. The majority of EMWD's supply is imported from the MWD via the State Water Project and the Colorado River Aqueduct for potable and non-potable use and groundwater recharge. Groundwater is also pumped from the Hemet/San Jacinto and West San Jacinto areas of the San Jacinto Groundwater Basin to offset imported water supplies. Groundwater in portions of the West San Jacinto Basin is high in salinity and requires desalination treatment in one of two EMWD desalination plants before potable use (EMWD 2016).

Wastewater and Recycled Water

EMWD provides wastewater collection, treatment, and recycled water services in the proposed Project area. EMWD currently treats approximately 46 million gallons per day (mgd) of wastewater at its four active regional water reclamation facilities (RWRF) (EMWD n.d.b). Wastewater collected in the Perris North Management Zone, which encompasses the proposed Project area, is treated at RWRFs located in Moreno Valley, Perris Valley, and Sun City. During 2018, the Moreno Valley RWRF, which is the RWRF closest to the Project area, treated a total of 10,909 AF of wastewater. The Moreno Valley RWRF facility has a capacity of 21 mgd, with build out capacity to 41 mgd (EMWD 2019).

EMWD owns, operates, and maintains a recycled water system in conjunction with the RWRFs. The Moreno Valley RWRF is located at 17140 Kitching Street, south of the proposed Project area. Recycled water is used extensively in EMWD's service area and EMWD regularly uses 100 percent of its recycled water supply for beneficial use. Approximately 47 percent of the recycled water is used for agricultural irrigation, 35 percent for municipal and industrial use, and 18 percent for irrigated landscaping, golf courses, construction, and habitat creation (EMWD 2019). EMWD also produces recycled water supply for distribution to retail and wholesale customers.

Stormwater

The RCFCWCD provides regional stormwater and flood control protection for the proposed Project area. The City of Moreno Valley has the responsibility for design, construction, and maintenance of local drainage facilities, including road curb and gutter and roadside ditches (City of Moreno Valley 2006a). Existing stormwater infrastructure in the Project area includes large drainage channels along the west side of Kitching Street, along the east side of Camino Flores, and east of Heacock Street abutting the residential property lines. Stormwater quality and flooding potential in the proposed Project area are described in *Section 3.10 Hydrology and Water Quality*.

Solid Waste

Waste pickup within the proposed Project area is provided by Waste Management of Inland Empire and is primarily deposited in the Riverside County Waste Management District (RCWMD)'s Badlands Landfill (31125 Ironwood Avenue, Moreno Valley). However, trash haulers can also use other County landfills such as the Lamb Canyon Landfill (16411 Lamb Canyon Road, Beaumont) and El Sobrante Landfill (10910 Dawson Canyon Road, Corona). All Riverside County landfills are Class III disposal sites permitted to receive non-hazardous municipal solid waste. (City of Moreno Valley 2006b).

Utilities

Electrical service in the proposed Project area is provided by MVU and SCE (City of Moreno Valley 2006a). MVU was established in 2001 to provide electrical service to new residents and businesses within areas of the City that are being converted from fallow or agricultural lands to housing, commercial and industrial uses. MVU's service area extends from the City boundary in the south up to Bay Avenue, covering the majority of the proposed Project area. Electrical service for the proposed Project alignment between Bay Avenue and Cottonwood Avenue (bound by Heacock Street and Indian Street) is provided by SCE. Natural gas service for the entire proposed Project area is provided by the Southern California Gas Company (City of Moreno Valley Financial and Management Services n.d.).

a) Less than Significant with Mitigation Incorporated

The proposed Project would construct groundwater extraction wells, raw and treated water pipelines, and a water treatment/blending facility in the Perris North Groundwater Management Zone. Stormwater drainage facilities would be constructed at the treatment/blending site to capture and convey onsite storm water runoff to the local storm drain system in accordance with applicable municipal stormwater drainage design and water quality control requirements. The Project would not require improvements to the existing municipal storm water drain system as only minor increases in runoff would occur. As discussed in *Section 3.14 Population and Housing*, the proposed Project would serve existing and planned communities and would not induce unplanned population or employment growth that would require or result in the construction of new or expanded water, wastewater treatment, stormwater drainage, electrical power, natural gas, or telecommunications facilities. As explained in *Section 2.6 Proposed Project Description*, the proposed wells and treatment/blending facilities would use up to 6,482,400 kWh/year (6.5 gigawatt hours [GWh]) per year of electricity. In 2018 MVU and SCE each used 193 GWh and 85,276 GWh, respectively (CEC n.d.). The demands of the proposed Project would be relatively small compared to the overall capacity of the local electrical utilities. Therefore, the Project would not result in the need to construct new electrical facilities. The environmental impacts of the proposed Project's new water production and associated conveyance and treatment facilities are evaluated throughout this IS/MND and are anticipated to all be mitigated to a less than significant level.

b) No Impact

The proposed Project involves expansion of EMWD's water service infrastructure within its existing service area to augment water supply reliability and offset imported water. Construction of the proposed Project would require a minimal water supply for purposes such as dust control and concrete mixing. Existing sources would be sufficient and no new or expanded supply would be required for construction. Operation of the proposed Project would not induce unplanned population growth that would require or result in the construction of new water treatment facilities or the expansion of existing facilities. The supply would accommodate existing water demand and is consistent with planned growth anticipated in the 2015 UWMP. No impact related to sufficient water supplies would occur.

c) Less than Significant Impact

The proposed Project would construct groundwater extraction, treatment/blending, and distribution infrastructure and would not induce unplanned population growth that would result in or require expansion of existing wastewater collection or treatment services. The proposed Project would discharge brackish or backwash water from the central treatment and blending facility to the sanitary sewer system, which is operated by EMWD. The amount of wastewater discharged into the sanitary sewer system would be small compared to the approximately 43 mgd of wastewater EMWD treats throughout its service area and is not expected to require expansion of existing wastewater treatment services. Therefore, impacts would be less than significant.

d) Less than Significant Impact

Construction of the proposed Project would generate soil and asphalt waste during installation of underground pipelines, installation of wells, and construction of the treatment/blending facilities. While excavated soil would be reused onsite as backfill to the extent feasible, it is estimated that approximately 41,800 cy of material would need to be disposed at a permitted landfill in accordance with local and state solid waste disposal requirements. There are two State regulations that set standards for solid waste generation: AB 939 mandates 50 percent diversion of solid waste; and AB 341 mandates recycling programs to help reduce GHG emissions. According to the City of Moreno Valley's 2006 General Plan, the Badlands sanitary landfill had an overall remaining disposal capacity of approximately 9,804,704.62 tons of solid waste for disposal and was expected to reach capacity between 2018 and 2020 (City of Moreno Valley 2006b). The landfill however, submitted a Revised Solid Waste Facilities Permit to Riverside County in 2011 to increase design capacity from 30,386,993 cy to 33,560,993 (CalRecycle n.d). This changed the anticipated closure date to 2024. Construction of the proposed Project would be complete by 2023. Therefore, the existing landfills would have a total permitted area to accommodate construction debris from the proposed Project. Excess construction debris is reasonably anticipated to be within the permitted capacity of the Moreno Valley and Riverside County landfills after onsite backfill of excavated soil combined with adherence to mandatory construction waste diversion requirements.

Operation of the proposed Project is not anticipated to generate long-term solid waste. Therefore, solid waste generation would be limited to temporary construction activities and would not affect available solid waste disposal capacity in the region. Therefore, impacts related to local infrastructure capacity would be less than significant, and no mitigation would be required.

e) Less than Significant Impact

Construction and operation of the proposed Project would comply with local, State, and federal regulations related to solid waste. While operation of the proposed Project is not anticipated to generate a significant amount of long-term solid waste, construction activities would create debris such as excavated soil and asphalt. Excavated soil would be backfilled to the extent possible, but construction contractor(s) would be required to dispose of excess construction debris in accordance with existing reduction statutes (AB 939 and AB 341) and regulations. These regulations would determine the landfill to be used for disposal of construction debris, disposal of solid waste from operation of the water treatment facility, mandatory 50 percent diversion of solid waste (AB 939), and mandatory recycling programs to reduce GHG emissions (AB 341). Therefore, impacts related to compliance with local, State, and federal reduction statues and regulations related to solid waste would be less than significant, and no mitigation would be required.

Mitigation Measures: No additional mitigation measures required or recommended.

3.20 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?	[ ]	[X]	[ ]	[ ]
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?	[ ]	[ ]	[ ]	[X]

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?	[ ]	[ ]	[ ]	[X]
d) Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	[ ]	[ ]	[ ]	[X]

Discussion

The California Department of Forestry and Fire Protection's Fire and Resource Assessment Program (FRAP) assesses the amount and extent of California's forests and rangelands, analyzes their conditions and identifies alternative management and policy guidelines (https://frap.fire.ca.gov/). FRAP maps are used to identify areas of VHFHSZ within LRAs. The proposed Project is located within the Moreno Valley LRA and is designated as non- VHFHSZ (FRAP 2009).

The City of Moreno Valley EOP provides guidance for the City's response to extraordinary emergency situations associated with natural, man-made and technological disasters. While the EOP is a preparedness document and is designed to be read, understood, and exercised prior to an emergency, emergency evacuation plans should be viewed as living documents because communities change and integrating the needs of individuals with differing access and functional needs is a dynamic process. The OEM is responsible for working and communicating with local community stakeholders to practice, review, revise, and update plans to reflect changes in technology, personnel, and procedures (City of Moreno Valley 2019a).

The City of Moreno Valley Local Hazard Mitigation Plan (LHMP) is designed to reduce or eliminate long-term natural or man-made hazard risks and communicate the City's corresponding mitigation strategy. Components of the plan include hazard identification, asset inventory, risk analysis, loss estimation, and a mitigation strategy to reduce the effects of hazards in the City. Figure 12-2 of the LHMP shows the Moreno Valley Evacuation Routes Map 2016 (City of Moreno Valley 2017).

a) Less than Significant with Mitigation Incorporated

Construction activities would be located primarily within easements, public rights of way, open space (parks), and vacant, EMWD-owned land. Potential staging areas include

vacant areas within the proposed treatment/blending facility site options. Sidewalk and lane closures during construction would temporarily restrict access for use by emergency response vehicles or emergency evacuations and could impair implementation of or physically interfere with the City's adopted EOP. Implementation of **Mitigation Measure TRA-1** would require EMWD to develop a Traffic Control Plan, which would reduce conflict between Project construction activities and the EOP and LHMP by requiring coordination with emergency services (police, fire, and others); requiring identification of roadways and access points for emergency services; and requiring that disruptions to or closures of these locations be minimized. Impacts of construction on the adopted emergency evacuation plan would be less than significant with mitigation incorporated. Further consideration of the proposed construction activities and potential for roadway access and hazardous conditions can be found under *Section 3.17 Transportation*.

Operation of the proposed Project would not physically impair or otherwise interfere with adopted emergency response or evacuation plans in the Project area as all ground surfaces of existing rights of way would be returned to pre-construction conditions after excavation and below-grade pipeline installation. The Project would involve minimal additional vehicles being added to roadways (bi-weekly visits by an EMWD operator, monthly routine maintenance, monthly chemical delivery, annual inspection of the GAC Media, monthly inspections of the wells, and tanker truck trips every four or five days to the IEBL disposal site); therefore, the Project would not interfere with emergency evacuation plans. Impacts would be less than significant with mitigation incorporated.

b) No Impact

The proposed Project area is designated as non-VHFHSZ within the Moreno Valley LRA. Pipelines would be installed below grade within public rights of way and well extraction sites and the treatment facility would be located on parcels that do not have steep slopes. Construction of the proposed Project wells and treatment facility vacant parcels would replace sparse grasses with low-profile concrete, steel infrastructure and treatment/blending facilities, reducing potential wildfire fuel. No impacts would occur.

c) No Impact

The proposed Project would not involve the installation or maintenance of infrastructure that is typically associated with fire risk, such as roads, fuel breaks, emergency water sources, or power lines. The proposed Project would rely on existing roads and utilities. Installation of pipelines would occur within existing easements and roadways; well sites and the treatment facility would be located within open space and vacant EMWD-owned land. The proposed Project area is designated as non-VHFHSZ within the Moreno Valley LRA. No impact would occur.

d) No Impact

The proposed Project would be located within existing public rights-of-way, open space, and vacant EMWD-owned land. Pipelines would be installed below-grade and overlying ground surface will be restored to pre-construction conditions, resulting in no permanent

impact on site drainage. Construction of the well sites and treatment facility would occur within vacant lots or parks that do not have steep slopes susceptible to landslides. While installation of the wells and treatment facility would replace existing soil and grass with impervious concrete and steel infrastructure, proposed Project sites are not located on a downward slope that would result in increased drainage or runoff that could contribute to post-fire slope instability, landslides, or flooding. The proposed Project would have a less than significant impact related to increasing impervious surfaces and stormwater runoff (see *Section 3.10 Hydrology and Water Quality*). No impact would occur.

Mitigation Measures: Refer to **Mitigation Measure TRA-1** in *Section 3.17 Transportation*.

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Does the Project:				
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	[ ]	[X]	[ ]	[ ]
b) Have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a Project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	[ ]	[ ]	[X]	[ ]

c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	[ ]	[X]	[ ]	[ ]

Discussion

a) Less Than Significant with Mitigation Incorporated

With the implementation of mitigation measures, the proposed Project would have a less than significant impact on the environment. Potential construction impacts on burrowing owl, horned larks, and common avian species such as mourning doves and house finches would be reduced to a less than significant level through the implementation of **Mitigation Measures BIO-1** and **BIO-2**. No cultural or archaeological resources were identified within the area that would be directly impacted by the Project activities plus a one-half-mile buffer; however, there is a potential for previously unknown cultural material to exist at Project sites. With the implementation of **Mitigation Measures CUL-1** through **CUL-7**, potentially significant impacts on cultural resources would be reduced to less than significant. The Project site overlies Holocene deposits, which have low paleontological sensitivity, overlying Pleistocene sediments at a depth of approximately 11 feet, which have high paleontological sensitivity. Impacts on paleontological resources are not anticipated because Fossiliferous deposits have the potential to occur at greater depths than most of the proposed Project ground disturbance. To ensure proper procedures are in place in the event of an unanticipated fossil discovery, **Mitigation Measure GEO-1** would be implemented during all construction phases of the Project. **Mitigation Measure GEO-1** would ensure any unanticipated fossil discovered onsite would be preserved, and potential impacts on paleontological resources would be less than significant.

b) Less Than Significant

According to CEQA Guidelines Section 15130(b) there are two approaches to discussing cumulative project impacts: either the *List-of-Projects Method:* a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or the *Summary-of-Projections Method:* a summary of projections contained in an adopted general plan or related planning document or in a prior environmental document that has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency. EMWD is relying on the *List-of-Projects* method for purposes of this analysis. The Cactus Avenue Corridor Groundwater Wells Project is currently being considered as one project of several within a grant application to the State Water Board called the Perris North Groundwater Program. The other projects include projects that would result in the construction and operation of groundwater monitoring wells, extraction wells, treatment and distribution facilities also within the Perris North Basin. The other projects include the following:

- Well 204 Project Cactus Avenue Corridor Groundwater Wells Project;

- Perris North Groundwater Monitoring Project; and
- Well 65/66 Project.

The Well 204 Project consists of the development of one extraction well, a water treatment plant and pipelines in the Perris South Sub-Area of the basin. The Perris North Groundwater Monitoring Project is designed to monitor the presence of groundwater COCs from nonpoint sources throughout the Perris North Basin. The Groundwater Monitoring project consists of up to ten monitoring wells that would be constructed at various locations within the Perris North Groundwater Management Zone. The Well 65/66 Project consists of the development and use of two new groundwater wells and water treatment plant also within the Perris North Basin. Although related due to their inclusion in the grant application, each project is a stand-alone project independent of the other for project implementation.

Construction of these projects would occur at different times and sites far enough removed from each other that construction related cumulative effects such as fugitive dust and construction noise would be less than significant. Development would adhere to applicable rules and regulations related to dust suppression, traffic control, storm water control, handling/storage of hazardous materials, and regulations related to protections for plants/animals/waters of the State and U.S. Cumulative impacts in these areas are also considered less than significant. The only operational vehicle trips associated with the various projects listed above would be the infrequent monitoring/maintenance trips and brine disposal trips, which would result in an insignificant cumulative increase on area roadways separated in time and distance. Cumulative noise and air quality effects from these projects would also be less-than-significant due to their minimal contribution. Therefore, these projects are not expected to create impacts that are individually limited, but cumulatively considerable.

In addition to, and separate from, the Perris North groundwater Program, EMWD is undertaking the Cactus II Feeder pipeline project, which will convey MWD water to EMWD's potable system. Turnout 2 for the Cactus II Feeder pipeline project is located at the same site as the proposed Project Option #1 Treatment Facility site. The Cactus II Feeder Turnout 2 would be constructed on the western one-third of this site through January 2023. The eastern two-thirds of the site would be available for construction of the proposed treatment and blending facility and extraction well, if the site is selected. The main equipment storage/staging area for the Project would be located at the selected treatment facility site. If the Option #1 Treatment Facility site is selected, it may not be large enough to accommodate all of the equipment storage/staging for the proposed Project and simultaneous construction of the Cactus II Feeder Turnout 2. If the treatment facility site cannot accommodate all equipment storage/staging for the proposed Project, other existing EMWD property would be utilized, as necessary, for staging and intermediate storage for the installation of the water pipelines, or the contractor would be responsible for securing suitable temporary equipment storage/staging site(s) prior to construction, as well as implementing applicable environmental commitments at the staging area(s). Therefore, the cumulative effect is not expected to be considerable.

The proposed Project would not have impacts that are individually limited, but cumulatively considerable. The impacts of the proposed Project have been analyzed in accordance with the CEQA Guidelines; each topic has been found to have either no impact, a less than significant impact, or a less than significant impact with mitigation incorporated. The Project is of a limited scale, and, taken in sum with other projects in the area, would not produce cumulatively considerable impacts to the environment or human beings. Therefore, cumulative impacts of the proposed Project would be less than significant.

c) Less Than Significant with Mitigation Incorporated

The proposed Project has the potential to exceed SCAQMD Regional Thresholds for NO_X emissions during construction. However, with the implementation of **Mitigation Measure AIR-1**, requiring the use of construction equipment with Tier 4 engines, these impacts would be reduced below the SCAQMD Regional Thresholds, and the impact would be less than significant.

The proposed Project could degrade public views and visual character in the Project area. To minimize visual impacts on public views, **Mitigation Measure AES-1** would require permanent, aboveground structures (treatment/blending facility, extraction well houses) to be designed to blend into the existing visual character of their surroundings, including building and wall height, color, and exterior architectural treatments. The Project would also cause light and glare impacts on surrounding land uses and night sky viewing during construction. In responses, **Mitigation Measure AES-2** would require all nighttime construction lighting to be of the lowest illumination necessary for Project construction, attached to motion sensors, and shielded and directed downward to avoid light spillage onto neighboring properties. **Mitigation Measure AES-3** would require all permanent nighttime lighting and fixtures to comply with Riverside County Ordinance No. 655 for Zone B of the Mount Palomar Nighttime Lighting Policy Area.

The proposed Project may expose the community, including sensitive receptors, to noise from Project construction and operation. **Mitigation Measure NOI-1** would ensure that construction noise is reduced using BMPs, and **Mitigation Measure NOI-2** would require the use of noise barriers to reduce the noise level at sensitive receptors to the maximum extent possible. Noise resulting from Project operation would be minimized by designing the facilities to meet operational noise standards and no mitigation would be necessary. With these mitigation measures in place, the proposed Project would have a less than significant impact on human beings as a result of noise.

Although all existing applicable regulations would be followed by the Project, during construction, there is generally the potential for hazardous materials associated with typical construction activities to be released. **Mitigation Measure HAZ-1** would minimize the risk of hazardous material exposure through material use and accidents by requiring EMWD and its construction contractor to develop a Hazardous Materials Management and Spill Prevention and Control Plan to ensure project-specific contingencies are in place.

Construction of the proposed Project may require temporary closures of traffic lanes and rerouting of bicycle and pedestrian traffic. These closures could impact humans if they reduce pedestrian, bicycle, or vehicle safety, or if they impede emergency access for emergency responders. With the implementation of **Mitigation Measure TRA-1**, which requires a traffic control plan to address such impacts, transportation and related safety impacts would be less than significant.

The impacts of the proposed Project have been analyzed in accordance with the CEQA Guidelines; each topic has been found to have either no impact, a less than significant impact, or a less than significant impact with mitigation incorporated. Therefore, with the implementation of the mitigation measures noted above, the proposed Project would not result in any environmental effects that would cause substantial adverse effects on human beings either directly or indirectly.

Mitigation Measures: See **Mitigation Measures AIR-1, BIO-1, BIO-2, CUL-1, CUL-2, CUL-3, CUL-4, CUL-5, CUL-6, CUL-7, GEO-1, HAZ-1, NOI-1**, **NOI-2**, and **TRA-1**.

4. FEDERAL CROSS-CUTTING ENVIRONMENTAL REGULATION EVALUATION

Should the proposed Project apply for funding from a federal program (U.S. Department of the Interior, Bureau of Reclamation) or a partially funded federal program (SWRCB's Clean Water State Revolving Fund [CWSRF] and DWSRF), federal environmental review requirements must be met. Although CEQA was modeled after the National Environmental Policy Act (NEPA), where there are differences between the State's process under CEQA and the applicable federal statutes and regulations, the federal statutes and regulations must be followed for a federal entity to fulfill its NEPA review requirements before releasing federal funds. Compliance is set out in the CFR at 40 CFR Section 35.3575 (Application of Federal cross-cutting authorities) and 7 CFR Section 1970 (Environmental Policies and Procedures).

This section describes the proposed Project's status of compliance with the federal cross-cutting regulations (also referred to as CEQA-Plus) and the consultation that has or will occur. These policies and procedures are based on the SWRCB's Appendix I: State Environmental Review Process[3], which addresses the EPA review requirements that build upon the State environmental review requirements under CEQA.

4.1 Federal Endangered Species Act

The FESA establishes a program for the conservation of threatened and endangered plants and animals and the habitats in which they depend. Section 7 (16 United States Code [U.S.C.] Section 1531 *et seq.*) requires federal agencies to ensure their actions are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of designated critical habitat. If a project could result in an incidental (unintentional but not unexpected) take of a threatened or endangered (listed) species, federal agencies must undergo consultation with the U.S. Fish and Wildlife Service (USFWS) and/or National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) to obtain a Biological Opinion (BO). If the federal agency finds that the project is not likely to adversely affect listed species, the federal agency can consult informally, and if USFWS and NFMS agree with that finding, a concurrence letter can be issued. If the BO finds that the project could jeopardize the existence or habitat of a listed species ("jeopardy" opinion), the agency cannot authorize the project until it is modified to obtain a "non-jeopardy" opinion.

As described in *Section 3.4 Biological Resources*, the Project site does not contain suitable habitat for any special status plant and most special status wildlife species. While ten sensitive plant species are known or have the potential to occur within a five-mile

[3] https://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/policy0513/appendix_i_envguide.pdf

radius of the Project site according to the CDFW CNDDB, and BIOS databases, and the USFWS Critical Habitat Portal and IPaC systems, it was determined that sensitive plant species are not expected to occur on the Project sites due to the lack of specific habitats or suitable substrates as well as the high levels of historic and existing disturbance.

Of the 30 special status wildlife species known or have the potential to occur within five miles of the Project site, 28 of these species are not expected to occur due to lack of suitable habitat (e.g., riparian, scrub, woodland). While potential habitat within the Project site exists for the BUOW and the California horned lark, the habitat is low quality and the potential for these species to occur is low due to the sites' location within a heavily travelled urban area and high levels of existing disturbance. No horned larks, burrowing owls or signs of either species (e.g., pellets or white wash) were observed during the reconnaissance field survey. Nonetheless, **Mitigation Measure BIO-1** would be implemented to ensure avoidance of direct impacts on burrowing owls and **Mitigation Measure BIO-2** would be implemented to avoid impacts to nesting birds in potential Project sites that contain trees. Therefore, the Project is not expected to result in direct or indirect impacts to special status plant or wildlife species or jeopardize any listed species and EMWD would be in compliance with the FESA.

4.2 National Historic Preservation Act

The NHPA (16 U.S.C. Section 470) establishes a program to protect, preserve, rehabilitate, and restore significant historical, archaeological, and cultural resources. Section 106 requires federal agencies to take into account effects on historic properties and involves a step-by-step procedure described in detail in the implementing regulations (36 CFR Part 800).

As described in *Section 3.5 Cultural Resources*, the cultural resource assessment was conducted for the proposed Project area and is provided in **Appendix C**. The analysis includes a Section 106 evaluation for the proposed Project and can be submitted as part of the consultation process with the State Historic Preservation Officer (SHPO). Completion of the cultural resources report and concurrence by SHPO would ensure compliance with the NHPA.

A total of 16 cultural resources have been previously recorded within a one-half-mile radius of the Project. These include five prehistoric archaeological sites, two prehistoric isolated artifacts or features, three historic-period archaeological sites, and six historic-period built-environment (buildings and structures) resources. None of these previously recorded cultural resources are located within the proposed Project APE. In addition, based on results of a search of the Sacred Lands File at the NAHC, Native American and local historic group consultation, and field survey, no cultural resources were identified in the Project's APE. The lack of surface evidence however does not preclude subsurface existence of archaeological or cultural resources. With implementation of **Mitigation Measures CUL-1** through **CUL-7**, the Project is expected to have a less than significant impact to historical and archaeological resources and no historic properties are affected under Section 106 of the NHPA.

4.3 Clean Air Act

The U.S. Congress adopted general conformity requirements as part of the CAA Amendments in 1990 and the EPA implemented those requirements in 1993 (Sec. 176 of the CAA (42 U.S.C. Section 7506) and 40 CFR Part 93, Subpart B). General Conformity requires that all federal actions "conform" with the State Implementation Plan (SIP) as approved or promulgated by EPA. The purpose of the general conformity program is to ensure that actions taken by the federal government do not undermine state or local efforts to achieve and maintain the national ambient air quality standards. Before a federal action is taken, it must be evaluated for conformity with the SIP. All "reasonably foreseeable" emissions predicted to result from the action are taken into consideration. These include direct and indirect emissions and must be identified as to location and quantity. If it is found that the action would create emissions above de minimis threshold (minimum threshold for which a conformity determination must be performed) levels specified in EPA regulations (40 CFR Section 93.153(b)), or if the activity is considered "regionally significant" because its emissions exceed 10 percent of an area's total emissions, the action cannot proceed unless mitigation measures are specified that would bring the proposed project into conformity.

As described in *Section 3.3 Air Quality*, the Project lies within the SCAB, which is designated nonattainment for ozone, particulate matter, and lead (see **Table 3-1**). The results of the air quality modeling showed that pollutant emissions would not exceed SCAB General Conformity de minimis thresholds (**Table 3-8**). These general conformity thresholds are consistent with the EPA's federal general conformity de minimis rate tables[4]. Therefore, the general conformity requirements do not apply to the Project's emissions, it is exempt from a conformity determination, and the Project would comply with the CAA.

4.4 Coastal Zone Management Act

The CZMA (16 U.S.C. Section 1451 *et seq.*) is managed by NOAA's Office of Ocean and Coastal Resource Management and designed to balance land and water issues in coastal zones. It also aims to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." Within California, the CZMA is administered by the San Francisco Bay Conservation and Development Commission, the California Coastal Conservancy, and the California Coastal Commission.

As described in *Section 3.10 Hydrology and Water Quality*, the proposed Project site is located approximately 40 miles from the Pacific Ocean. Therefore, no portion of the proposed Project is within the coastal zone and the CZMA does not apply.

[4] https://www.epa.gov/general-conformity/de-minimis-tables

4.5 Farmland Protection Policy Act

The Farmland Protection Policy Act (7 U.S.C. Section 4201 *et seq.*) requires a federal agency to consider the effects of its actions and programs on the nation's farmlands. The FPPA is intended to minimize the impacts of federal programs with respect to the conversion of farmland to nonagricultural uses. It assures that, to the extent possible, federal programs are administered to be compatible with state, local, and private programs and policies to protect farmland.

As described in *Section 3.2 Agriculture and Forestry Resources*, none of the potential Project sites or pipeline alignments are classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The treatment facility site option at Alessandro Boulevard and Kitching Street is designated as Farmland of Local Importance (CDOC 2016). However, none of the sites are currently used for agriculture. Therefore, the proposed Project would have no impact on the Farmland Protection Policy Act.

4.6 Executive Order 11988—Floodplain Management

EO 11988 requires federal agencies to recognize the values of floodplains and to consider the public benefits from restoring and preserving floodplains. As described under *Section 3.10 Hydrology and Water Quality* and shown in **Figure 3-1**, none of the Project sites are located within the 100- or 500-year flood zone. The storm channel that travels along Kitching Street, the storm channel that travels southwest across Cottonwood Avenue to the intersection of Heacock Street and Alessandro Boulevard, and the storm channel along Camino Flores, are sized to contain the 100-year flood. The pipelines, once constructed, would be located underground and not susceptible to inundation in the event of flooding. Areas outside the storm channels themselves, including well and treatment facility sites, are not located in flood areas and, therefore, risk of floods inundating these sites is low. The proposed Project would not permanently alter existing flood channels, rivers, or floodplains. Because there would be no facilities located within the floodplain, the proposed Project would not increase flood hazards or interfere with floodplain management. The Project would be in compliance with this EO.

4.7 Federal Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and Executive Order 13168

The Migratory Bird Treaty Act (16 U.S.C. Sections 703–712) and the Bald and Golden Eagle Protection Act (16 U.S.C. Section 668-668c) prohibit the take of migratory birds (or any part, nest, or eggs of any such bird) and the take and commerce of eagles. EO 13168 requires that any project with federal involvement address impacts of federal actions on migratory birds.

As described in *Section 3.4 Biological Resources*, nesting habitat within the Project is considered low quality due to existing disturbances and proximity to heavily travelled roadways. No nests or birds exhibiting nesting behaviors were observed during the reconnaissance site visit performed as part of the Biological Resources Assessment. The Project would have a less than significant impact on nesting birds with implementation of

Mitigation Measure BIO-1 Burrowing Owl Preconstruction Clearance Survey to ensure avoidance of direct impacts to burrowing owls and **BIO-2 Preconstruction Nesting Bird Survey** to avoid impacts to nesting birds, including those protected under the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and EO 13168, in potential Project sites that contain trees. Therefore, EMWD would be in compliance with the Federal Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and Executive Order 13168.

4.8 Fish and Wildlife Coordination Act

The FWCA as amended (16 U.S.C. Section 661 *et seq.*) is intended to promote conservation of fish and wildlife resources by preventing their loss or damage, and to provide for development and improvement of fish and wildlife resources in connection with water projects. Federal agencies undertaking water projects are required to fully consider recommendations made by USFWS, NMFS, and State wildlife agencies when any waterbody is impounded, diverted, controlled, or modified for any purpose. Compliance with FWCA is to be coordinated with FESA consultation.

The proposed Project would not impound, divert or control surface water source; however, it would modify a groundwater source. The proposed Project would extract and treat contaminated groundwater from the Perris North Groundwater Management Zone for beneficial use as potable supply. The Project is part of EMWD's ongoing groundwater management in the basin. Currently, the groundwater contains COCs including PCE, VOCs, nitrate, perchlorate, TDS, fluoride, and manganese (co-mingled VOC-Nitrate Plume). EMWD has been managing groundwater quantity and quality via the Annual West San Jacinto Groundwater Management Plan since 1995. Water levels were drawn down to historic lows in the middle of the 20th century and have been slowly rising since that time. The Project is located in an area of rising groundwater levels and would extract approximately 3,700 AFY. In addition to the existing groundwater management program, EMWD is required to complete a GSP by January 2022, which is one year prior the Project becoming operational. The Project would produce water from the basin in a sustainable manner consistent with the San Jacinto Groundwater Management Plan, the GSP and consistent with the siting criteria described in *Section 2.1 Project Overview*. The Project would also remove existing COCs from the basin. Therefore, the Project would not substantially decrease groundwater supplies or interfere with groundwater recharge such that there would be an adverse effect on fish and wildlife resources. The proposed Project would not conflict with the Fish and Wildlife Coordination Act.

4.9 Executive Order 11990—Protection of Wetlands

Under EO 11990, federal agencies must avoid affecting wetlands unless it is determined that no practicable alternative is available. The EO directs federal agencies to provide leadership and act to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in implementing civil works.

As described in *Section 3.4 Biological Resources*, no waters or wetlands potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), RWQCB, or CDFW are located within the Project. Therefore, there would be no impacts to wetlands and the EMWD would be in compliance with EO 11990.

4.10 Executive Order 13112—Invasive Species

Under EO 13112, federal agencies must prevent and control introductions of invasive non-native species in a cost-effective and environmentally conscious manner to minimize their economic, ecological, and human health impacts. As directed by this EO, a national invasive species management plan guides federal actions to minimize invasive species and their impacts. To support implementation of this plan, USACE released a memorandum describing the USACE Invasive Species Policy[5]. As part of this policy, all civil works projects are required to address invasive species and potential impacts the project may have.

Non-native plant species were observed in the Project area during the field survey conducted for the Biological Resources Assessment. Measures that control spread of invasive species during construction will be implemented, such as using excavated soil onsite as fill to the extent possible and cleaning construction vehicle track-out on unpaved roads. In areas where revegetation is required, use of native species will be required, per the SWPPP, to ensure that introduction of invasive species does not occur. EMWD would therefore be in compliance with EO 13112.

4.11 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act (6 U.S.C. Section 1271 *et seq*.) was passed to preserve and protect designated rivers for their natural, cultural, and recreational value.

There are no designated Wild and Scenic Rivers within the project area, nor will any designated rivers be adversely affected by the proposed Project. As a result, the Project would not result in any impacts related to the Wild and Scenic Rivers Act.

4.12 Safe Drinking Water Act—Source Water Protection

Section 1424(e) of the Safe Drinking Water Act (42 U.S.C. Section 300f *et seq*.) established the EPA's Sole Source Aquifer Program. This program protects communities from groundwater contamination from federally funded projects.

Within EPA's Region 9, which includes California, there are nine sole source aquifers. None of these sole source aquifers are located within the proposed Project area (EPA 2019). Therefore, the Sole Source Aquifer Program does not apply to the proposed

[5] https://www.nae.usace.army.mil/Portals/74/docs/regulatory/InvasiveSpecies/policy.pdf

Project and the Project would be in compliance with Section 1424(e) of the Safe Drinking Water Act.

4.13 Executive Order 13195—Trails for America in the 21st Century

The EO 13195 requires federal agencies to protect, connect, promote, and assist trails of all types throughout the Unites States.

According to *Section 3.15 Public Services*, there are no trails within the proposed Project sites or that will be temporarily or permanently impacted by the proposed Project. As a result, no adverse effects on trials would occur and the Project would be in compliance with EO 13195.

4.14 Executive Order 13007—Indian Sacred Sites

Sacred Sites are defined in EO 13007 as "any specific, discrete, narrowly delineated location on federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site."

As discussed in *Section 3.18 Tribal Cultural Resources*, a search of the Sacred Lands File at the NAHC was performed as part of the Project's Cultural Resources Assessment Report and returned negative results. EMWD also conducted consultation with local Native American groups and local historical societies to obtain additional information and performed an intensive pedestrian survey within the Project's APE. Based on the results of these efforts, no Indian sacred sites were identified in the Project's APE that would be impacted or adversely affected by the Project. However, the lack of surface evidence of archaeological remains does not mean there are no cultural resources to be found below surface. Implementation of **Mitigation Measure CUL-1, CUL-2,** and **CUL-3** would require agreements and monitoring plans be established prior to any ground-disturbing activities. **Mitigation Measures CUL-4, CUL-5**, and **CUL-6** would require appropriate treatment of any inadvertently discovered artifacts. **Mitigation Measure CUL-7 Human Remains** would ensure proper procedures are in place if human remains are discovered during construction and for the remains to analyzed to determine origin and disposition pursuant to PRC Section 5097.98. With the implementation of **Mitigation Measure CUL-1** through **CUL-7** the Project would have a less than significant impact to tribal cultural resources and EMWD would be in compliance with EO 13007.

4.15 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act as amended (16 U.S.C. Section 1801 *et seq*.) is the primary act governing federal management of fisheries in federal waters, from the 3-nautical-mile state territorial sea limit to the outer limit of the U.S. Exclusive Economic Zone (EEZ). It establishes exclusive U.S. management authority over all fishing within the EEZ, all anadromous fish throughout their migratory

range except when in a foreign nation's waters, and all fish on the continental shelf. The Act establishes eight Regional Fishery Management Councils responsible for the preparation of fishery management plans to achieve the optimum yield from U.S. fisheries in their regions. The act also requires federal agencies to consult with the NMFS on actions that could damage Essential Fish Habitat (EFH), as defined in the 1996 Sustainable Fisheries Act (Public Law 104-297). EFH includes those habitats that support the different life stages of each managed species. A single species may use different habitats that consist of both the water column and underlying surface (e.g. streambed) throughout its life to support breeding, spawning, nursery, feeding, and protection functions.

As described in *Section 3.4 Biological Resources* the Project would not be located in or impact any U.S. federal waters regulated under the Magnuson-Stevens Act. Therefore, the Project would have no impact on resident or migratory fish or fish habitat in the Project area and the EMWD would comply with the Magnuson-Stevens Act.

4.16 Environmental Justice

This section describes the existing socioeconomic resources in the proposed Project area and the regulatory setting pertaining to environmental justice-related issues. This section also evaluates the potential for the proposed Project to disproportionately affect minority or low-income groups. The EPA defines environmental justice as:

> "The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means no group of people, including racial, ethnic, or economic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies (EPA 2016)."

According to EPA guidelines, a minority population is present in a study area if the minority population of the affected area exceeds 50 percent or if the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

The proposed Project would be located in central Moreno Valley in west Riverside County. According to the EPA's Environmental Screening and Mapping Tool (EJScreen), as shown in **Figure 4-1**, the majority of the Project area is within the 80–90 percentile and 90–95 percentile minority population. The Project areas west of Heacock Street and north of Cottonwood Avenue are within the 95–100 percentile for minority population. Therefore, the proposed Project area is composed of a minority population exceeding 50 percent.

EPA guidelines recommend that analyses of low-income communities consider the U.S. Census Bureau's poverty level definitions, as well as applicable State and regional definitions of low-income and poverty communities.

DWR defines a Disadvantaged Community (DAC) as a community with a median household income (MHI) less than 80 percent of the California MHI and a Severely Disadvantaged Community (SDAC) as a community with an MHI less than 60 percent of the California MHI. To identify the location of DAC and SDAC communities for its mapping tool, DWR (DWR n.d.), relies on 2012-2016 American Community Survey data, which defines the Statewide MHI was $63,783. A DAC would therefore be a community with an MHI of $51,026 or less and an SDAC would be a community with an MHI of $38,270 or less. According to the DWR Mapping Tool as shown in **Figure 4-2**, the majority of the Project area is within a DAC, with one section of the Project within an SDAC.

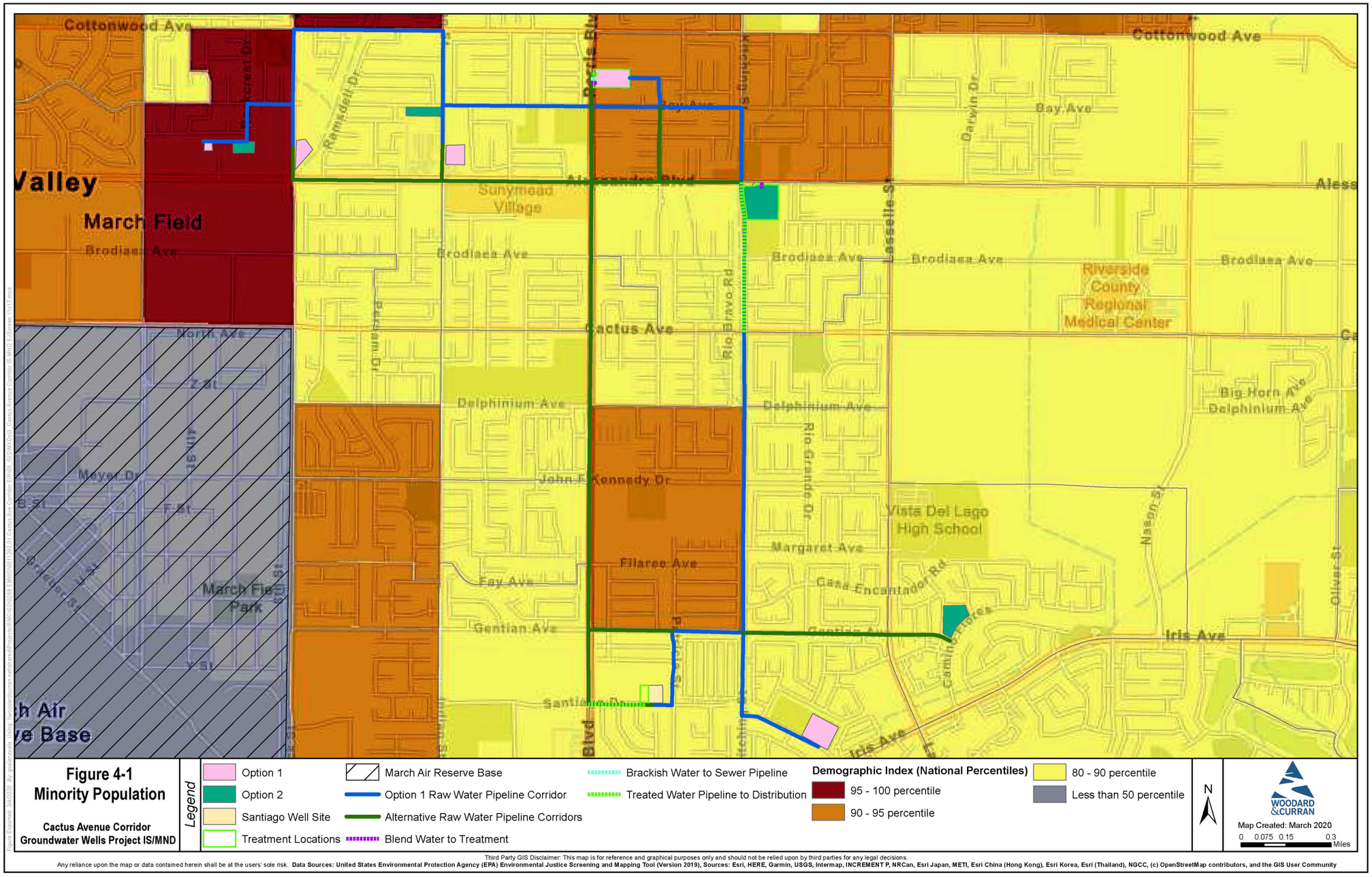

Figure 4-1: EPA EJScreen Map of Minority Population

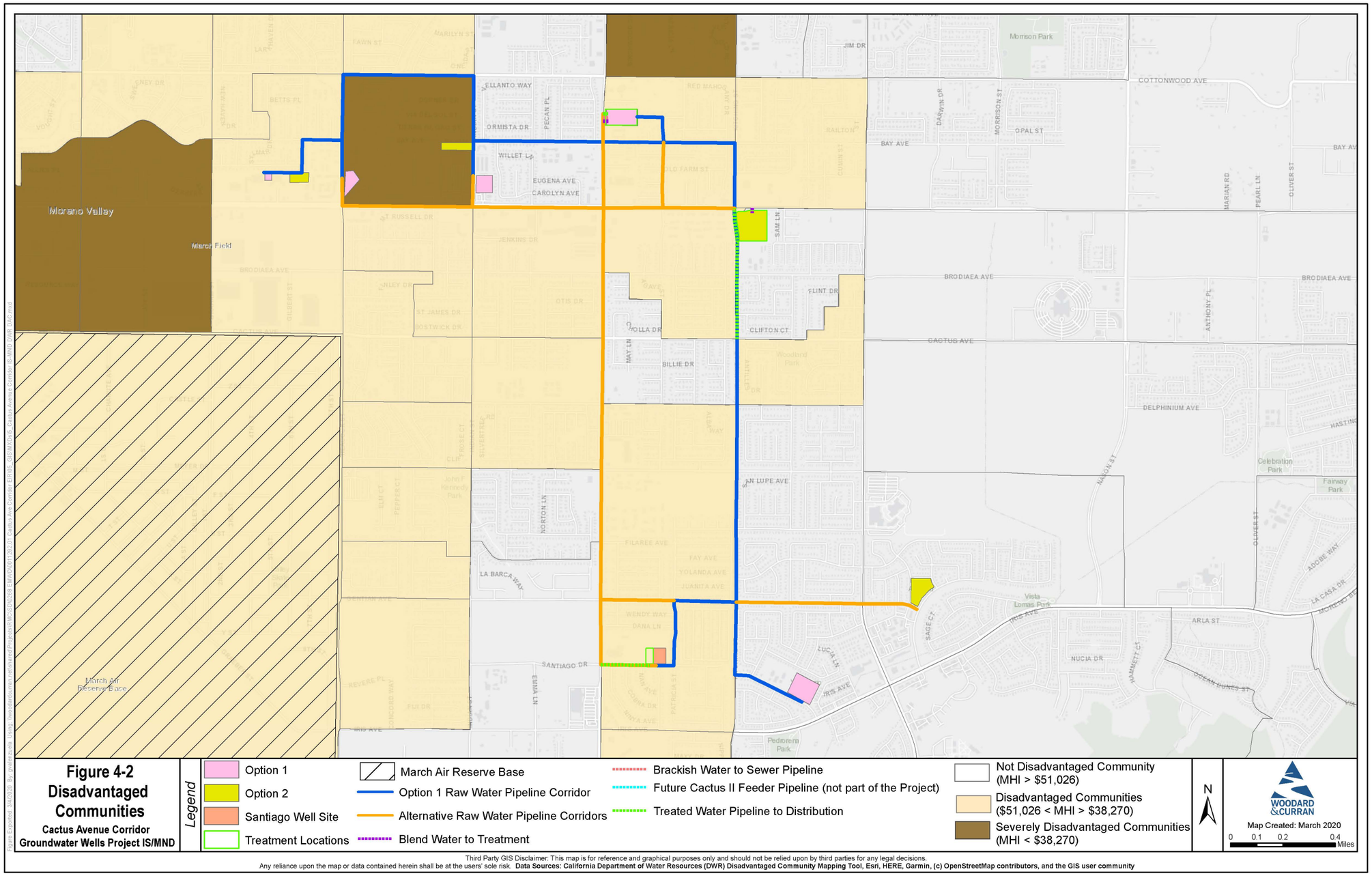

Figure 4-2 : DWR DAC Mapping Tool

Impact Analysis

For the purposes of this analysis, an environmental justice impact would be significant if the proposed Project would directly, indirectly, or cumulatively cause disproportionately high and adverse impacts to minority or low-income populations.

The proposed Project would construct groundwater extraction wells, a treatment facility, and pipelines to help increase water supply reliability in the EMWD service area. Although construction of the proposed Project has the potential for short-term environmental impacts related to air quality, noise, hazards and hazardous materials, and transportation as described in this document, operation of the Project would have the long-term benefit of providing a more reliable potable water source for these communities which area served by EWMD.

Although construction would generate impacts (e.g. air pollutants, hazardous materials, traffic), such activities would be intermittent and temporary and would cease upon completion of work activities. Where potential long-term impacts would occur (e.g. aesthetics, noise), mitigation measures have been identified to reduce such effects to less-than-significant levels. The proposed Project would reduce the amount of parkland available in a Severely Disadvantaged Community by one-half acre if Cactus Corridor Well 3 is located at Option #2, Moreno Valley Bayside Park. If the well is located at Bayside Park, the area available for open green space and walking trails would be reduced from 1.47 acres to 0.97 acres. The well would not remove any of the hardscape features (picnic tables and shelter, playground equipment, barbecues, basketball half-court, and horseshoe pit). Overall, Bayside Park would continue to offer a mix of both valuable hardscape and open green space features. Furthermore, the community immediately around Bayside Park is also served by recreational facilities at Creekside Elementary, March Mountain High School, and Ramona Elementary school (City of Moreno Valley 2010). The community is also within the service radius of the future Cottonwood Neighborhood Park. Therefore, with the consideration of the benefits provided to these communities through implementation of the proposed Project and with the identified mitigation measures, the proposed Project would not result in any disproportionately high and adverse impacts on minority or low-income communities. Thus, no adverse environmental justice impacts would occur.

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APPENDIX A: CALEEMOD OUTPUT

APPENDIX B: BIOLOGICAL RESOURCES ASSESSMENT

APPENDIX C: CULTURAL RESOURCES ASSESSMENT

APPENDIX D: PALEONTOLOGICAL RESOURCE ASSESSMENT

APPENDIX E:NOISE MEASUREMENTS

APPENDIX F: COMMENTS RECEIVED

Prepared by:

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APPENDIX A: CALEEMOD OUTPUT

Cactus Corridor Model Run without Tier 4 Engines

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	20.00	1000sqft	0.46	20,000.00	0
Refrigerated Warehouse-No Rail	60.00	1000sqft	1.38	60,000.00	0
Other Asphalt Surfaces	133.00	1000sqft	3.05	133,000.00	0
Other Non-Asphalt Surfaces	719.00	1000sqft	16.51	719,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	467.38	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

Project Characteristics - Based on 2018 SCE information for Intensity Factor

Land Use - First Line is the larger of the two treatment site options
Second line includes all the area of the well sites
Third line is the pipeline.
Fourth is 6 well site well pads

Construction Phase - Based on Engineer estimates and CalEEMod Default Ratios

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Equipment included in Pipeline Construction phase because all work happens simultaneously

Off-road Equipment - Based on Engineering Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engeering Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on engineering estimates

Off-road Equipment - Based on Engineering Estimates

Off-road Equipment - Based on Engineering Estimates.
This phase lasts 24 hours a day to prevent borehold collapse. Thus, all normal 8hr/workday estimates have been multiplied by 3.

Trips and VMT - based on engineering estimates

Architectural Coating - No residential structures being built.
Parking lot is very small, based on project experience

Vehicle Trips - Based on Engineering estimates

Road Dust - Based on engineering estimates

Energy Use - Based on engineer estimates = 20,000 treatment plant 60,000 well sites = 80,000 sqft

Water And Wastewater - No additional water use needed

Solid Waste - Brine disposal is covered in VMT

Construction Off-road Equipment Mitigation - Based on standard mitigation required by SCAQMD

Fleet Mix - Based on Engineerng estimates

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generators for 6 well sites / treatment facility

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	51,120.00	3,000.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	13.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstructionPhase	NumDays	10.00	132.00
tblConstructionPhase	NumDays	10.00	32.00
tblConstructionPhase	NumDays	35.00	29.00
tblConstructionPhase	NumDays	370.00	288.00

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

tblConstructionPhase	NumDays	20.00	331.00
tblConstructionPhase	NumDays	35.00	84.00
tblConstructionPhase	NumDays	370.00	265.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblEnergyUse	NT24E	36.52	81.03
tblEnergyUse	NT24NG	48.51	0.00
tblEnergyUse	T24E	1.06	0.00
tblEnergyUse	T24NG	3.25	0.00
tblFleetMix	HHD	0.03	0.20
tblFleetMix	HHD	0.03	0.20
tblFleetMix	HHD	0.03	0.20
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	LHD2	5.8470e-003	0.20

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MHD	0.02	0.20
tblFleetMix	MHD	0.02	0.20
tblFleetMix	MHD	0.02	0.20
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblOffRoadEquipment	HorsePower	158.00	97.00
tblOffRoadEquipment	HorsePower	402.00	97.00
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	467.38
tblRoadDust	MeanVehicleSpeed	40	15
tblSolidWaste	SolidWasteGenerationRate	75.20	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	115.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	24.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	6.00
tblTripsAndVMT	HaulingTripNumber	0.00	27.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,406.00
tblTripsAndVMT	HaulingTripNumber	0.00	250.00
tblTripsAndVMT	HaulingTripNumber	0.00	87.00
tblTripsAndVMT	HaulingTripNumber	0.00	45.00
tblTripsAndVMT	VendorTripNumber	153.00	1.00
tblTripsAndVMT	VendorTripNumber	153.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	38.00	30.00
tblTripsAndVMT	WorkerTripNumber	25.00	10.00
tblTripsAndVMT	WorkerTripNumber	391.00	15.00
tblTripsAndVMT	WorkerTripNumber	78.00	4.00
tblTripsAndVMT	WorkerTripNumber	38.00	19.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	391.00	11.00
tblTripsAndVMT	WorkerTripNumber	20.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	0.00	41.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	72.00
tblVehicleTrips	CW_TTP	0.00	59.00
tblVehicleTrips	DV_TP	0.00	5.00
tblVehicleTrips	PB_TP	0.00	3.00
tblVehicleTrips	PR_TP	0.00	92.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	0.00	0.05
tblVehicleTrips	WD_TR	1.68	1.00
tblWater	IndoorWaterUseRate	18,500,000.00	0.00

2.0 Emissions Summary

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	12.8292	114.9967	75.9833	0.1690	36.8185	5.1126	41.7488	20.0432	4.7501	24.6244	0.0000	16,427.4453	16,427.4453	4.3328	0.0000	16,535.7650
2022	17.5646	138.0282	131.0242	0.2923	10.4947	6.2269	16.7216	4.0626	5.9018	9.9644	0.0000	28,049.1184	28,049.1184	6.4969	0.0000	28,211.5402
2023	2.3036	19.5873	22.8548	0.0427	0.1328	0.9371	1.0699	0.0351	0.8906	0.9257	0.0000	4,070.3120	4,070.3120	0.8566	0.0000	4,091.7276
Maximum	**17.5646**	**138.0282**	**131.0242**	**0.2923**	**36.8185**	**6.2269**	**41.7488**	**20.0432**	**5.9018**	**24.6244**	**0.0000**	**28,049.1184**	**28,049.1184**	**6.4969**	**0.0000**	**28,211.5402**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	12.8292	114.9967	75.9833	0.1690	16.1326	5.1126	21.0629	8.6726	4.7501	13.2538	0.0000	16,427.4452	16,427.4452	4.3328	0.0000	16,535.7650
2022	17.5646	138.0282	131.0242	0.2923	5.5293	6.2269	11.7561	2.0036	5.9018	7.9054	0.0000	28,049.1184	28,049.1184	6.4969	0.0000	28,211.5402
2023	2.3036	19.5873	22.8548	0.0427	0.1328	0.9371	1.0699	0.0351	0.8906	0.9257	0.0000	4,070.3120	4,070.3120	0.8566	0.0000	4,091.7276
Maximum	**17.5646**	**138.0282**	**131.0242**	**0.2923**	**16.1326**	**6.2269**	**21.0629**	**8.6726**	**5.9018**	**13.2538**	**0.0000**	**28,049.1184**	**28,049.1184**	**6.4969**	**0.0000**	**28,211.5402**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.06**	**0.00**	**43.08**	**55.63**	**0.00**	**37.81**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5169	9.0787	6.4869	0.0687	3.1183	0.0479	3.1662	0.8800	0.0456	0.9257		7,210.1379	7,210.1379	0.2275		7,215.8247
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.6796**	**9.0796**	**6.5821**	**0.0687**	**3.1183**	**0.0482**	**3.1665**	**0.8800**	**0.0460**	**0.9260**		**7,210.3419**	**7,210.3419**	**0.2280**	**0.0000**	**7,216.0420**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5169	9.0787	6.4869	0.0687	3.1183	0.0479	3.1662	0.8800	0.0456	0.9257		7,210.1379	7,210.1379	0.2275		7,215.8247
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.6796**	**9.0796**	**6.5821**	**0.0687**	**3.1183**	**0.0482**	**3.1665**	**0.8800**	**0.0460**	**0.9260**		**7,210.3419**	**7,210.3419**	**0.2280**	**0.0000**	**7,216.0420**

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

3.0 Construction Detail

Construction Phase

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Well Sites - Site Prep	Site Preparation	7/1/2021	12/31/2021	5	132	
2	Treatment Plants - Site Prep	Site Preparation	7/1/2021	8/13/2021	5	32	
3	Pipeline - Trenching	Trenching	7/1/2021	5/2/2022	5	218	
4	Treatment Plants - Grading	Grading	8/16/2021	9/23/2021	5	29	
5	Treatment Plants - Building Construction	Building Construction	9/24/2021	11/1/2022	5	288	
6	Treatment Plants - Architectural Coating	Architectural Coating	9/24/2021	12/30/2022	5	331	
7	Well Sites - Well Drilling	Grading	1/3/2022	3/27/2022	7	84	
8	Well Sites - Pump installation/construction	Building Construction	3/28/2022	3/31/2023	5	265	
9	Treatment Plants - Paving	Paving	11/2/2022	12/2/2022	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 19.56

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 120,000; Non-Residential Outdoor: 40,000; Striped Parking Area: 3,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Well Sites - Site Prep	Off-Highway Trucks	1	2.00	97	0.37
Well Sites - Site Prep	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Site Prep	Rubber Tired Dozers	3	8.00	247	0.40
Well Sites - Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Treatment Plants - Site Prep	Off-Highway Trucks	1	2.00	402	0.38
Treatment Plants - Site Prep	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Site Prep	Rubber Tired Dozers	3	8.00	247	0.40

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

Treatment Plants - Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipeline - Trenching	Air Compressors	1	6.00	78	0.48
Pipeline - Trenching	Concrete/Industrial Saws	1	6.00	81	0.73
Pipeline - Trenching	Cranes	1	4.00	231	0.29
Pipeline - Trenching	Dumpers/Tenders	2	6.00	16	0.38
Pipeline - Trenching	Excavators	1	6.00	158	0.38
Pipeline - Trenching	Generator Sets	1	6.00	84	0.74
Pipeline - Trenching	Off-Highway Trucks	1	2.00	402	0.38
Pipeline - Trenching	Off-Highway Trucks	1	4.00	402	0.38
Pipeline - Trenching	Pavers	1	6.00	130	0.42
Pipeline - Trenching	Pumps	1	6.00	84	0.74
Pipeline - Trenching	Sweepers/Scrubbers	1	6.00	64	0.46
Pipeline - Trenching	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Pipeline - Trenching	Welders	1	6.00	46	0.45
Treatment Plants - Grading	Cement and Mortar Mixers	1	6.00	9	0.56
Treatment Plants - Grading	Excavators	2	8.00	158	0.38
Treatment Plants - Grading	Graders	1	8.00	187	0.41
Treatment Plants - Grading	Off-Highway Trucks	1	2.00	402	0.38
Treatment Plants - Grading	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Grading	Rubber Tired Dozers	1	8.00	247	0.40
Treatment Plants - Grading	Scrapers	2	8.00	367	0.48
Treatment Plants - Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Treatment Plants - Building Construction	Air Compressors	1	6.00	78	0.48
Treatment Plants - Building Construction	Cement and Mortar Mixers	1	6.00	9	0.56
Treatment Plants - Building Construction	Cranes	1	7.00	231	0.29
Treatment Plants - Building Construction	Excavators	2	6.00	97	0.37

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

Treatment Plants - Building Construction	Forklifts	3	8.00	89	0.20
Treatment Plants - Building Construction	Forklifts	2	6.00	89	0.20
Treatment Plants - Building Construction	Generator Sets	1	8.00	84	0.74
Treatment Plants - Building Construction	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Building Construction	Pumps	1	6.00	84	0.74
Treatment Plants - Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Treatment Plants - Building Construction	Welders	1	6.00	46	0.45
Treatment Plants - Architectural Coating	Air Compressors	1	6.00	78	0.48
Treatment Plants - Architectural Coating	Generator Sets	1	6.00	84	0.74
Treatment Plants - Architectural Coating	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Well Drilling	Air Compressors	1	18.00	78	0.48
Well Sites - Well Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Well Sites - Well Drilling	Cranes	1	24.00	231	0.29
Well Sites - Well Drilling	Excavators	2	8.00	158	0.38
Well Sites - Well Drilling	Generator Sets	1	18.00	84	0.74
Well Sites - Well Drilling	Graders	1	8.00	187	0.41
Well Sites - Well Drilling	Off-Highway Trucks	1	12.00	402	0.38
Well Sites - Well Drilling	Pumps	1	18.00	84	0.74
Well Sites - Well Drilling	Rubber Tired Dozers	1	8.00	247	0.40
Well Sites - Well Drilling	Scrapers	2	8.00	367	0.48
Well Sites - Well Drilling	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Well Sites - Well Drilling	Welders	1	18.00	46	0.45
Well Sites - Pump installation/construction	Air Compressors	1	6.00	78	0.48
Well Sites - Pump installation/construction	Cranes	1	7.00	231	0.29

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

Well Sites - Pump installation/construction	Forklifts	3	8.00	89	0.20
Well Sites - Pump installation/construction	Generator Sets	1	8.00	84	0.74
Well Sites - Pump installation/construction	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Pump installation/construction	Pumps	1	6.00	84	0.74
Well Sites - Pump installation/construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Well Sites - Pump installation/construction	Welders	1	8.00	46	0.45
Treatment Plants - Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Treatment Plants - Paving	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Paving	Pavers	2	8.00	130	0.42
Treatment Plants - Paving	Paving Equipment	2	8.00	132	0.36
Treatment Plants - Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Well Sites - Site Prep	6	8.00	0.00	27.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Site Prep	6	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline - Trenching	15	30.00	0.00	1,406.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Grading	10	10.00	0.00	250.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Building Construction	16	15.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Architectural Coating	3	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	19.00	0.00	87.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Pump installation/constructio	12	11.00	0.00	45.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.2 Well Sites - Site Prep - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.6293	37.4414	16.1757	0.0353		1.8057	1.8057		1.6612	1.6612		3,422.2182	3,422.2182	1.1068		3,449.8885
Total	**3.6293**	**37.4414**	**16.1757**	**0.0353**	**18.0663**	**1.8057**	**19.8719**	**9.9307**	**1.6612**	**11.5919**		**3,422.2182**	**3,422.2182**	**1.1068**		**3,449.8885**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5500e-003	0.0530	0.0117	1.6000e-004	3.5700e-003	1.7000e-004	3.7400e-003	9.8000e-004	1.6000e-004	1.1400e-003		17.0440	17.0440	1.2000e-003		17.0741
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0335	0.0218	0.3004	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5519	88.5519	2.3900e-003		88.6115
Total	**0.0350**	**0.0749**	**0.3121**	**1.0500e-003**	**0.0930**	**8.3000e-004**	**0.0938**	**0.0247**	**7.7000e-004**	**0.0255**		**105.5959**	**105.5959**	**3.5900e-003**		**105.6856**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.2 Well Sites - Site Prep - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	3.6293	37.4414	16.1757	0.0353		1.8057	1.8057		1.6612	1.6612	0.0000	3,422.2182	3,422.2182	1.1068		3,449.8885
Total	**3.6293**	**37.4414**	**16.1757**	**0.0353**	**7.7233**	**1.8057**	**9.5290**	**4.2454**	**1.6612**	**5.9066**	**0.0000**	**3,422.2182**	**3,422.2182**	**1.1068**		**3,449.8885**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5500e-003	0.0530	0.0117	1.6000e-004	3.5700e-003	1.7000e-004	3.7400e-003	9.8000e-004	1.6000e-004	1.1400e-003		17.0440	17.0440	1.2000e-003		17.0741
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0335	0.0218	0.3004	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5519	88.5519	2.3900e-003		88.6115
Total	**0.0350**	**0.0749**	**0.3121**	**1.0500e-003**	**0.0930**	**8.3000e-004**	**0.0938**	**0.0247**	**7.7000e-004**	**0.0255**		**105.5959**	**105.5959**	**3.5900e-003**		**105.6856**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.3 Treatment Plants - Site Prep - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.7808	38.7572	17.0768	0.0386		1.8539	1.8539		1.7056	1.7056		3,741.8489	3,741.8489	1.2102		3,772.1037
Total	**3.7808**	**38.7572**	**17.0768**	**0.0386**	**18.0663**	**1.8539**	**19.9202**	**9.9307**	**1.7056**	**11.6363**		**3,741.8489**	**3,741.8489**	**1.2102**		**3,772.1037**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0335	0.0218	0.3004	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5519	88.5519	2.3900e-003		88.6115
Total	**0.0335**	**0.0218**	**0.3004**	**8.9000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**88.5519**	**88.5519**	**2.3900e-003**		**88.6115**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.3 Treatment Plants - Site Prep - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	3.7808	38.7572	17.0768	0.0386		1.8539	1.8539		1.7056	1.7056	0.0000	3,741.8489	3,741.8489	1.2102		3,772.1037
Total	**3.7808**	**38.7572**	**17.0768**	**0.0386**	**7.7233**	**1.8539**	**9.5773**	**4.2454**	**1.7056**	**5.9510**	**0.0000**	**3,741.8489**	**3,741.8489**	**1.2102**		**3,772.1037**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0335	0.0218	0.3004	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5519	88.5519	2.3900e-003		88.6115
Total	**0.0335**	**0.0218**	**0.3004**	**8.9000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**88.5519**	**88.5519**	**2.3900e-003**		**88.6115**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.4 Pipeline - Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8678	24.7361	24.9882	0.0473		1.2615	1.2615		1.2058	1.2058		4,498.2016	4,498.2016	0.9624		4,522.2620
Total	**2.8678**	**24.7361**	**24.9882**	**0.0473**		**1.2615**	**1.2615**		**1.2058**	**1.2058**		**4,498.2016**	**4,498.2016**	**0.9624**		**4,522.2620**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0490	1.6723	0.3694	4.9500e-003	0.1682	5.2100e-003	0.1734	0.0445	4.9900e-003	0.0495		537.4168	537.4168	0.0379		538.3636
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1256	0.0819	1.1264	3.3300e-003	0.3353	2.4800e-003	0.3378	0.0889	2.2900e-003	0.0912		332.0695	332.0695	8.9500e-003		332.2932
Total	**0.1746**	**1.7541**	**1.4958**	**8.2800e-003**	**0.5035**	**7.6900e-003**	**0.5112**	**0.1334**	**7.2800e-003**	**0.1407**		**869.4863**	**869.4863**	**0.0468**		**870.6569**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.4 Pipeline - Trenching - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8678	24.7361	24.9882	0.0473		1.2615	1.2615		1.2058	1.2058	0.0000	4,498.2016	4,498.2016	0.9624		4,522.2620
Total	**2.8678**	**24.7361**	**24.9882**	**0.0473**		**1.2615**	**1.2615**		**1.2058**	**1.2058**	**0.0000**	**4,498.2016**	**4,498.2016**	**0.9624**		**4,522.2620**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0490	1.6723	0.3694	4.9500e-003	0.1682	5.2100e-003	0.1734	0.0445	4.9900e-003	0.0495		537.4168	537.4168	0.0379		538.3636
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1256	0.0819	1.1264	3.3300e-003	0.3353	2.4800e-003	0.3378	0.0889	2.2900e-003	0.0912		332.0695	332.0695	8.9500e-003		332.2932
Total	**0.1746**	**1.7541**	**1.4958**	**8.2800e-003**	**0.5035**	**7.6900e-003**	**0.5112**	**0.1334**	**7.2800e-003**	**0.1407**		**869.4863**	**869.4863**	**0.0468**		**870.6569**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.4 Pipeline - Trenching - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5839	21.6011	24.6302	0.0473		1.0564	1.0564		1.0115	1.0115		4,499.1169	4,499.1169	0.9552		4,522.9975
Total	**2.5839**	**21.6011**	**24.6302**	**0.0473**		**1.0564**	**1.0564**		**1.0115**	**1.0115**		**4,499.1169**	**4,499.1169**	**0.9552**		**4,522.9975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0466	1.5479	0.3655	4.8800e-003	0.2435	4.5100e-003	0.2480	0.0630	4.3100e-003	0.0673		531.0137	531.0137	0.0373		531.9454
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1178	0.0740	1.0417	3.2100e-003	0.3353	2.4100e-003	0.3377	0.0889	2.2200e-003	0.0912		320.1789	320.1789	8.0900e-003		320.3812
Total	**0.1644**	**1.6219**	**1.4071**	**8.0900e-003**	**0.5789**	**6.9200e-003**	**0.5858**	**0.1519**	**6.5300e-003**	**0.1585**		**851.1927**	**851.1927**	**0.0454**		**852.3266**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.4 Pipeline - Trenching - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5839	21.6011	24.6302	0.0473		1.0564	1.0564		1.0115	1.0115	0.0000	4,499.1169	4,499.1169	0.9552		4,522.9975
Total	**2.5839**	**21.6011**	**24.6302**	**0.0473**		**1.0564**	**1.0564**		**1.0115**	**1.0115**	**0.0000**	**4,499.1169**	**4,499.1169**	**0.9552**		**4,522.9975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0466	1.5479	0.3655	4.8800e-003	0.2435	4.5100e-003	0.2480	0.0630	4.3100e-003	0.0673		531.0137	531.0137	0.0373		531.9454
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1178	0.0740	1.0417	3.2100e-003	0.3353	2.4100e-003	0.3377	0.0889	2.2200e-003	0.0912		320.1789	320.1789	8.0900e-003		320.3812
Total	**0.1644**	**1.6219**	**1.4071**	**8.0900e-003**	**0.5789**	**6.9200e-003**	**0.5858**	**0.1519**	**6.5300e-003**	**0.1585**		**851.1927**	**851.1927**	**0.0454**		**852.3266**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.5 Treatment Plants - Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.5024	48.7277	31.5528	0.0694		2.0291	2.0291		1.8676	1.8676		6,702.9229	6,702.9229	2.1595		6,756.9114
Total	**4.5024**	**48.7277**	**31.5528**	**0.0694**	**8.6733**	**2.0291**	**10.7024**	**3.5965**	**1.8676**	**5.4641**		**6,702.9229**	**6,702.9229**	**2.1595**		**6,756.9114**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0655	2.2352	0.4937	6.6100e-003	0.1506	6.9700e-003	0.1575	0.0413	6.6700e-003	0.0479		718.3307	718.3307	0.0506		719.5963
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0419	0.0273	0.3755	1.1100e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.6898	110.6898	2.9800e-003		110.7644
Total	**0.1074**	**2.2625**	**0.8692**	**7.7200e-003**	**0.2624**	**7.8000e-003**	**0.2701**	**0.0709**	**7.4300e-003**	**0.0783**		**829.0205**	**829.0205**	**0.0536**		**830.3607**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.5 Treatment Plants - Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	4.5024	48.7277	31.5528	0.0694		2.0291	2.0291		1.8676	1.8676	0.0000	6,702.9228	6,702.9228	2.1595		6,756.9114
Total	**4.5024**	**48.7277**	**31.5528**	**0.0694**	**3.7079**	**2.0291**	**5.7369**	**1.5375**	**1.8676**	**3.4051**	**0.0000**	**6,702.9228**	**6,702.9228**	**2.1595**		**6,756.9114**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0655	2.2352	0.4937	6.6100e-003	0.1506	6.9700e-003	0.1575	0.0413	6.6700e-003	0.0479		718.3307	718.3307	0.0506		719.5963
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0419	0.0273	0.3755	1.1100e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.6898	110.6898	2.9800e-003		110.7644
Total	**0.1074**	**2.2625**	**0.8692**	**7.7200e-003**	**0.2624**	**7.8000e-003**	**0.2701**	**0.0709**	**7.4300e-003**	**0.0783**		**829.0205**	**829.0205**	**0.0536**		**830.3607**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.6 Treatment Plants - Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9678	26.7119	25.8916	0.0455		1.4549	1.4549		1.3754	1.3754		4,330.2877	4,330.2877	0.9951		4,355.1642
Total	**2.9678**	**26.7119**	**25.8916**	**0.0455**		**1.4549**	**1.4549**		**1.3754**	**1.3754**		**4,330.2877**	**4,330.2877**	**0.9951**		**4,355.1642**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.8100e-003	0.0958	0.0233	2.5000e-004	6.4000e-003	2.0000e-004	6.5900e-003	1.8400e-003	1.9000e-004	2.0300e-003		27.0744	27.0744	1.6700e-003		27.1162
Worker	0.0628	0.0410	0.5632	1.6700e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		166.0347	166.0347	4.4800e-003		166.1466
Total	**0.0656**	**0.1367**	**0.5865**	**1.9200e-003**	**0.1741**	**1.4400e-003**	**0.1755**	**0.0463**	**1.3300e-003**	**0.0476**		**193.1091**	**193.1091**	**6.1500e-003**		**193.2629**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.6 Treatment Plants - Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9678	26.7119	25.8916	0.0455		1.4549	1.4549		1.3754	1.3754	0.0000	4,330.2877	4,330.2877	0.9951		4,355.1642
Total	**2.9678**	**26.7119**	**25.8916**	**0.0455**		**1.4549**	**1.4549**		**1.3754**	**1.3754**	**0.0000**	**4,330.2877**	**4,330.2877**	**0.9951**		**4,355.1642**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.8100e-003	0.0958	0.0233	2.5000e-004	6.4000e-003	2.0000e-004	6.5900e-003	1.8400e-003	1.9000e-004	2.0300e-003		27.0744	27.0744	1.6700e-003		27.1162
Worker	0.0628	0.0410	0.5632	1.6700e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		166.0347	166.0347	4.4800e-003		166.1466
Total	**0.0656**	**0.1367**	**0.5865**	**1.9200e-003**	**0.1741**	**1.4400e-003**	**0.1755**	**0.0463**	**1.3300e-003**	**0.0476**		**193.1091**	**193.1091**	**6.1500e-003**		**193.2629**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.6 Treatment Plants - Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6790	23.7590	25.5329	0.0455		1.2318	1.2318		1.1656	1.1656		4,331.0346	4,331.0346	0.9888		4,355.7553
Total	**2.6790**	**23.7590**	**25.5329**	**0.0455**		**1.2318**	**1.2318**		**1.1656**	**1.1656**		**4,331.0346**	**4,331.0346**	**0.9888**		**4,355.7553**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.6400e-003	0.0910	0.0220	2.5000e-004	6.4000e-003	1.7000e-004	6.5700e-003	1.8400e-003	1.6000e-004	2.0000e-003		26.8370	26.8370	1.6200e-003		26.8774
Worker	0.0589	0.0370	0.5208	1.6100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		160.0895	160.0895	4.0500e-003		160.1906
Total	**0.0615**	**0.1280**	**0.5429**	**1.8600e-003**	**0.1741**	**1.3800e-003**	**0.1754**	**0.0463**	**1.2700e-003**	**0.0476**		**186.9265**	**186.9265**	**5.6700e-003**		**187.0681**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.6 Treatment Plants - Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6790	23.7590	25.5329	0.0455		1.2318	1.2318		1.1656	1.1656	0.0000	4,331.0346	4,331.0346	0.9888		4,355.7553
Total	**2.6790**	**23.7590**	**25.5329**	**0.0455**		**1.2318**	**1.2318**		**1.1656**	**1.1656**	**0.0000**	**4,331.0346**	**4,331.0346**	**0.9888**		**4,355.7553**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.6400e-003	0.0910	0.0220	2.5000e-004	6.4000e-003	1.7000e-004	6.5700e-003	1.8400e-003	1.6000e-004	2.0000e-003		26.8370	26.8370	1.6200e-003		26.8774
Worker	0.0589	0.0370	0.5208	1.6100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		160.0895	160.0895	4.0500e-003		160.1906
Total	**0.0615**	**0.1280**	**0.5429**	**1.8600e-003**	**0.1741**	**1.3800e-003**	**0.1754**	**0.0463**	**1.2700e-003**	**0.0476**		**186.9265**	**186.9265**	**5.6700e-003**		**187.0681**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.7 Treatment Plants - Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7899	6.5332	6.3833	0.0145		0.3164	0.3164		0.3087	0.3087		1,387.9855	1,387.9855	0.2499		1,394.2332
Total	**3.0724**	**6.5332**	**6.3833**	**0.0145**		**0.3164**	**0.3164**		**0.3087**	**0.3087**		**1,387.9855**	**1,387.9855**	**0.2499**		**1,394.2332**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0167	0.0109	0.1502	4.4000e-004	0.0447	3.3000e-004	0.0450	0.0119	3.0000e-004	0.0122		44.2759	44.2759	1.1900e-003		44.3058
Total	**0.0167**	**0.0109**	**0.1502**	**4.4000e-004**	**0.0447**	**3.3000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**44.2759**	**44.2759**	**1.1900e-003**		**44.3058**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.7 Treatment Plants - Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7899	6.5332	6.3833	0.0145		0.3164	0.3164		0.3087	0.3087	0.0000	1,387.9855	1,387.9855	0.2499		1,394.2332
Total	**3.0724**	**6.5332**	**6.3833**	**0.0145**		**0.3164**	**0.3164**		**0.3087**	**0.3087**	**0.0000**	**1,387.9855**	**1,387.9855**	**0.2499**		**1,394.2332**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0167	0.0109	0.1502	4.4000e-004	0.0447	3.3000e-004	0.0450	0.0119	3.0000e-004	0.0122		44.2759	44.2759	1.1900e-003		44.3058
Total	**0.0167**	**0.0109**	**0.1502**	**4.4000e-004**	**0.0447**	**3.3000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**44.2759**	**44.2759**	**1.1900e-003**		**44.3058**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.7 Treatment Plants - Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7162	5.6115	6.2499	0.0145		0.2649	0.2649		0.2590	0.2590		1,388.2166	1,388.2166	0.2474		1,394.4004
Total	**2.9987**	**5.6115**	**6.2499**	**0.0145**		**0.2649**	**0.2649**		**0.2590**	**0.2590**		**1,388.2166**	**1,388.2166**	**0.2474**		**1,394.4004**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0157	9.8600e-003	0.1389	4.3000e-004	0.0447	3.2000e-004	0.0450	0.0119	3.0000e-004	0.0122		42.6905	42.6905	1.0800e-003		42.7175
Total	**0.0157**	**9.8600e-003**	**0.1389**	**4.3000e-004**	**0.0447**	**3.2000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**42.6905**	**42.6905**	**1.0800e-003**		**42.7175**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.7 Treatment Plants - Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7162	5.6115	6.2499	0.0145		0.2649	0.2649		0.2590	0.2590	0.0000	1,388.2166	1,388.2166	0.2474		1,394.4004
Total	**2.9987**	**5.6115**	**6.2499**	**0.0145**		**0.2649**	**0.2649**		**0.2590**	**0.2590**	**0.0000**	**1,388.2166**	**1,388.2166**	**0.2474**		**1,394.4004**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0157	9.8600e-003	0.1389	4.3000e-004	0.0447	3.2000e-004	0.0450	0.0119	3.0000e-004	0.0122		42.6905	42.6905	1.0800e-003		42.7175
Total	**0.0157**	**9.8600e-003**	**0.1389**	**4.3000e-004**	**0.0447**	**3.2000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**42.6905**	**42.6905**	**1.0800e-003**		**42.7175**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.8 Well Sites - Well Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	8.9793	85.0015	71.8040	0.1718		3.6630	3.6630		3.4555	3.4555		16,461.8866	16,461.8866	4.2423		16,567.9430
Total	**8.9793**	**85.0015**	**71.8040**	**0.1718**	**8.6733**	**3.6630**	**12.3363**	**3.5965**	**3.4555**	**7.0520**		**16,461.8866**	**16,461.8866**	**4.2423**		**16,567.9430**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.4800e-003	0.2486	0.0587	7.8000e-004	0.0729	7.2000e-004	0.0736	0.0184	6.9000e-004	0.0191		85.2741	85.2741	5.9800e-003		85.4237
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0746	0.0469	0.6597	2.0300e-003	0.9509	1.5300e-003	0.9524	0.2376	1.4100e-003	0.2390		202.7800	202.7800	5.1200e-003		202.9081
Total	**0.0821**	**0.2954**	**0.7184**	**2.8100e-003**	**1.0238**	**2.2500e-003**	**1.0260**	**0.2560**	**2.1000e-003**	**0.2581**		**288.0541**	**288.0541**	**0.0111**		**288.3318**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.8 Well Sites - Well Drilling - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	8.9793	85.0015	71.8040	0.1718		3.6630	3.6630		3.4555	3.4555	0.0000	16,461.8866	16,461.8866	4.2423		16,567.9430
Total	**8.9793**	**85.0015**	**71.8040**	**0.1718**	**3.7079**	**3.6630**	**7.3708**	**1.5375**	**3.4555**	**4.9930**	**0.0000**	**16,461.8866**	**16,461.8866**	**4.2423**		**16,567.9430**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.4800e-003	0.2486	0.0587	7.8000e-004	0.0729	7.2000e-004	0.0736	0.0184	6.9000e-004	0.0191		85.2741	85.2741	5.9800e-003		85.4237
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0746	0.0469	0.6597	2.0300e-003	0.9509	1.5300e-003	0.9524	0.2376	1.4100e-003	0.2390		202.7800	202.7800	5.1200e-003		202.9081
Total	**0.0821**	**0.2954**	**0.7184**	**2.8100e-003**	**1.0238**	**2.2500e-003**	**1.0260**	**0.2560**	**2.1000e-003**	**0.2581**		**288.0541**	**288.0541**	**0.0111**		**288.3318**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.9 Well Sites - Pump installation/construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4389	21.2576	22.6553	0.0415		1.0805	1.0805		1.0268	1.0268		3,942.5502	3,942.5502	0.8609		3,964.0737
Total	**2.4389**	**21.2576**	**22.6553**	**0.0415**		**1.0805**	**1.0805**		**1.0268**	**1.0268**		**3,942.5502**	**3,942.5502**	**0.8609**		**3,964.0737**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.2300e-003	0.0408	9.6200e-003	1.3000e-004	3.7000e-003	1.2000e-004	3.8100e-003	9.9000e-004	1.1000e-004	1.1100e-003		13.9812	13.9812	9.8000e-004		14.0057
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0432	0.0271	0.3819	1.1800e-003	0.1230	8.8000e-004	0.1238	0.0326	8.1000e-004	0.0334		117.3990	117.3990	2.9700e-003		117.4731
Total	**0.0444**	**0.0679**	**0.3916**	**1.3100e-003**	**0.1267**	**1.0000e-003**	**0.1277**	**0.0336**	**9.2000e-004**	**0.0345**		**131.3801**	**131.3801**	**3.9500e-003**		**131.4788**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.9 Well Sites - Pump installation/construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4389	21.2576	22.6553	0.0415		1.0805	1.0805		1.0268	1.0268	0.0000	3,942.5502	3,942.5502	0.8609		3,964.0737
Total	**2.4389**	**21.2576**	**22.6553**	**0.0415**		**1.0805**	**1.0805**		**1.0268**	**1.0268**	**0.0000**	**3,942.5502**	**3,942.5502**	**0.8609**		**3,964.0737**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.2300e-003	0.0408	9.6200e-003	1.3000e-004	3.7000e-003	1.2000e-004	3.8100e-003	9.9000e-004	1.1000e-004	1.1100e-003		13.9812	13.9812	9.8000e-004		14.0057
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0432	0.0271	0.3819	1.1800e-003	0.1230	8.8000e-004	0.1238	0.0326	8.1000e-004	0.0334		117.3990	117.3990	2.9700e-003		117.4731
Total	**0.0444**	**0.0679**	**0.3916**	**1.3100e-003**	**0.1267**	**1.0000e-003**	**0.1277**	**0.0336**	**9.2000e-004**	**0.0345**		**131.3801**	**131.3801**	**3.9500e-003**		**131.4788**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.9 Well Sites - Pump installation/construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2622	19.5365	22.4933	0.0415		0.9362	0.9362		0.8897	0.8897		3,943.8782	3,943.8782	0.8530		3,965.2040
Total	**2.2622**	**19.5365**	**22.4933**	**0.0415**		**0.9362**	**0.9362**		**0.8897**	**0.8897**		**3,943.8782**	**3,943.8782**	**0.8530**		**3,965.2040**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.1000e-004	0.0263	8.7800e-003	1.2000e-004	9.8700e-003	5.0000e-005	9.9200e-003	2.5100e-003	5.0000e-005	2.5500e-003		13.4078	13.4078	9.1000e-004		13.4306
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0406	0.0246	0.3527	1.1300e-003	0.1230	8.6000e-004	0.1238	0.0326	7.9000e-004	0.0334		113.0261	113.0261	2.6800e-003		113.0930
Total	**0.0414**	**0.0508**	**0.3615**	**1.2500e-003**	**0.1328**	**9.1000e-004**	**0.1337**	**0.0351**	**8.4000e-004**	**0.0360**		**126.4339**	**126.4339**	**3.5900e-003**		**126.5236**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.9 Well Sites - Pump installation/construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2622	19.5365	22.4933	0.0415		0.9362	0.9362		0.8897	0.8897	0.0000	3,943.8782	3,943.8782	0.8530		3,965.2040
Total	**2.2622**	**19.5365**	**22.4933**	**0.0415**		**0.9362**	**0.9362**		**0.8897**	**0.8897**	**0.0000**	**3,943.8782**	**3,943.8782**	**0.8530**		**3,965.2040**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.1000e-004	0.0263	8.7800e-003	1.2000e-004	9.8700e-003	5.0000e-005	9.9200e-003	2.5100e-003	5.0000e-005	2.5500e-003		13.4078	13.4078	9.1000e-004		13.4306
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0406	0.0246	0.3527	1.1300e-003	0.1230	8.6000e-004	0.1238	0.0326	7.9000e-004	0.0334		113.0261	113.0261	2.6800e-003		113.0930
Total	**0.0414**	**0.0508**	**0.3615**	**1.2500e-003**	**0.1328**	**9.1000e-004**	**0.1337**	**0.0351**	**8.4000e-004**	**0.0360**		**126.4339**	**126.4339**	**3.5900e-003**		**126.5236**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.10 Treatment Plants - Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4258	13.4999	16.5683	0.0301		0.6552	0.6552		0.6039	0.6039		2,897.6693	2,897.6693	0.9261		2,920.8211
Paving	0.3474					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7732**	**13.4999**	**16.5683**	**0.0301**		**0.6552**	**0.6552**		**0.6039**	**0.6039**		**2,897.6693**	**2,897.6693**	**0.9261**		**2,920.8211**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0196	0.0123	0.1736	5.4000e-004	0.2017	4.0000e-004	0.2021	0.0506	3.7000e-004	0.0510		53.3632	53.3632	1.3500e-003		53.3969
Total	**0.0196**	**0.0123**	**0.1736**	**5.4000e-004**	**0.2017**	**4.0000e-004**	**0.2021**	**0.0506**	**3.7000e-004**	**0.0510**		**53.3632**	**53.3632**	**1.3500e-003**		**53.3969**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

3.10 Treatment Plants - Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4258	13.4999	16.5683	0.0301		0.6552	0.6552		0.6039	0.6039	0.0000	2,897.6693	2,897.6693	0.9261		2,920.8210
Paving	0.3474					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7732**	**13.4999**	**16.5683**	**0.0301**		**0.6552**	**0.6552**		**0.6039**	**0.6039**	**0.0000**	**2,897.6693**	**2,897.6693**	**0.9261**		**2,920.8210**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0196	0.0123	0.1736	5.4000e-004	0.2017	4.0000e-004	0.2021	0.0506	3.7000e-004	0.0510		53.3632	53.3632	1.3500e-003		53.3969
Total	**0.0196**	**0.0123**	**0.1736**	**5.4000e-004**	**0.2017**	**4.0000e-004**	**0.2021**	**0.0506**	**3.7000e-004**	**0.0510**		**53.3632**	**53.3632**	**1.3500e-003**		**53.3969**

4.0 Operational Detail - Mobile

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5169	9.0787	6.4869	0.0687	3.1183	0.0479	3.1662	0.8800	0.0456	0.9257		7,210.1379	7,210.1379	0.2275		7,215.8247
Unmitigated	0.5169	9.0787	6.4869	0.0687	3.1183	0.0479	3.1662	0.8800	0.0456	0.9257		7,210.1379	7,210.1379	0.2275		7,215.8247

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	35.95	0.00	0.00	110,051	110,051
Refrigerated Warehouse-No Rail	20.00	0.00	0.00	206,001	206,001
Refrigerated Warehouse-No Rail	60.00	0.00	0.00	618,003	618,003
Total	115.95	0.00	0.00	934,056	934,056

4.3 Trip Type Information

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Refrigerated Warehouse-No	72.00	0.00	0.00	59.00	0.00	41.00	92	5	3
Refrigerated Warehouse-No	72.00	0.00	0.00	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000
Refrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Unmitigated	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2681					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.8858					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.8100e-003	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Total	**2.1627**	**8.7000e-004**	**0.0951**	**1.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**		**0.2040**	**0.2040**	**5.3000e-004**		**0.2173**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2681					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.8858					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.8100e-003	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Total	**2.1627**	**8.7000e-004**	**0.0951**	**1.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**		**0.2040**	**0.2040**	**5.3000e-004**		**0.2173**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Summer

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	6	0	24	115	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (100 - 175 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

11.0 Vegetation

Cactus Corridor Model Run without Tier 4 Engines

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	20.00	1000sqft	0.46	20,000.00	0
Refrigerated Warehouse-No Rail	60.00	1000sqft	1.38	60,000.00	0
Other Asphalt Surfaces	133.00	1000sqft	3.05	133,000.00	0
Other Non-Asphalt Surfaces	719.00	1000sqft	16.51	719,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	467.38	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

Project Characteristics - Based on 2018 SCE information for Intensity Factor

Land Use - First Line is the larger of the two treatment site options
Second line includes all the area of the well sites
Third line is the pipeline.
Fourth is 6 well site well pads

Construction Phase - Based on Engineer estimates and CalEEMod Default Ratios

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Equipment included in Pipeline Construction phase because all work happens simultaneously

Off-road Equipment - Based on Engineering Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engeering Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on engineering estimates

Off-road Equipment - Based on Engineering Estimates

Off-road Equipment - Based on Engineering Estimates.
This phase lasts 24 hours a day to prevent borehold collapse. Thus, all normal 8hr/workday estimates have been multiplied by 3.

Trips and VMT - based on engineering estimates

Architectural Coating - No residential structures being built.
Parking lot is very small, based on project experience

Vehicle Trips - Based on Engineering estimates

Road Dust - Based on engineering estimates

Energy Use - Based on engineer estimates = 20,000 treatment plant 60,000 well sites = 80,000 sqft

Water And Wastewater - No additional water use needed

Solid Waste - Brine disposal is covered in VMT

Construction Off-road Equipment Mitigation - Based on standard mitigation required by SCAQMD

Fleet Mix - Based on Engineerng estimates

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generators for 6 well sites / treatment facility

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	51,120.00	3,000.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	13.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstructionPhase	NumDays	20.00	331.00
tblConstructionPhase	NumDays	370.00	288.00
tblConstructionPhase	NumDays	370.00	265.00
tblConstructionPhase	NumDays	35.00	29.00

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

tblConstructionPhase	NumDays	35.00	84.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	10.00	132.00
tblConstructionPhase	NumDays	10.00	32.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblEnergyUse	NT24E	36.52	81.03
tblEnergyUse	NT24NG	48.51	0.00
tblEnergyUse	T24E	1.06	0.00
tblEnergyUse	T24NG	3.25	0.00
tblFleetMix	HHD	0.03	0.20
tblFleetMix	HHD	0.03	0.20
tblFleetMix	HHD	0.03	0.20
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	LHD2	5.8470e-003	0.20

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MHD	0.02	0.20
tblFleetMix	MHD	0.02	0.20
tblFleetMix	MHD	0.02	0.20
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblOffRoadEquipment	HorsePower	158.00	97.00
tblOffRoadEquipment	HorsePower	402.00	97.00
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	467.38
tblRoadDust	MeanVehicleSpeed	40	15
tblSolidWaste	SolidWasteGenerationRate	75.20	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	115.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	24.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	6.00
tblTripsAndVMT	HaulingTripNumber	0.00	27.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,406.00
tblTripsAndVMT	HaulingTripNumber	0.00	250.00
tblTripsAndVMT	HaulingTripNumber	0.00	87.00
tblTripsAndVMT	HaulingTripNumber	0.00	45.00
tblTripsAndVMT	VendorTripNumber	153.00	1.00
tblTripsAndVMT	VendorTripNumber	153.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	38.00	30.00
tblTripsAndVMT	WorkerTripNumber	25.00	10.00
tblTripsAndVMT	WorkerTripNumber	391.00	15.00
tblTripsAndVMT	WorkerTripNumber	78.00	4.00
tblTripsAndVMT	WorkerTripNumber	38.00	19.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	391.00	11.00
tblTripsAndVMT	WorkerTripNumber	20.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	0.00	41.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	72.00
tblVehicleTrips	CW_TTP	0.00	59.00
tblVehicleTrips	DV_TP	0.00	5.00
tblVehicleTrips	PB_TP	0.00	3.00
tblVehicleTrips	PR_TP	0.00	92.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	0.00	0.05
tblVehicleTrips	WD_TR	1.68	1.00
tblWater	IndoorWaterUseRate	18,500,000.00	0.00

2.0 Emissions Summary

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	12.8550	115.0584	75.8079	0.1685	36.8185	5.1128	41.7488	20.0432	4.7502	24.6245	0.0000	16,372.5929	16,372.5929	4.3352	0.0000	16,480.9737
2022	17.5941	138.0648	130.8258	0.2918	10.4947	6.2269	16.7217	4.0626	5.9019	9.9644	0.0000	27,992.6382	27,992.6382	6.4974	0.0000	28,155.0721
2023	2.3080	19.5898	22.8206	0.0426	0.1328	0.9371	1.0699	0.0351	0.8906	0.9257	0.0000	4,063.0615	4,063.0615	0.8565	0.0000	4,084.4733
Maximum	**17.5941**	**138.0648**	**130.8258**	**0.2918**	**36.8185**	**6.2269**	**41.7488**	**20.0432**	**5.9019**	**24.6245**	**0.0000**	**27,992.6382**	**27,992.6382**	**6.4974**	**0.0000**	**28,155.0721**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	12.8550	115.0584	75.8079	0.1685	16.1326	5.1128	21.0630	8.6726	4.7502	13.2539	0.0000	16,372.5929	16,372.5929	4.3352	0.0000	16,480.9737
2022	17.5941	138.0648	130.8258	0.2918	5.5293	6.2269	11.7562	2.0036	5.9019	7.9054	0.0000	27,992.6382	27,992.6382	6.4974	0.0000	28,155.0721
2023	2.3080	19.5898	22.8206	0.0426	0.1328	0.9371	1.0699	0.0351	0.8906	0.9257	0.0000	4,063.0615	4,063.0615	0.8565	0.0000	4,084.4733
Maximum	**17.5941**	**138.0648**	**130.8258**	**0.2918**	**16.1326**	**6.2269**	**21.0630**	**8.6726**	**5.9019**	**13.2539**	**0.0000**	**27,992.6382**	**27,992.6382**	**6.4974**	**0.0000**	**28,155.0721**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.06**	**0.00**	**43.08**	**55.63**	**0.00**	**37.81**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5172	9.3222	6.2998	0.0679	3.1183	0.0481	3.1664	0.8800	0.0458	0.9258		7,128.1908	7,128.1908	0.2295		7,133.9292
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.6799**	**9.3231**	**6.3950**	**0.0679**	**3.1183**	**0.0484**	**3.1667**	**0.8800**	**0.0462**	**0.9262**		**7,128.3948**	**7,128.3948**	**0.2301**	**0.0000**	**7,134.1466**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5172	9.3222	6.2998	0.0679	3.1183	0.0481	3.1664	0.8800	0.0458	0.9258		7,128.1908	7,128.1908	0.2295		7,133.9292
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.6799**	**9.3231**	**6.3950**	**0.0679**	**3.1183**	**0.0484**	**3.1667**	**0.8800**	**0.0462**	**0.9262**		**7,128.3948**	**7,128.3948**	**0.2301**	**0.0000**	**7,134.1466**

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

3.0 Construction Detail

Construction Phase

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Well Sites - Site Prep	Site Preparation	7/1/2021	12/31/2021	5	132	
2	Treatment Plants - Site Prep	Site Preparation	7/1/2021	8/13/2021	5	32	
3	Pipeline - Trenching	Trenching	7/1/2021	5/2/2022	5	218	
4	Treatment Plants - Grading	Grading	8/16/2021	9/23/2021	5	29	
5	Treatment Plants - Building Construction	Building Construction	9/24/2021	11/1/2022	5	288	
6	Treatment Plants - Architectural Coating	Architectural Coating	9/24/2021	12/30/2022	5	331	
7	Well Sites - Well Drilling	Grading	1/3/2022	3/27/2022	7	84	
8	Well Sites - Pump installation/construction	Building Construction	3/28/2022	3/31/2023	5	265	
9	Treatment Plants - Paving	Paving	11/2/2022	12/2/2022	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 19.56

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 120,000; Non-Residential Outdoor: 40,000; Striped Parking Area: 3,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Well Sites - Site Prep	Off-Highway Trucks	1	2.00	97	0.37
Well Sites - Site Prep	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Site Prep	Rubber Tired Dozers	3	8.00	247	0.40
Well Sites - Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Treatment Plants - Site Prep	Off-Highway Trucks	1	2.00	402	0.38
Treatment Plants - Site Prep	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Site Prep	Rubber Tired Dozers	3	8.00	247	0.40

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

Treatment Plants - Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipeline - Trenching	Air Compressors	1	6.00	78	0.48
Pipeline - Trenching	Concrete/Industrial Saws	1	6.00	81	0.73
Pipeline - Trenching	Cranes	1	4.00	231	0.29
Pipeline - Trenching	Dumpers/Tenders	2	6.00	16	0.38
Pipeline - Trenching	Excavators	1	6.00	158	0.38
Pipeline - Trenching	Generator Sets	1	6.00	84	0.74
Pipeline - Trenching	Off-Highway Trucks	1	2.00	402	0.38
Pipeline - Trenching	Off-Highway Trucks	1	4.00	402	0.38
Pipeline - Trenching	Pavers	1	6.00	130	0.42
Pipeline - Trenching	Pumps	1	6.00	84	0.74
Pipeline - Trenching	Sweepers/Scrubbers	1	6.00	64	0.46
Pipeline - Trenching	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Pipeline - Trenching	Welders	1	6.00	46	0.45
Treatment Plants - Grading	Cement and Mortar Mixers	1	6.00	9	0.56
Treatment Plants - Grading	Excavators	2	8.00	158	0.38
Treatment Plants - Grading	Graders	1	8.00	187	0.41
Treatment Plants - Grading	Off-Highway Trucks	1	2.00	402	0.38
Treatment Plants - Grading	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Grading	Rubber Tired Dozers	1	8.00	247	0.40
Treatment Plants - Grading	Scrapers	2	8.00	367	0.48
Treatment Plants - Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Treatment Plants - Building Construction	Air Compressors	1	6.00	78	0.48
Treatment Plants - Building Construction	Cement and Mortar Mixers	1	6.00	9	0.56
Treatment Plants - Building Construction	Cranes	1	7.00	231	0.29
Treatment Plants - Building Construction	Excavators	2	6.00	97	0.37

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

Treatment Plants - Building Construction	Forklifts	3	8.00	89	0.20
Treatment Plants - Building Construction	Forklifts	2	6.00	89	0.20
Treatment Plants - Building Construction	Generator Sets	1	8.00	84	0.74
Treatment Plants - Building Construction	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Building Construction	Pumps	1	6.00	84	0.74
Treatment Plants - Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Treatment Plants - Building Construction	Welders	1	6.00	46	0.45
Treatment Plants - Architectural Coating	Air Compressors	1	6.00	78	0.48
Treatment Plants - Architectural Coating	Generator Sets	1	6.00	84	0.74
Treatment Plants - Architectural Coating	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Well Drilling	Air Compressors	1	18.00	78	0.48
Well Sites - Well Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Well Sites - Well Drilling	Cranes	1	24.00	231	0.29
Well Sites - Well Drilling	Excavators	2	8.00	158	0.38
Well Sites - Well Drilling	Generator Sets	1	18.00	84	0.74
Well Sites - Well Drilling	Graders	1	8.00	187	0.41
Well Sites - Well Drilling	Off-Highway Trucks	1	12.00	402	0.38
Well Sites - Well Drilling	Pumps	1	18.00	84	0.74
Well Sites - Well Drilling	Rubber Tired Dozers	1	8.00	247	0.40
Well Sites - Well Drilling	Scrapers	2	8.00	367	0.48
Well Sites - Well Drilling	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Well Sites - Well Drilling	Welders	1	18.00	46	0.45
Well Sites - Pump installation/construction	Air Compressors	1	6.00	78	0.48
Well Sites - Pump installation/construction	Cranes	1	7.00	231	0.29
Well Sites - Pump installation/construction	Forklifts	3	8.00	89	0.20

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

Well Sites - Pump installation/construction	Generator Sets	1	8.00	84	0.74
Well Sites - Pump installation/construction	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Pump installation/construction	Pumps	1	6.00	84	0.74
Well Sites - Pump installation/construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Well Sites - Pump installation/construction	Welders	1	8.00	46	0.45
Treatment Plants - Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Treatment Plants - Paving	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Paving	Pavers	2	8.00	130	0.42
Treatment Plants - Paving	Paving Equipment	2	8.00	132	0.36
Treatment Plants - Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Well Sites - Site Prep	6	8.00	0.00	27.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Site Prep	6	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline - Trenching	15	30.00	0.00	1,406.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Grading	10	10.00	0.00	250.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Building Construction	16	15.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Architectural Coating	3	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	19.00	0.00	87.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Pump installation/constructio	12	11.00	0.00	45.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.2 Well Sites - Site Prep - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.6293	37.4414	16.1757	0.0353		1.8057	1.8057		1.6612	1.6612		3,422.2182	3,422.2182	1.1068		3,449.8885
Total	**3.6293**	**37.4414**	**16.1757**	**0.0353**	**18.0663**	**1.8057**	**19.8719**	**9.9307**	**1.6612**	**11.5919**		**3,422.2182**	**3,422.2182**	**1.1068**		**3,449.8885**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5900e-003	0.0537	0.0125	1.5000e-004	3.5700e-003	1.7000e-004	3.7400e-003	9.8000e-004	1.6000e-004	1.1400e-003		16.7514	16.7514	1.2500e-003		16.7825
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2719	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		83.0521	83.0521	2.2300e-003		83.1079
Total	**0.0385**	**0.0777**	**0.2844**	**9.8000e-004**	**0.0930**	**8.3000e-004**	**0.0938**	**0.0247**	**7.7000e-004**	**0.0255**		**99.8035**	**99.8035**	**3.4800e-003**		**99.8905**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.2 Well Sites - Site Prep - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	3.6293	37.4414	16.1757	0.0353		1.8057	1.8057		1.6612	1.6612	0.0000	3,422.2182	3,422.2182	1.1068		3,449.8885
Total	**3.6293**	**37.4414**	**16.1757**	**0.0353**	**7.7233**	**1.8057**	**9.5290**	**4.2454**	**1.6612**	**5.9066**	**0.0000**	**3,422.2182**	**3,422.2182**	**1.1068**		**3,449.8885**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5900e-003	0.0537	0.0125	1.5000e-004	3.5700e-003	1.7000e-004	3.7400e-003	9.8000e-004	1.6000e-004	1.1400e-003		16.7514	16.7514	1.2500e-003		16.7825
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2719	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		83.0521	83.0521	2.2300e-003		83.1079
Total	**0.0385**	**0.0777**	**0.2844**	**9.8000e-004**	**0.0930**	**8.3000e-004**	**0.0938**	**0.0247**	**7.7000e-004**	**0.0255**		**99.8035**	**99.8035**	**3.4800e-003**		**99.8905**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.3 Treatment Plants - Site Prep - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.7808	38.7572	17.0768	0.0386		1.8539	1.8539		1.7056	1.7056		3,741.8489	3,741.8489	1.2102		3,772.1037
Total	**3.7808**	**38.7572**	**17.0768**	**0.0386**	**18.0663**	**1.8539**	**19.9202**	**9.9307**	**1.7056**	**11.6363**		**3,741.8489**	**3,741.8489**	**1.2102**		**3,772.1037**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2719	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		83.0521	83.0521	2.2300e-003		83.1079
Total	**0.0369**	**0.0240**	**0.2719**	**8.3000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**83.0521**	**83.0521**	**2.2300e-003**		**83.1079**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.3 Treatment Plants - Site Prep - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	3.7808	38.7572	17.0768	0.0386		1.8539	1.8539		1.7056	1.7056	0.0000	3,741.8489	3,741.8489	1.2102		3,772.1037
Total	**3.7808**	**38.7572**	**17.0768**	**0.0386**	**7.7233**	**1.8539**	**9.5773**	**4.2454**	**1.7056**	**5.9510**	**0.0000**	**3,741.8489**	**3,741.8489**	**1.2102**		**3,772.1037**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2719	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		83.0521	83.0521	2.2300e-003		83.1079
Total	**0.0369**	**0.0240**	**0.2719**	**8.3000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**83.0521**	**83.0521**	**2.2300e-003**		**83.1079**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.4 Pipeline - Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8678	24.7361	24.9882	0.0473		1.2615	1.2615		1.2058	1.2058		4,498.2016	4,498.2016	0.9624		4,522.2620
Total	**2.8678**	**24.7361**	**24.9882**	**0.0473**		**1.2615**	**1.2615**		**1.2058**	**1.2058**		**4,498.2016**	**4,498.2016**	**0.9624**		**4,522.2620**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0503	1.6929	0.3936	4.8600e-003	0.1682	5.2900e-003	0.1735	0.0445	5.0600e-003	0.0496		528.1894	528.1894	0.0393		529.1717
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1384	0.0899	1.0196	3.1300e-003	0.3353	2.4800e-003	0.3378	0.0889	2.2900e-003	0.0912		311.4454	311.4454	8.3800e-003		311.6548
Total	**0.1886**	**1.7828**	**1.4132**	**7.9900e-003**	**0.5035**	**7.7700e-003**	**0.5113**	**0.1334**	**7.3500e-003**	**0.1408**		**839.6347**	**839.6347**	**0.0477**		**840.8264**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.4 Pipeline - Trenching - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8678	24.7361	24.9882	0.0473		1.2615	1.2615		1.2058	1.2058	0.0000	4,498.2016	4,498.2016	0.9624		4,522.2620
Total	**2.8678**	**24.7361**	**24.9882**	**0.0473**		**1.2615**	**1.2615**		**1.2058**	**1.2058**	**0.0000**	**4,498.2016**	**4,498.2016**	**0.9624**		**4,522.2620**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0503	1.6929	0.3936	4.8600e-003	0.1682	5.2900e-003	0.1735	0.0445	5.0600e-003	0.0496		528.1894	528.1894	0.0393		529.1717
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1384	0.0899	1.0196	3.1300e-003	0.3353	2.4800e-003	0.3378	0.0889	2.2900e-003	0.0912		311.4454	311.4454	8.3800e-003		311.6548
Total	**0.1886**	**1.7828**	**1.4132**	**7.9900e-003**	**0.5035**	**7.7700e-003**	**0.5113**	**0.1334**	**7.3500e-003**	**0.1408**		**839.6347**	**839.6347**	**0.0477**		**840.8264**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.4 Pipeline - Trenching - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5839	21.6011	24.6302	0.0473		1.0564	1.0564		1.0115	1.0115		4,499.1169	4,499.1169	0.9552		4,522.9975
Total	**2.5839**	**21.6011**	**24.6302**	**0.0473**		**1.0564**	**1.0564**		**1.0115**	**1.0115**		**4,499.1169**	**4,499.1169**	**0.9552**		**4,522.9975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0478	1.5655	0.3885	4.8000e-003	0.2435	4.5800e-003	0.2481	0.0630	4.3800e-003	0.0674		521.8183	521.8183	0.0386		522.7838
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1301	0.0812	0.9412	3.0100e-003	0.3353	2.4100e-003	0.3377	0.0889	2.2200e-003	0.0912		300.2937	300.2937	7.5700e-003		300.4828
Total	**0.1779**	**1.6467**	**1.3297**	**7.8100e-003**	**0.5789**	**6.9900e-003**	**0.5858**	**0.1519**	**6.6000e-003**	**0.1585**		**822.1120**	**822.1120**	**0.0462**		**823.2666**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.4 Pipeline - Trenching - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5839	21.6011	24.6302	0.0473		1.0564	1.0564		1.0115	1.0115	0.0000	4,499.1169	4,499.1169	0.9552		4,522.9975
Total	**2.5839**	**21.6011**	**24.6302**	**0.0473**		**1.0564**	**1.0564**		**1.0115**	**1.0115**	**0.0000**	**4,499.1169**	**4,499.1169**	**0.9552**		**4,522.9975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0478	1.5655	0.3885	4.8000e-003	0.2435	4.5800e-003	0.2481	0.0630	4.3800e-003	0.0674		521.8183	521.8183	0.0386		522.7838
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1301	0.0812	0.9412	3.0100e-003	0.3353	2.4100e-003	0.3377	0.0889	2.2200e-003	0.0912		300.2937	300.2937	7.5700e-003		300.4828
Total	**0.1779**	**1.6467**	**1.3297**	**7.8100e-003**	**0.5789**	**6.9900e-003**	**0.5858**	**0.1519**	**6.6000e-003**	**0.1585**		**822.1120**	**822.1120**	**0.0462**		**823.2666**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.5 Treatment Plants - Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.5024	48.7277	31.5528	0.0694		2.0291	2.0291		1.8676	1.8676		6,702.9229	6,702.9229	2.1595		6,756.9114
Total	**4.5024**	**48.7277**	**31.5528**	**0.0694**	**8.6733**	**2.0291**	**10.7024**	**3.5965**	**1.8676**	**5.4641**		**6,702.9229**	**6,702.9229**	**2.1595**		**6,756.9114**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0672	2.2627	0.5260	6.5000e-003	0.1506	7.0700e-003	0.1576	0.0413	6.7700e-003	0.0480		705.9970	705.9970	0.0525		707.3100
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0461	0.0300	0.3399	1.0400e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.8151	103.8151	2.7900e-003		103.8849
Total	**0.1133**	**2.2927**	**0.8659**	**7.5400e-003**	**0.2624**	**7.9000e-003**	**0.2702**	**0.0709**	**7.5300e-003**	**0.0784**		**809.8121**	**809.8121**	**0.0553**		**811.1949**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.5 Treatment Plants - Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	4.5024	48.7277	31.5528	0.0694		2.0291	2.0291		1.8676	1.8676	0.0000	6,702.9228	6,702.9228	2.1595		6,756.9114
Total	**4.5024**	**48.7277**	**31.5528**	**0.0694**	**3.7079**	**2.0291**	**5.7369**	**1.5375**	**1.8676**	**3.4051**	**0.0000**	**6,702.9228**	**6,702.9228**	**2.1595**		**6,756.9114**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0672	2.2627	0.5260	6.5000e-003	0.1506	7.0700e-003	0.1576	0.0413	6.7700e-003	0.0480		705.9970	705.9970	0.0525		707.3100
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0461	0.0300	0.3399	1.0400e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.8151	103.8151	2.7900e-003		103.8849
Total	**0.1133**	**2.2927**	**0.8659**	**7.5400e-003**	**0.2624**	**7.9000e-003**	**0.2702**	**0.0709**	**7.5300e-003**	**0.0784**		**809.8121**	**809.8121**	**0.0553**		**811.1949**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.6 Treatment Plants - Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9678	26.7119	25.8916	0.0455		1.4549	1.4549		1.3754	1.3754		4,330.2877	4,330.2877	0.9951		4,355.1642
Total	**2.9678**	**26.7119**	**25.8916**	**0.0455**		**1.4549**	**1.4549**		**1.3754**	**1.3754**		**4,330.2877**	**4,330.2877**	**0.9951**		**4,355.1642**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.9600e-003	0.0955	0.0259	2.5000e-004	6.4000e-003	2.0000e-004	6.6000e-003	1.8400e-003	1.9000e-004	2.0300e-003		26.3374	26.3374	1.7900e-003		26.3821
Worker	0.0692	0.0450	0.5098	1.5600e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		155.7227	155.7227	4.1900e-003		155.8274
Total	**0.0721**	**0.1405**	**0.5357**	**1.8100e-003**	**0.1741**	**1.4400e-003**	**0.1755**	**0.0463**	**1.3300e-003**	**0.0476**		**182.0601**	**182.0601**	**5.9800e-003**		**182.2095**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.6 Treatment Plants - Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9678	26.7119	25.8916	0.0455		1.4549	1.4549		1.3754	1.3754	0.0000	4,330.2877	4,330.2877	0.9951		4,355.1642
Total	**2.9678**	**26.7119**	**25.8916**	**0.0455**		**1.4549**	**1.4549**		**1.3754**	**1.3754**	**0.0000**	**4,330.2877**	**4,330.2877**	**0.9951**		**4,355.1642**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.9600e-003	0.0955	0.0259	2.5000e-004	6.4000e-003	2.0000e-004	6.6000e-003	1.8400e-003	1.9000e-004	2.0300e-003		26.3374	26.3374	1.7900e-003		26.3821
Worker	0.0692	0.0450	0.5098	1.5600e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		155.7227	155.7227	4.1900e-003		155.8274
Total	**0.0721**	**0.1405**	**0.5357**	**1.8100e-003**	**0.1741**	**1.4400e-003**	**0.1755**	**0.0463**	**1.3300e-003**	**0.0476**		**182.0601**	**182.0601**	**5.9800e-003**		**182.2095**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.6 Treatment Plants - Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6790	23.7590	25.5329	0.0455		1.2318	1.2318		1.1656	1.1656		4,331.0346	4,331.0346	0.9888		4,355.7553
Total	**2.6790**	**23.7590**	**25.5329**	**0.0455**		**1.2318**	**1.2318**		**1.1656**	**1.1656**		**4,331.0346**	**4,331.0346**	**0.9888**		**4,355.7553**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7700e-003	0.0907	0.0245	2.4000e-004	6.4000e-003	1.8000e-004	6.5700e-003	1.8400e-003	1.7000e-004	2.0100e-003		26.1022	26.1022	1.7300e-003		26.1454
Worker	0.0651	0.0406	0.4706	1.5100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		150.1468	150.1468	3.7800e-003		150.2414
Total	**0.0678**	**0.1313**	**0.4951**	**1.7500e-003**	**0.1741**	**1.3900e-003**	**0.1754**	**0.0463**	**1.2800e-003**	**0.0476**		**176.2490**	**176.2490**	**5.5100e-003**		**176.3868**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.6 Treatment Plants - Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6790	23.7590	25.5329	0.0455		1.2318	1.2318		1.1656	1.1656	0.0000	4,331.0346	4,331.0346	0.9888		4,355.7553
Total	**2.6790**	**23.7590**	**25.5329**	**0.0455**		**1.2318**	**1.2318**		**1.1656**	**1.1656**	**0.0000**	**4,331.0346**	**4,331.0346**	**0.9888**		**4,355.7553**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7700e-003	0.0907	0.0245	2.4000e-004	6.4000e-003	1.8000e-004	6.5700e-003	1.8400e-003	1.7000e-004	2.0100e-003		26.1022	26.1022	1.7300e-003		26.1454
Worker	0.0651	0.0406	0.4706	1.5100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		150.1468	150.1468	3.7800e-003		150.2414
Total	**0.0678**	**0.1313**	**0.4951**	**1.7500e-003**	**0.1741**	**1.3900e-003**	**0.1754**	**0.0463**	**1.2800e-003**	**0.0476**		**176.2490**	**176.2490**	**5.5100e-003**		**176.3868**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.7 Treatment Plants - Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7899	6.5332	6.3833	0.0145		0.3164	0.3164		0.3087	0.3087		1,387.9855	1,387.9855	0.2499		1,394.2332
Total	**3.0724**	**6.5332**	**6.3833**	**0.0145**		**0.3164**	**0.3164**		**0.3087**	**0.3087**		**1,387.9855**	**1,387.9855**	**0.2499**		**1,394.2332**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0185	0.0120	0.1360	4.2000e-004	0.0447	3.3000e-004	0.0450	0.0119	3.0000e-004	0.0122		41.5261	41.5261	1.1200e-003		41.5540
Total	**0.0185**	**0.0120**	**0.1360**	**4.2000e-004**	**0.0447**	**3.3000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**41.5261**	**41.5261**	**1.1200e-003**		**41.5540**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.7 Treatment Plants - Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7899	6.5332	6.3833	0.0145		0.3164	0.3164		0.3087	0.3087	0.0000	1,387.9855	1,387.9855	0.2499		1,394.2332
Total	**3.0724**	**6.5332**	**6.3833**	**0.0145**		**0.3164**	**0.3164**		**0.3087**	**0.3087**	**0.0000**	**1,387.9855**	**1,387.9855**	**0.2499**		**1,394.2332**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0185	0.0120	0.1360	4.2000e-004	0.0447	3.3000e-004	0.0450	0.0119	3.0000e-004	0.0122		41.5261	41.5261	1.1200e-003		41.5540
Total	**0.0185**	**0.0120**	**0.1360**	**4.2000e-004**	**0.0447**	**3.3000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**41.5261**	**41.5261**	**1.1200e-003**		**41.5540**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.7 Treatment Plants - Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7162	5.6115	6.2499	0.0145		0.2649	0.2649		0.2590	0.2590		1,388.2166	1,388.2166	0.2474		1,394.4004
Total	**2.9987**	**5.6115**	**6.2499**	**0.0145**		**0.2649**	**0.2649**		**0.2590**	**0.2590**		**1,388.2166**	**1,388.2166**	**0.2474**		**1,394.4004**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0174	0.0108	0.1255	4.0000e-004	0.0447	3.2000e-004	0.0450	0.0119	3.0000e-004	0.0122		40.0392	40.0392	1.0100e-003		40.0644
Total	**0.0174**	**0.0108**	**0.1255**	**4.0000e-004**	**0.0447**	**3.2000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**40.0392**	**40.0392**	**1.0100e-003**		**40.0644**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.7 Treatment Plants - Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7162	5.6115	6.2499	0.0145		0.2649	0.2649		0.2590	0.2590	0.0000	1,388.2166	1,388.2166	0.2474		1,394.4004
Total	**2.9987**	**5.6115**	**6.2499**	**0.0145**		**0.2649**	**0.2649**		**0.2590**	**0.2590**	**0.0000**	**1,388.2166**	**1,388.2166**	**0.2474**		**1,394.4004**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0174	0.0108	0.1255	4.0000e-004	0.0447	3.2000e-004	0.0450	0.0119	3.0000e-004	0.0122		40.0392	40.0392	1.0100e-003		40.0644
Total	**0.0174**	**0.0108**	**0.1255**	**4.0000e-004**	**0.0447**	**3.2000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**40.0392**	**40.0392**	**1.0100e-003**		**40.0644**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.8 Well Sites - Well Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	8.9793	85.0015	71.8040	0.1718		3.6630	3.6630		3.4555	3.4555		16,461.8866	16,461.8866	4.2423		16,567.9430
Total	**8.9793**	**85.0015**	**71.8040**	**0.1718**	**8.6733**	**3.6630**	**12.3363**	**3.5965**	**3.4555**	**7.0520**		**16,461.8866**	**16,461.8866**	**4.2423**		**16,567.9430**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.6800e-003	0.2514	0.0624	7.7000e-004	0.0729	7.3000e-004	0.0736	0.0184	7.0000e-004	0.0191		83.7974	83.7974	6.2000e-003		83.9524
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0824	0.0514	0.5961	1.9100e-003	0.9509	1.5300e-003	0.9524	0.2376	1.4100e-003	0.2390		190.1860	190.1860	4.7900e-003		190.3058
Total	**0.0901**	**0.3028**	**0.6585**	**2.6800e-003**	**1.0238**	**2.2600e-003**	**1.0260**	**0.2560**	**2.1100e-003**	**0.2581**		**273.9834**	**273.9834**	**0.0110**		**274.2582**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.8 Well Sites - Well Drilling - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	8.9793	85.0015	71.8040	0.1718		3.6630	3.6630		3.4555	3.4555	0.0000	16,461.8866	16,461.8866	4.2423		16,567.9430
Total	**8.9793**	**85.0015**	**71.8040**	**0.1718**	**3.7079**	**3.6630**	**7.3708**	**1.5375**	**3.4555**	**4.9930**	**0.0000**	**16,461.8866**	**16,461.8866**	**4.2423**		**16,567.9430**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.6800e-003	0.2514	0.0624	7.7000e-004	0.0729	7.3000e-004	0.0736	0.0184	7.0000e-004	0.0191		83.7974	83.7974	6.2000e-003		83.9524
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0824	0.0514	0.5961	1.9100e-003	0.9509	1.5300e-003	0.9524	0.2376	1.4100e-003	0.2390		190.1860	190.1860	4.7900e-003		190.3058
Total	**0.0901**	**0.3028**	**0.6585**	**2.6800e-003**	**1.0238**	**2.2600e-003**	**1.0260**	**0.2560**	**2.1100e-003**	**0.2581**		**273.9834**	**273.9834**	**0.0110**		**274.2582**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.9 Well Sites - Pump installation/construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4389	21.2576	22.6553	0.0415		1.0805	1.0805		1.0268	1.0268		3,942.5502	3,942.5502	0.8609		3,964.0737
Total	**2.4389**	**21.2576**	**22.6553**	**0.0415**		**1.0805**	**1.0805**		**1.0268**	**1.0268**		**3,942.5502**	**3,942.5502**	**0.8609**		**3,964.0737**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.2600e-003	0.0412	0.0102	1.3000e-004	3.7000e-003	1.2000e-004	3.8200e-003	9.9000e-004	1.2000e-004	1.1100e-003		13.7391	13.7391	1.0200e-003		13.7645
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0477	0.0298	0.3451	1.1000e-003	0.1230	8.8000e-004	0.1238	0.0326	8.1000e-004	0.0334		110.1077	110.1077	2.7700e-003		110.1770
Total	**0.0490**	**0.0710**	**0.3553**	**1.2300e-003**	**0.1267**	**1.0000e-003**	**0.1277**	**0.0336**	**9.3000e-004**	**0.0345**		**123.8467**	**123.8467**	**3.7900e-003**		**123.9415**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.9 Well Sites - Pump installation/construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4389	21.2576	22.6553	0.0415		1.0805	1.0805		1.0268	1.0268	0.0000	3,942.5502	3,942.5502	0.8609		3,964.0737
Total	**2.4389**	**21.2576**	**22.6553**	**0.0415**		**1.0805**	**1.0805**		**1.0268**	**1.0268**	**0.0000**	**3,942.5502**	**3,942.5502**	**0.8609**		**3,964.0737**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.2600e-003	0.0412	0.0102	1.3000e-004	3.7000e-003	1.2000e-004	3.8200e-003	9.9000e-004	1.2000e-004	1.1100e-003		13.7391	13.7391	1.0200e-003		13.7645
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0477	0.0298	0.3451	1.1000e-003	0.1230	8.8000e-004	0.1238	0.0326	8.1000e-004	0.0334		110.1077	110.1077	2.7700e-003		110.1770
Total	**0.0490**	**0.0710**	**0.3553**	**1.2300e-003**	**0.1267**	**1.0000e-003**	**0.1277**	**0.0336**	**9.3000e-004**	**0.0345**		**123.8467**	**123.8467**	**3.7900e-003**		**123.9415**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.9 Well Sites - Pump installation/construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2622	19.5365	22.4933	0.0415		0.9362	0.9362		0.8897	0.8897		3,943.8782	3,943.8782	0.8530		3,965.2040
Total	**2.2622**	**19.5365**	**22.4933**	**0.0415**		**0.9362**	**0.9362**		**0.8897**	**0.8897**		**3,943.8782**	**3,943.8782**	**0.8530**		**3,965.2040**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.3000e-004	0.0264	9.1800e-003	1.2000e-004	9.8700e-003	5.0000e-005	9.9200e-003	2.5100e-003	5.0000e-005	2.5600e-003		13.1772	13.1772	9.4000e-004		13.2007
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0450	0.0269	0.3181	1.0600e-003	0.1230	8.6000e-004	0.1238	0.0326	7.9000e-004	0.0334		106.0062	106.0062	2.5000e-003		106.0687
Total	**0.0458**	**0.0534**	**0.3273**	**1.1800e-003**	**0.1328**	**9.1000e-004**	**0.1337**	**0.0351**	**8.4000e-004**	**0.0360**		**119.1833**	**119.1833**	**3.4400e-003**		**119.2693**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.9 Well Sites - Pump installation/construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2622	19.5365	22.4933	0.0415		0.9362	0.9362		0.8897	0.8897	0.0000	3,943.8782	3,943.8782	0.8530		3,965.2040
Total	**2.2622**	**19.5365**	**22.4933**	**0.0415**		**0.9362**	**0.9362**		**0.8897**	**0.8897**	**0.0000**	**3,943.8782**	**3,943.8782**	**0.8530**		**3,965.2040**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.3000e-004	0.0264	9.1800e-003	1.2000e-004	9.8700e-003	5.0000e-005	9.9200e-003	2.5100e-003	5.0000e-005	2.5600e-003		13.1772	13.1772	9.4000e-004		13.2007
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0450	0.0269	0.3181	1.0600e-003	0.1230	8.6000e-004	0.1238	0.0326	7.9000e-004	0.0334		106.0062	106.0062	2.5000e-003		106.0687
Total	**0.0458**	**0.0534**	**0.3273**	**1.1800e-003**	**0.1328**	**9.1000e-004**	**0.1337**	**0.0351**	**8.4000e-004**	**0.0360**		**119.1833**	**119.1833**	**3.4400e-003**		**119.2693**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.10 Treatment Plants - Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4258	13.4999	16.5683	0.0301		0.6552	0.6552		0.6039	0.6039		2,897.6693	2,897.6693	0.9261		2,920.8211
Paving	0.3474					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7732**	**13.4999**	**16.5683**	**0.0301**		**0.6552**	**0.6552**		**0.6039**	**0.6039**		**2,897.6693**	**2,897.6693**	**0.9261**		**2,920.8211**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0217	0.0135	0.1569	5.0000e-004	0.2017	4.0000e-004	0.2021	0.0506	3.7000e-004	0.0510		50.0489	50.0489	1.2600e-003		50.0805
Total	**0.0217**	**0.0135**	**0.1569**	**5.0000e-004**	**0.2017**	**4.0000e-004**	**0.2021**	**0.0506**	**3.7000e-004**	**0.0510**		**50.0489**	**50.0489**	**1.2600e-003**		**50.0805**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

3.10 Treatment Plants - Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4258	13.4999	16.5683	0.0301		0.6552	0.6552		0.6039	0.6039	0.0000	2,897.6693	2,897.6693	0.9261		2,920.8210
Paving	0.3474					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7732**	**13.4999**	**16.5683**	**0.0301**		**0.6552**	**0.6552**		**0.6039**	**0.6039**	**0.0000**	**2,897.6693**	**2,897.6693**	**0.9261**		**2,920.8210**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0217	0.0135	0.1569	5.0000e-004	0.2017	4.0000e-004	0.2021	0.0506	3.7000e-004	0.0510		50.0489	50.0489	1.2600e-003		50.0805
Total	**0.0217**	**0.0135**	**0.1569**	**5.0000e-004**	**0.2017**	**4.0000e-004**	**0.2021**	**0.0506**	**3.7000e-004**	**0.0510**		**50.0489**	**50.0489**	**1.2600e-003**		**50.0805**

4.0 Operational Detail - Mobile

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5172	9.3222	6.2998	0.0679	3.1183	0.0481	3.1664	0.8800	0.0458	0.9258		7,128.1908	7,128.1908	0.2295		7,133.9292
Unmitigated	0.5172	9.3222	6.2998	0.0679	3.1183	0.0481	3.1664	0.8800	0.0458	0.9258		7,128.1908	7,128.1908	0.2295		7,133.9292

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	35.95	0.00	0.00	110,051	110,051
Refrigerated Warehouse-No Rail	20.00	0.00	0.00	206,001	206,001
Refrigerated Warehouse-No Rail	60.00	0.00	0.00	618,003	618,003
Total	115.95	0.00	0.00	934,056	934,056

4.3 Trip Type Information

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Refrigerated Warehouse-No	72.00	0.00	0.00	59.00	0.00	41.00	92	5	3
Refrigerated Warehouse-No	72.00	0.00	0.00	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000
Refrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Unmitigated	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2681					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.8858					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.8100e-003	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Total	**2.1627**	**8.7000e-004**	**0.0951**	**1.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**		**0.2040**	**0.2040**	**5.3000e-004**		**0.2173**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2681					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.8858					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.8100e-003	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Total	**2.1627**	**8.7000e-004**	**0.0951**	**1.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**		**0.2040**	**0.2040**	**5.3000e-004**		**0.2173**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Winter

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	6	0	24	115	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (100 - 175 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

11.0 Vegetation

Cactus Corridor Model Run without Tier 4 Engines

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	20.00	1000sqft	0.46	20,000.00	0
Refrigerated Warehouse-No Rail	60.00	1000sqft	1.38	60,000.00	0
Other Asphalt Surfaces	133.00	1000sqft	3.05	133,000.00	0
Other Non-Asphalt Surfaces	719.00	1000sqft	16.51	719,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	467.38	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

Project Characteristics - Based on 2018 SCE information for Intensity Factor

Land Use - First Line is the larger of the two treatment site options
Second line includes all the area of the well sites
Third line is the pipeline.
Fourth is 6 well site well pads

Construction Phase - Based on Engineer estimates and CalEEMod Default Ratios

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Equipment included in Pipeline Construction phase because all work happens simultaneously

Off-road Equipment - Based on Engineering Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engeering Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on engineering estimates

Off-road Equipment - Based on Engineering Estimates

Off-road Equipment - Based on Engineering Estimates.
This phase lasts 24 hours a day to prevent borehold collapse. Thus, all normal 8hr/workday estimates have been multiplied by 3.

Trips and VMT - based on engineering estimates

Architectural Coating - No residential structures being built.
Parking lot is very small, based on project experience

Vehicle Trips - Based on Engineering estimates

Road Dust - Based on engineering estimates

Energy Use - Based on engineer estimates = 20,000 treatment plant 60,000 well sites = 80,000 sqft

Water And Wastewater - No additional water use needed

Solid Waste - Brine disposal is covered in VMT

Construction Off-road Equipment Mitigation - Based on standard mitigation required by SCAQMD

Fleet Mix - Based on Engineerng estimates

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generators for 6 well sites / treatment facility

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	51,120.00	3,000.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	13.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstructionPhase	NumDays	10.00	132.00
tblConstructionPhase	NumDays	10.00	32.00
tblConstructionPhase	NumDays	35.00	29.00
tblConstructionPhase	NumDays	370.00	288.00

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

tblConstructionPhase	NumDays	20.00	331.00
tblConstructionPhase	NumDays	35.00	84.00
tblConstructionPhase	NumDays	370.00	265.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblEnergyUse	NT24E	36.52	81.03
tblEnergyUse	NT24NG	48.51	0.00
tblEnergyUse	T24E	1.06	0.00
tblEnergyUse	T24NG	3.25	0.00
tblFleetMix	HHD	0.03	0.20
tblFleetMix	HHD	0.03	0.20
tblFleetMix	HHD	0.03	0.20
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	LHD2	5.8470e-003	0.20

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MHD	0.02	0.20
tblFleetMix	MHD	0.02	0.20
tblFleetMix	MHD	0.02	0.20
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblOffRoadEquipment	HorsePower	158.00	97.00
tblOffRoadEquipment	HorsePower	402.00	97.00
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Treatment Plants - Building Construction
tblOffRoadEquipment	PhaseName		Treatment Plants - Building Construction
tblOffRoadEquipment	PhaseName		Treatment Plants - Building Construction
tblOffRoadEquipment	PhaseName		Treatment Plants - Building Construction
tblOffRoadEquipment	PhaseName		Treatment Plants - Building Construction
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	467.38
tblRoadDust	MeanVehicleSpeed	40	15
tblSolidWaste	SolidWasteGenerationRate	75.20	0.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	24.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	6.00
tblTripsAndVMT	HaulingTripNumber	0.00	27.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,406.00
tblTripsAndVMT	HaulingTripNumber	0.00	250.00
tblTripsAndVMT	HaulingTripNumber	0.00	87.00
tblTripsAndVMT	HaulingTripNumber	0.00	45.00
tblTripsAndVMT	VendorTripNumber	153.00	1.00

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

tblTripsAndVMT	VendorTripNumber	153.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	38.00	30.00
tblTripsAndVMT	WorkerTripNumber	25.00	10.00
tblTripsAndVMT	WorkerTripNumber	391.00	15.00
tblTripsAndVMT	WorkerTripNumber	78.00	4.00
tblTripsAndVMT	WorkerTripNumber	38.00	19.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	391.00	11.00
tblTripsAndVMT	WorkerTripNumber	20.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	0.00	41.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	72.00
tblVehicleTrips	CW_TTP	0.00	59.00
tblVehicleTrips	DV_TP	0.00	5.00
tblVehicleTrips	PB_TP	0.00	3.00

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

tblVehicleTrips	PR_TP	0.00	92.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	0.00	0.05
tblVehicleTrips	WD_TR	1.68	1.00
tblWater	IndoorWaterUseRate	18,500,000.00	0.00

2.0 Emissions Summary

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.7878	6.7756	4.7480	0.0100	1.6586	0.3252	1.9838	0.8801	0.3041	1.1842	0.0000	877.1288	877.1288	0.2140	0.0000	882.4778
2022	1.4568	10.1959	10.3097	0.0214	0.4698	0.4836	0.9534	0.1783	0.4590	0.6374	0.0000	1,858.0485	1,858.0485	0.4164	0.0000	1,868.4581
2023	0.0749	0.6367	0.7420	1.3900e-003	4.2400e-003	0.0305	0.0347	1.1200e-003	0.0289	0.0301	0.0000	119.8465	119.8465	0.0253	0.0000	120.4778
Maximum	**1.4568**	**10.1959**	**10.3097**	**0.0214**	**1.6586**	**0.4836**	**1.9838**	**0.8801**	**0.4590**	**1.1842**	**0.0000**	**1,858.0485**	**1,858.0485**	**0.4164**	**0.0000**	**1,868.4581**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.7878	6.7756	4.7480	0.0100	0.7385	0.3252	1.0637	0.3841	0.3041	0.6882	0.0000	877.1278	877.1278	0.2140	0.0000	882.4768
2022	1.4568	10.1958	10.3097	0.0214	0.2612	0.4836	0.7448	0.0919	0.4590	0.5509	0.0000	1,858.0464	1,858.0464	0.4164	0.0000	1,868.4559
2023	0.0749	0.6367	0.7420	1.3900e-003	4.2400e-003	0.0305	0.0347	1.1200e-003	0.0289	0.0301	0.0000	119.8463	119.8463	0.0253	0.0000	120.4776
Maximum	**1.4568**	**10.1958**	**10.3097**	**0.0214**	**0.7385**	**0.4836**	**1.0637**	**0.3841**	**0.4590**	**0.6882**	**0.0000**	**1,858.0464**	**1,858.0464**	**0.4164**	**0.0000**	**1,868.4559**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**52.92**	**0.00**	**37.98**	**54.98**	**0.00**	**31.46**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2021**	**9-30-2021**	3.8660	3.8660
2	**10-1-2021**	**12-31-2021**	3.6238	3.6238
3	**1-1-2022**	**3-31-2022**	5.9676	5.9676
4	**4-1-2022**	**6-30-2022**	2.2167	2.2167
5	**7-1-2022**	**9-30-2022**	1.9409	1.9409
6	**10-1-2022**	**12-31-2022**	1.5372	1.5372
7	**1-1-2023**	**3-31-2023**	0.7039	0.7039
		Highest	5.9676	5.9676

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3942	1.1000e-004	0.0119	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0231	0.0231	6.0000e-005	0.0000	0.0247
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1,414.4640	1,414.4640	0.0878	0.0182	1,422.0693
Mobile	0.0667	1.2310	0.8213	8.8600e-003	0.3988	6.2300e-003	0.4051	0.1128	5.9300e-003	0.1187	0.0000	843.2514	843.2514	0.0268	0.0000	843.9220
Stationary	0.0136	0.0380	0.0493	7.0000e-005		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	6.3060	6.3060	8.8000e-004	0.0000	6.3281
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4745**	**1.2691**	**0.8825**	**8.9300e-003**	**0.3988**	**8.2700e-003**	**0.4071**	**0.1128**	**7.9700e-003**	**0.1208**	**0.0000**	**2,264.0445**	**2,264.0445**	**0.1155**	**0.0182**	**2,272.3441**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3942	1.1000e-004	0.0119	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0231	0.0231	6.0000e-005	0.0000	0.0247
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1,414.4640	1,414.4640	0.0878	0.0182	1,422.0693
Mobile	0.0667	1.2310	0.8213	8.8600e-003	0.3988	6.2300e-003	0.4051	0.1128	5.9300e-003	0.1187	0.0000	843.2514	843.2514	0.0268	0.0000	843.9220
Stationary	0.0136	0.0380	0.0493	7.0000e-005		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	6.3060	6.3060	8.8000e-004	0.0000	6.3281
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4745**	**1.2691**	**0.8825**	**8.9300e-003**	**0.3988**	**8.2700e-003**	**0.4071**	**0.1128**	**7.9700e-003**	**0.1208**	**0.0000**	**2,264.0445**	**2,264.0445**	**0.1155**	**0.0182**	**2,272.3441**

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

3.0 Construction Detail

Construction Phase

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Well Sites - Site Prep	Site Preparation	7/1/2021	12/31/2021	5	132	
2	Treatment Plants - Site Prep	Site Preparation	7/1/2021	8/13/2021	5	32	
3	Pipeline - Trenching	Trenching	7/1/2021	5/2/2022	5	218	
4	Treatment Plants - Grading	Grading	8/16/2021	9/23/2021	5	29	
5	Treatment Plants - Building Construction	Building Construction	9/24/2021	11/1/2022	5	288	
6	Treatment Plants - Architectural Coating	Architectural Coating	9/24/2021	12/30/2022	5	331	
7	Well Sites - Well Drilling	Grading	1/3/2022	3/27/2022	7	84	
8	Well Sites - Pump installation/construction	Building Construction	3/28/2022	3/31/2023	5	265	
9	Treatment Plants - Paving	Paving	11/2/2022	12/2/2022	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 19.56

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 120,000; Non-Residential Outdoor: 40,000; Striped Parking Area: 3,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Well Sites - Site Prep	Off-Highway Trucks	1	2.00	97	0.37
Well Sites - Site Prep	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Site Prep	Rubber Tired Dozers	3	8.00	247	0.40
Well Sites - Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Treatment Plants - Site Prep	Off-Highway Trucks	1	2.00	402	0.38
Treatment Plants - Site Prep	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Site Prep	Rubber Tired Dozers	3	8.00	247	0.40

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

Treatment Plants - Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipeline - Trenching	Air Compressors	1	6.00	78	0.48
Pipeline - Trenching	Concrete/Industrial Saws	1	6.00	81	0.73
Pipeline - Trenching	Cranes	1	4.00	231	0.29
Pipeline - Trenching	Dumpers/Tenders	2	6.00	16	0.38
Pipeline - Trenching	Excavators	1	6.00	158	0.38
Pipeline - Trenching	Generator Sets	1	6.00	84	0.74
Pipeline - Trenching	Off-Highway Trucks	1	2.00	402	0.38
Pipeline - Trenching	Off-Highway Trucks	1	4.00	402	0.38
Pipeline - Trenching	Pavers	1	6.00	130	0.42
Pipeline - Trenching	Pumps	1	6.00	84	0.74
Pipeline - Trenching	Sweepers/Scrubbers	1	6.00	64	0.46
Pipeline - Trenching	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Pipeline - Trenching	Welders	1	6.00	46	0.45
Treatment Plants - Grading	Cement and Mortar Mixers	1	6.00	9	0.56
Treatment Plants - Grading	Excavators	2	8.00	158	0.38
Treatment Plants - Grading	Graders	1	8.00	187	0.41
Treatment Plants - Grading	Off-Highway Trucks	1	2.00	402	0.38
Treatment Plants - Grading	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Grading	Rubber Tired Dozers	1	8.00	247	0.40
Treatment Plants - Grading	Scrapers	2	8.00	367	0.48
Treatment Plants - Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Treatment Plants - Building Construction	Air Compressors	1	6.00	78	0.48
Treatment Plants - Building Construction	Cement and Mortar Mixers	1	6.00	9	0.56
Treatment Plants - Building Construction	Cranes	1	7.00	231	0.29
Treatment Plants - Building Construction	Excavators	2	6.00	97	0.37

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

Treatment Plants - Building Construction	Forklifts	3	8.00	89	0.20
Treatment Plants - Building Construction	Forklifts	2	6.00	89	0.20
Treatment Plants - Building Construction	Generator Sets	1	8.00	84	0.74
Treatment Plants - Building Construction	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Building Construction	Pumps	1	6.00	84	0.74
Treatment Plants - Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Treatment Plants - Building Construction	Welders	1	6.00	46	0.45
Treatment Plants - Architectural Coating	Air Compressors	1	6.00	78	0.48
Treatment Plants - Architectural Coating	Generator Sets	1	6.00	84	0.74
Treatment Plants - Architectural Coating	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Well Drilling	Air Compressors	1	18.00	78	0.48
Well Sites - Well Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Well Sites - Well Drilling	Cranes	1	24.00	231	0.29
Well Sites - Well Drilling	Excavators	2	8.00	158	0.38
Well Sites - Well Drilling	Generator Sets	1	18.00	84	0.74
Well Sites - Well Drilling	Graders	1	8.00	187	0.41
Well Sites - Well Drilling	Off-Highway Trucks	1	12.00	402	0.38
Well Sites - Well Drilling	Pumps	1	18.00	84	0.74
Well Sites - Well Drilling	Rubber Tired Dozers	1	8.00	247	0.40
Well Sites - Well Drilling	Scrapers	2	8.00	367	0.48
Well Sites - Well Drilling	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Well Sites - Well Drilling	Welders	1	18.00	46	0.45
Well Sites - Pump installation/construction	Air Compressors	1	6.00	78	0.48
Well Sites - Pump installation/construction	Cranes	1	7.00	231	0.29

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

Well Sites - Pump installation/construction	Forklifts	3	8.00	89	0.20
Well Sites - Pump installation/construction	Generator Sets	1	8.00	84	0.74
Well Sites - Pump installation/construction	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Pump installation/construction	Pumps	1	6.00	84	0.74
Well Sites - Pump installation/construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Well Sites - Pump installation/construction	Welders	1	8.00	46	0.45
Treatment Plants - Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Treatment Plants - Paving	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Paving	Pavers	2	8.00	130	0.42
Treatment Plants - Paving	Paving Equipment	2	8.00	132	0.36
Treatment Plants - Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Well Sites - Site Prep	6	8.00	0.00	27.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Site Prep	6	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline - Trenching	15	30.00	0.00	1,406.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Grading	10	10.00	0.00	250.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Building Construction	14	15.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Architectural Coating	3	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	19.00	0.00	87.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Pump installation/constructio	12	11.00	0.00	45.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.2 Well Sites - Site Prep - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1924	0.0000	1.1924	0.6554	0.0000	0.6554	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2395	2.4711	1.0676	2.3300e-003		0.1192	0.1192		0.1096	0.1096	0.0000	204.9026	204.9026	0.0663	0.0000	206.5593
Total	**0.2395**	**2.4711**	**1.0676**	**2.3300e-003**	**1.1924**	**0.1192**	**1.3115**	**0.6554**	**0.1096**	**0.7651**	**0.0000**	**204.9026**	**204.9026**	**0.0663**	**0.0000**	**206.5593**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-004	3.6100e-003	8.0000e-004	1.0000e-005	2.3000e-004	1.0000e-005	2.4000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	1.0131	1.0131	7.0000e-005	0.0000	1.0150
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1900e-003	1.6300e-003	0.0184	6.0000e-005	5.7900e-003	4.0000e-005	5.8400e-003	1.5400e-003	4.0000e-005	1.5800e-003	0.0000	5.0511	5.0511	1.4000e-004	0.0000	5.0545
Total	**2.2900e-003**	**5.2400e-003**	**0.0192**	**7.0000e-005**	**6.0200e-003**	**5.0000e-005**	**6.0800e-003**	**1.6000e-003**	**5.0000e-005**	**1.6500e-003**	**0.0000**	**6.0643**	**6.0643**	**2.1000e-004**	**0.0000**	**6.0695**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.2 Well Sites - Site Prep - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5097	0.0000	0.5097	0.2802	0.0000	0.2802	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2395	2.4711	1.0676	2.3300e-003		0.1192	0.1192		0.1096	0.1096	0.0000	204.9023	204.9023	0.0663	0.0000	206.5591
Total	**0.2395**	**2.4711**	**1.0676**	**2.3300e-003**	**0.5097**	**0.1192**	**0.6289**	**0.2802**	**0.1096**	**0.3898**	**0.0000**	**204.9023**	**204.9023**	**0.0663**	**0.0000**	**206.5591**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-004	3.6100e-003	8.0000e-004	1.0000e-005	2.3000e-004	1.0000e-005	2.4000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	1.0131	1.0131	7.0000e-005	0.0000	1.0150
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1900e-003	1.6300e-003	0.0184	6.0000e-005	5.7900e-003	4.0000e-005	5.8400e-003	1.5400e-003	4.0000e-005	1.5800e-003	0.0000	5.0511	5.0511	1.4000e-004	0.0000	5.0545
Total	**2.2900e-003**	**5.2400e-003**	**0.0192**	**7.0000e-005**	**6.0200e-003**	**5.0000e-005**	**6.0800e-003**	**1.6000e-003**	**5.0000e-005**	**1.6500e-003**	**0.0000**	**6.0643**	**6.0643**	**2.1000e-004**	**0.0000**	**6.0695**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.3 Treatment Plants - Site Prep - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2891	0.0000	0.2891	0.1589	0.0000	0.1589	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0605	0.6201	0.2732	6.2000e-004		0.0297	0.0297		0.0273	0.0273	0.0000	54.3128	54.3128	0.0176	0.0000	54.7519
Total	**0.0605**	**0.6201**	**0.2732**	**6.2000e-004**	**0.2891**	**0.0297**	**0.3187**	**0.1589**	**0.0273**	**0.1862**	**0.0000**	**54.3128**	**54.3128**	**0.0176**	**0.0000**	**54.7519**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-004	3.9000e-004	4.4700e-003	1.0000e-005	1.4000e-003	1.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.2245	1.2245	3.0000e-005	0.0000	1.2253
Total	**5.3000e-004**	**3.9000e-004**	**4.4700e-003**	**1.0000e-005**	**1.4000e-003**	**1.0000e-005**	**1.4100e-003**	**3.7000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.2245**	**1.2245**	**3.0000e-005**	**0.0000**	**1.2253**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.3 Treatment Plants - Site Prep - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1236	0.0000	0.1236	0.0679	0.0000	0.0679	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0605	0.6201	0.2732	6.2000e-004		0.0297	0.0297		0.0273	0.0273	0.0000	54.3127	54.3127	0.0176	0.0000	54.7519
Total	**0.0605**	**0.6201**	**0.2732**	**6.2000e-004**	**0.1236**	**0.0297**	**0.1532**	**0.0679**	**0.0273**	**0.0952**	**0.0000**	**54.3127**	**54.3127**	**0.0176**	**0.0000**	**54.7519**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-004	3.9000e-004	4.4700e-003	1.0000e-005	1.4000e-003	1.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.2245	1.2245	3.0000e-005	0.0000	1.2253
Total	**5.3000e-004**	**3.9000e-004**	**4.4700e-003**	**1.0000e-005**	**1.4000e-003**	**1.0000e-005**	**1.4100e-003**	**3.7000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.2245**	**1.2245**	**3.0000e-005**	**0.0000**	**1.2253**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.4 Pipeline - Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1893	1.6326	1.6492	3.1200e-003		0.0833	0.0833		0.0796	0.0796	0.0000	269.3262	269.3262	0.0576	0.0000	270.7668
Total	**0.1893**	**1.6326**	**1.6492**	**3.1200e-003**		**0.0833**	**0.0833**		**0.0796**	**0.0796**	**0.0000**	**269.3262**	**269.3262**	**0.0576**	**0.0000**	**270.7668**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2700e-003	0.1139	0.0251	3.2000e-004	0.0109	3.5000e-004	0.0113	2.8900e-003	3.3000e-004	3.2200e-003	0.0000	31.9454	31.9454	2.3000e-003	0.0000	32.0030
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2300e-003	6.1100e-003	0.0691	2.1000e-004	0.0217	1.6000e-004	0.0219	5.7700e-003	1.5000e-004	5.9200e-003	0.0000	18.9417	18.9417	5.1000e-004	0.0000	18.9545
Total	**0.0115**	**0.1200**	**0.0942**	**5.3000e-004**	**0.0326**	**5.1000e-004**	**0.0331**	**8.6600e-003**	**4.8000e-004**	**9.1400e-003**	**0.0000**	**50.8871**	**50.8871**	**2.8100e-003**	**0.0000**	**50.9574**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.4 Pipeline - Trenching - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1893	1.6326	1.6492	3.1200e-003		0.0833	0.0833		0.0796	0.0796	0.0000	269.3259	269.3259	0.0576	0.0000	270.7665
Total	**0.1893**	**1.6326**	**1.6492**	**3.1200e-003**		**0.0833**	**0.0833**		**0.0796**	**0.0796**	**0.0000**	**269.3259**	**269.3259**	**0.0576**	**0.0000**	**270.7665**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2700e-003	0.1139	0.0251	3.2000e-004	0.0109	3.5000e-004	0.0113	2.8900e-003	3.3000e-004	3.2200e-003	0.0000	31.9454	31.9454	2.3000e-003	0.0000	32.0030
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2300e-003	6.1100e-003	0.0691	2.1000e-004	0.0217	1.6000e-004	0.0219	5.7700e-003	1.5000e-004	5.9200e-003	0.0000	18.9417	18.9417	5.1000e-004	0.0000	18.9545
Total	**0.0115**	**0.1200**	**0.0942**	**5.3000e-004**	**0.0326**	**5.1000e-004**	**0.0331**	**8.6600e-003**	**4.8000e-004**	**9.1400e-003**	**0.0000**	**50.8871**	**50.8871**	**2.8100e-003**	**0.0000**	**50.9574**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.4 Pipeline - Trenching - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1111	0.9289	1.0591	2.0400e-003		0.0454	0.0454		0.0435	0.0435	0.0000	175.5058	175.5058	0.0373	0.0000	176.4374
Total	**0.1111**	**0.9289**	**1.0591**	**2.0400e-003**		**0.0454**	**0.0454**		**0.0435**	**0.0435**	**0.0000**	**175.5058**	**175.5058**	**0.0373**	**0.0000**	**176.4374**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0300e-003	0.0686	0.0162	2.1000e-004	0.0103	2.0000e-004	0.0105	2.6600e-003	1.9000e-004	2.8500e-003	0.0000	20.5636	20.5636	1.4800e-003	0.0000	20.6006
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0400e-003	3.5900e-003	0.0416	1.3000e-004	0.0142	1.0000e-004	0.0143	3.7600e-003	1.0000e-004	3.8500e-003	0.0000	11.8988	11.8988	3.0000e-004	0.0000	11.9063
Total	**7.0700e-003**	**0.0722**	**0.0577**	**3.4000e-004**	**0.0244**	**3.0000e-004**	**0.0247**	**6.4200e-003**	**2.9000e-004**	**6.7000e-003**	**0.0000**	**32.4624**	**32.4624**	**1.7800e-003**	**0.0000**	**32.5068**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.4 Pipeline - Trenching - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1111	0.9288	1.0591	2.0400e-003		0.0454	0.0454		0.0435	0.0435	0.0000	175.5056	175.5056	0.0373	0.0000	176.4372
Total	**0.1111**	**0.9288**	**1.0591**	**2.0400e-003**		**0.0454**	**0.0454**		**0.0435**	**0.0435**	**0.0000**	**175.5056**	**175.5056**	**0.0373**	**0.0000**	**176.4372**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0300e-003	0.0686	0.0162	2.1000e-004	0.0103	2.0000e-004	0.0105	2.6600e-003	1.9000e-004	2.8500e-003	0.0000	20.5636	20.5636	1.4800e-003	0.0000	20.6006
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0400e-003	3.5900e-003	0.0416	1.3000e-004	0.0142	1.0000e-004	0.0143	3.7600e-003	1.0000e-004	3.8500e-003	0.0000	11.8988	11.8988	3.0000e-004	0.0000	11.9063
Total	**7.0700e-003**	**0.0722**	**0.0577**	**3.4000e-004**	**0.0244**	**3.0000e-004**	**0.0247**	**6.4200e-003**	**2.9000e-004**	**6.7000e-003**	**0.0000**	**32.4624**	**32.4624**	**1.7800e-003**	**0.0000**	**32.5068**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.5 Treatment Plants - Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1258	0.0000	0.1258	0.0522	0.0000	0.0522	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0653	0.7066	0.4575	1.0100e-003		0.0294	0.0294		0.0271	0.0271	0.0000	88.1715	88.1715	0.0284	0.0000	88.8816
Total	**0.0653**	**0.7066**	**0.4575**	**1.0100e-003**	**0.1258**	**0.0294**	**0.1552**	**0.0522**	**0.0271**	**0.0792**	**0.0000**	**88.1715**	**88.1715**	**0.0284**	**0.0000**	**88.8816**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.6000e-004	0.0334	7.3600e-003	1.0000e-004	2.1500e-003	1.0000e-004	2.2500e-003	5.9000e-004	1.0000e-004	6.9000e-004	0.0000	9.3809	9.3809	6.8000e-004	0.0000	9.3978
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.5000e-004	5.0600e-003	2.0000e-005	1.5900e-003	1.0000e-005	1.6000e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3872	1.3872	4.0000e-005	0.0000	1.3881
Total	**1.5600e-003**	**0.0339**	**0.0124**	**1.2000e-004**	**3.7400e-003**	**1.1000e-004**	**3.8500e-003**	**1.0100e-003**	**1.1000e-004**	**1.1200e-003**	**0.0000**	**10.7681**	**10.7681**	**7.2000e-004**	**0.0000**	**10.7859**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.5 Treatment Plants - Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0538	0.0000	0.0538	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0653	0.7066	0.4575	1.0100e-003		0.0294	0.0294		0.0271	0.0271	0.0000	88.1713	88.1713	0.0284	0.0000	88.8815
Total	**0.0653**	**0.7066**	**0.4575**	**1.0100e-003**	**0.0538**	**0.0294**	**0.0832**	**0.0223**	**0.0271**	**0.0494**	**0.0000**	**88.1713**	**88.1713**	**0.0284**	**0.0000**	**88.8815**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.6000e-004	0.0334	7.3600e-003	1.0000e-004	2.1500e-003	1.0000e-004	2.2500e-003	5.9000e-004	1.0000e-004	6.9000e-004	0.0000	9.3809	9.3809	6.8000e-004	0.0000	9.3978
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.5000e-004	5.0600e-003	2.0000e-005	1.5900e-003	1.0000e-005	1.6000e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3872	1.3872	4.0000e-005	0.0000	1.3881
Total	**1.5600e-003**	**0.0339**	**0.0124**	**1.2000e-004**	**3.7400e-003**	**1.1000e-004**	**3.8500e-003**	**1.0100e-003**	**1.1000e-004**	**1.1200e-003**	**0.0000**	**10.7681**	**10.7681**	**7.2000e-004**	**0.0000**	**10.7859**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.6 Treatment Plants - Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1054	0.9483	0.9192	1.6100e-003		0.0517	0.0517		0.0488	0.0488	0.0000	139.4572	139.4572	0.0321	0.0000	140.2583
Total	**0.1054**	**0.9483**	**0.9192**	**1.6100e-003**		**0.0517**	**0.0517**		**0.0488**	**0.0488**	**0.0000**	**139.4572**	**139.4572**	**0.0321**	**0.0000**	**140.2583**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-004	3.4500e-003	8.7000e-004	1.0000e-005	2.2000e-004	1.0000e-005	2.3000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.8620	0.8620	6.0000e-005	0.0000	0.8634
Worker	2.2100e-003	1.6400e-003	0.0186	6.0000e-005	5.8400e-003	4.0000e-005	5.8900e-003	1.5500e-003	4.0000e-005	1.5900e-003	0.0000	5.0942	5.0942	1.4000e-004	0.0000	5.0976
Total	**2.3100e-003**	**5.0900e-003**	**0.0195**	**7.0000e-005**	**6.0600e-003**	**5.0000e-005**	**6.1200e-003**	**1.6100e-003**	**5.0000e-005**	**1.6600e-003**	**0.0000**	**5.9561**	**5.9561**	**2.0000e-004**	**0.0000**	**5.9610**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.6 Treatment Plants - Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1054	0.9483	0.9192	1.6100e-003		0.0517	0.0517		0.0488	0.0488	0.0000	139.4570	139.4570	0.0321	0.0000	140.2582
Total	**0.1054**	**0.9483**	**0.9192**	**1.6100e-003**		**0.0517**	**0.0517**		**0.0488**	**0.0488**	**0.0000**	**139.4570**	**139.4570**	**0.0321**	**0.0000**	**140.2582**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-004	3.4500e-003	8.7000e-004	1.0000e-005	2.2000e-004	1.0000e-005	2.3000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.8620	0.8620	6.0000e-005	0.0000	0.8634
Worker	2.2100e-003	1.6400e-003	0.0186	6.0000e-005	5.8400e-003	4.0000e-005	5.8900e-003	1.5500e-003	4.0000e-005	1.5900e-003	0.0000	5.0942	5.0942	1.4000e-004	0.0000	5.0976
Total	**2.3100e-003**	**5.0900e-003**	**0.0195**	**7.0000e-005**	**6.0600e-003**	**5.0000e-005**	**6.1200e-003**	**1.6100e-003**	**5.0000e-005**	**1.6600e-003**	**0.0000**	**5.9561**	**5.9561**	**2.0000e-004**	**0.0000**	**5.9610**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.6 Treatment Plants - Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2907	2.5779	2.7703	4.9400e-003		0.1337	0.1337		0.1265	0.1265	0.0000	426.3018	426.3018	0.0973	0.0000	428.7350
Total	**0.2907**	**2.5779**	**2.7703**	**4.9400e-003**		**0.1337**	**0.1337**		**0.1265**	**0.1265**	**0.0000**	**426.3018**	**426.3018**	**0.0973**	**0.0000**	**428.7350**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9000e-004	0.0100	2.5300e-003	3.0000e-005	6.8000e-004	2.0000e-005	7.0000e-004	2.0000e-004	2.0000e-005	2.2000e-004	0.0000	2.6112	2.6112	1.6000e-004	0.0000	2.6153
Worker	6.3500e-003	4.5300e-003	0.0525	1.7000e-004	0.0179	1.3000e-004	0.0180	4.7400e-003	1.2000e-004	4.8600e-003	0.0000	15.0118	15.0118	3.8000e-004	0.0000	15.0213
Total	**6.6400e-003**	**0.0145**	**0.0550**	**2.0000e-004**	**0.0185**	**1.5000e-004**	**0.0187**	**4.9400e-003**	**1.4000e-004**	**5.0800e-003**	**0.0000**	**17.6230**	**17.6230**	**5.4000e-004**	**0.0000**	**17.6366**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.6 Treatment Plants - Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2907	2.5779	2.7703	4.9400e-003		0.1337	0.1337		0.1265	0.1265	0.0000	426.3013	426.3013	0.0973	0.0000	428.7345
Total	**0.2907**	**2.5779**	**2.7703**	**4.9400e-003**		**0.1337**	**0.1337**		**0.1265**	**0.1265**	**0.0000**	**426.3013**	**426.3013**	**0.0973**	**0.0000**	**428.7345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9000e-004	0.0100	2.5300e-003	3.0000e-005	6.8000e-004	2.0000e-005	7.0000e-004	2.0000e-004	2.0000e-005	2.2000e-004	0.0000	2.6112	2.6112	1.6000e-004	0.0000	2.6153
Worker	6.3500e-003	4.5300e-003	0.0525	1.7000e-004	0.0179	1.3000e-004	0.0180	4.7400e-003	1.2000e-004	4.8600e-003	0.0000	15.0118	15.0118	3.8000e-004	0.0000	15.0213
Total	**6.6400e-003**	**0.0145**	**0.0550**	**2.0000e-004**	**0.0185**	**1.5000e-004**	**0.0187**	**4.9400e-003**	**1.4000e-004**	**5.0800e-003**	**0.0000**	**17.6230**	**17.6230**	**5.4000e-004**	**0.0000**	**17.6366**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.7 Treatment Plants - Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0810					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0280	0.2319	0.2266	5.2000e-004		0.0112	0.0112		0.0110	0.0110	0.0000	44.7002	44.7002	8.0500e-003	0.0000	44.9014
Total	**0.1091**	**0.2319**	**0.2266**	**5.2000e-004**		**0.0112**	**0.0112**		**0.0110**	**0.0110**	**0.0000**	**44.7002**	**44.7002**	**8.0500e-003**	**0.0000**	**44.9014**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9000e-004	4.4000e-004	4.9600e-003	2.0000e-005	1.5600e-003	1.0000e-005	1.5700e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3585	1.3585	4.0000e-005	0.0000	1.3594
Total	**5.9000e-004**	**4.4000e-004**	**4.9600e-003**	**2.0000e-005**	**1.5600e-003**	**1.0000e-005**	**1.5700e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.3585**	**1.3585**	**4.0000e-005**	**0.0000**	**1.3594**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.7 Treatment Plants - Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0810					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0280	0.2319	0.2266	5.2000e-004		0.0112	0.0112		0.0110	0.0110	0.0000	44.7001	44.7001	8.0500e-003	0.0000	44.9013
Total	**0.1091**	**0.2319**	**0.2266**	**5.2000e-004**		**0.0112**	**0.0112**		**0.0110**	**0.0110**	**0.0000**	**44.7001**	**44.7001**	**8.0500e-003**	**0.0000**	**44.9013**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9000e-004	4.4000e-004	4.9600e-003	2.0000e-005	1.5600e-003	1.0000e-005	1.5700e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3585	1.3585	4.0000e-005	0.0000	1.3594
Total	**5.9000e-004**	**4.4000e-004**	**4.9600e-003**	**2.0000e-005**	**1.5600e-003**	**1.0000e-005**	**1.5700e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.3585**	**1.3585**	**4.0000e-005**	**0.0000**	**1.3594**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.7 Treatment Plants - Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2967					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0931	0.7295	0.8125	1.8900e-003		0.0344	0.0344		0.0337	0.0337	0.0000	163.7180	163.7180	0.0292	0.0000	164.4472
Total	**0.3898**	**0.7295**	**0.8125**	**1.8900e-003**		**0.0344**	**0.0344**		**0.0337**	**0.0337**	**0.0000**	**163.7180**	**163.7180**	**0.0292**	**0.0000**	**164.4472**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0300e-003	1.4500e-003	0.0168	5.0000e-005	5.7100e-003	4.0000e-005	5.7500e-003	1.5200e-003	4.0000e-005	1.5500e-003	0.0000	4.7964	4.7964	1.2000e-004	0.0000	4.7994
Total	**2.0300e-003**	**1.4500e-003**	**0.0168**	**5.0000e-005**	**5.7100e-003**	**4.0000e-005**	**5.7500e-003**	**1.5200e-003**	**4.0000e-005**	**1.5500e-003**	**0.0000**	**4.7964**	**4.7964**	**1.2000e-004**	**0.0000**	**4.7994**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.7 Treatment Plants - Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2967					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0931	0.7295	0.8125	1.8900e-003		0.0344	0.0344		0.0337	0.0337	0.0000	163.7178	163.7178	0.0292	0.0000	164.4470
Total	**0.3898**	**0.7295**	**0.8125**	**1.8900e-003**		**0.0344**	**0.0344**		**0.0337**	**0.0337**	**0.0000**	**163.7178**	**163.7178**	**0.0292**	**0.0000**	**164.4470**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0300e-003	1.4500e-003	0.0168	5.0000e-005	5.7100e-003	4.0000e-005	5.7500e-003	1.5200e-003	4.0000e-005	1.5500e-003	0.0000	4.7964	4.7964	1.2000e-004	0.0000	4.7994
Total	**2.0300e-003**	**1.4500e-003**	**0.0168**	**5.0000e-005**	**5.7100e-003**	**4.0000e-005**	**5.7500e-003**	**1.5200e-003**	**4.0000e-005**	**1.5500e-003**	**0.0000**	**4.7964**	**4.7964**	**1.2000e-004**	**0.0000**	**4.7994**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.8 Well Sites - Well Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3643	0.0000	0.3643	0.1511	0.0000	0.1511	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3771	3.5701	3.0158	7.2200e-003		0.1539	0.1539		0.1451	0.1451	0.0000	627.2268	627.2268	0.1616	0.0000	631.2678
Total	**0.3771**	**3.5701**	**3.0158**	**7.2200e-003**	**0.3643**	**0.1539**	**0.5181**	**0.1511**	**0.1451**	**0.2962**	**0.0000**	**627.2268**	**627.2268**	**0.1616**	**0.0000**	**631.2678**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2000e-004	0.0108	2.5300e-003	3.0000e-005	3.0000e-003	3.0000e-005	3.0300e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	3.2255	3.2255	2.3000e-004	0.0000	3.2313
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1100e-003	2.2200e-003	0.0257	8.0000e-005	0.0391	6.0000e-005	0.0392	9.7800e-003	6.0000e-005	9.8400e-003	0.0000	7.3607	7.3607	1.9000e-004	0.0000	7.3653
Total	**3.4300e-003**	**0.0130**	**0.0283**	**1.1000e-004**	**0.0421**	**9.0000e-005**	**0.0422**	**0.0105**	**9.0000e-005**	**0.0106**	**0.0000**	**10.5861**	**10.5861**	**4.2000e-004**	**0.0000**	**10.5965**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.8 Well Sites - Well Drilling - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1557	0.0000	0.1557	0.0646	0.0000	0.0646	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3771	3.5701	3.0158	7.2200e-003		0.1538	0.1538		0.1451	0.1451	0.0000	627.2261	627.2261	0.1616	0.0000	631.2670
Total	**0.3771**	**3.5701**	**3.0158**	**7.2200e-003**	**0.1557**	**0.1538**	**0.3096**	**0.0646**	**0.1451**	**0.2097**	**0.0000**	**627.2261**	**627.2261**	**0.1616**	**0.0000**	**631.2670**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2000e-004	0.0108	2.5300e-003	3.0000e-005	3.0000e-003	3.0000e-005	3.0300e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	3.2255	3.2255	2.3000e-004	0.0000	3.2313
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1100e-003	2.2200e-003	0.0257	8.0000e-005	0.0391	6.0000e-005	0.0392	9.7800e-003	6.0000e-005	9.8400e-003	0.0000	7.3607	7.3607	1.9000e-004	0.0000	7.3653
Total	**3.4300e-003**	**0.0130**	**0.0283**	**1.1000e-004**	**0.0421**	**9.0000e-005**	**0.0422**	**0.0105**	**9.0000e-005**	**0.0106**	**0.0000**	**10.5861**	**10.5861**	**4.2000e-004**	**0.0000**	**10.5965**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.9 Well Sites - Pump installation/construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2439	2.1258	2.2655	4.1400e-003		0.1081	0.1081		0.1027	0.1027	0.0000	357.6621	357.6621	0.0781	0.0000	359.6147
Total	**0.2439**	**2.1258**	**2.2655**	**4.1400e-003**		**0.1081**	**0.1081**		**0.1027**	**0.1027**	**0.0000**	**357.6621**	**357.6621**	**0.0781**	**0.0000**	**359.6147**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2000e-004	4.2000e-003	9.9000e-004	1.0000e-005	3.6000e-004	1.0000e-005	3.8000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000	1.2591	1.2591	9.0000e-005	0.0000	1.2614
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2900e-003	3.0700e-003	0.0355	1.1000e-004	0.0121	9.0000e-005	0.0122	3.2100e-003	8.0000e-005	3.2900e-003	0.0000	10.1463	10.1463	2.6000e-004	0.0000	10.1527
Total	**4.4100e-003**	**7.2700e-003**	**0.0364**	**1.2000e-004**	**0.0124**	**1.0000e-004**	**0.0125**	**3.3100e-003**	**9.0000e-005**	**3.4000e-003**	**0.0000**	**11.4054**	**11.4054**	**3.5000e-004**	**0.0000**	**11.4140**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.9 Well Sites - Pump installation/construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2439	2.1258	2.2655	4.1400e-003		0.1081	0.1081		0.1027	0.1027	0.0000	357.6617	357.6617	0.0781	0.0000	359.6143
Total	**0.2439**	**2.1258**	**2.2655**	**4.1400e-003**		**0.1081**	**0.1081**		**0.1027**	**0.1027**	**0.0000**	**357.6617**	**357.6617**	**0.0781**	**0.0000**	**359.6143**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2000e-004	4.2000e-003	9.9000e-004	1.0000e-005	3.6000e-004	1.0000e-005	3.8000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000	1.2591	1.2591	9.0000e-005	0.0000	1.2614
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2900e-003	3.0700e-003	0.0355	1.1000e-004	0.0121	9.0000e-005	0.0122	3.2100e-003	8.0000e-005	3.2900e-003	0.0000	10.1463	10.1463	2.6000e-004	0.0000	10.1527
Total	**4.4100e-003**	**7.2700e-003**	**0.0364**	**1.2000e-004**	**0.0124**	**1.0000e-004**	**0.0125**	**3.3100e-003**	**9.0000e-005**	**3.4000e-003**	**0.0000**	**11.4054**	**11.4054**	**3.5000e-004**	**0.0000**	**11.4140**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.9 Well Sites - Pump installation/construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0735	0.6349	0.7310	1.3500e-003		0.0304	0.0304		0.0289	0.0289	0.0000	116.2794	116.2794	0.0252	0.0000	116.9081
Total	**0.0735**	**0.6349**	**0.7310**	**1.3500e-003**		**0.0304**	**0.0304**		**0.0289**	**0.0289**	**0.0000**	**116.2794**	**116.2794**	**0.0252**	**0.0000**	**116.9081**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	8.7000e-004	2.9000e-004	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.3925	0.3925	3.0000e-005	0.0000	0.3931
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	9.0000e-004	0.0106	4.0000e-005	3.9200e-003	3.0000e-005	3.9500e-003	1.0400e-003	3.0000e-005	1.0700e-003	0.0000	3.1747	3.1747	7.0000e-005	0.0000	3.1765
Total	**1.3400e-003**	**1.7700e-003**	**0.0109**	**4.0000e-005**	**4.2300e-003**	**3.0000e-005**	**4.2700e-003**	**1.1200e-003**	**3.0000e-005**	**1.1500e-003**	**0.0000**	**3.5671**	**3.5671**	**1.0000e-004**	**0.0000**	**3.5697**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.9 Well Sites - Pump installation/construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0735	0.6349	0.7310	1.3500e-003		0.0304	0.0304		0.0289	0.0289	0.0000	116.2792	116.2792	0.0252	0.0000	116.9080
Total	**0.0735**	**0.6349**	**0.7310**	**1.3500e-003**		**0.0304**	**0.0304**		**0.0289**	**0.0289**	**0.0000**	**116.2792**	**116.2792**	**0.0252**	**0.0000**	**116.9080**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	8.7000e-004	2.9000e-004	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.3925	0.3925	3.0000e-005	0.0000	0.3931
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	9.0000e-004	0.0106	4.0000e-005	3.9200e-003	3.0000e-005	3.9500e-003	1.0400e-003	3.0000e-005	1.0700e-003	0.0000	3.1747	3.1747	7.0000e-005	0.0000	3.1765
Total	**1.3400e-003**	**1.7700e-003**	**0.0109**	**4.0000e-005**	**4.2300e-003**	**3.0000e-005**	**4.2700e-003**	**1.1200e-003**	**3.0000e-005**	**1.1500e-003**	**0.0000**	**3.5671**	**3.5671**	**1.0000e-004**	**0.0000**	**3.5697**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.10 Treatment Plants - Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0164	0.1553	0.1905	3.5000e-004		7.5300e-003	7.5300e-003		6.9500e-003	6.9500e-003	0.0000	30.2303	30.2303	9.6600e-003	0.0000	30.4718
Paving	4.0000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0204**	**0.1553**	**0.1905**	**3.5000e-004**		**7.5300e-003**	**7.5300e-003**		**6.9500e-003**	**6.9500e-003**	**0.0000**	**30.2303**	**30.2303**	**9.6600e-003**	**0.0000**	**30.4718**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.6000e-004	1.8500e-003	1.0000e-005	2.2700e-003	0.0000	2.2800e-003	5.7000e-004	0.0000	5.7000e-004	0.0000	0.5304	0.5304	1.0000e-005	0.0000	0.5307
Total	**2.2000e-004**	**1.6000e-004**	**1.8500e-003**	**1.0000e-005**	**2.2700e-003**	**0.0000**	**2.2800e-003**	**5.7000e-004**	**0.0000**	**5.7000e-004**	**0.0000**	**0.5304**	**0.5304**	**1.0000e-005**	**0.0000**	**0.5307**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

3.10 Treatment Plants - Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0164	0.1553	0.1905	3.5000e-004		7.5300e-003	7.5300e-003		6.9500e-003	6.9500e-003	0.0000	30.2303	30.2303	9.6600e-003	0.0000	30.4718
Paving	4.0000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0204**	**0.1553**	**0.1905**	**3.5000e-004**		**7.5300e-003**	**7.5300e-003**		**6.9500e-003**	**6.9500e-003**	**0.0000**	**30.2303**	**30.2303**	**9.6600e-003**	**0.0000**	**30.4718**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.6000e-004	1.8500e-003	1.0000e-005	2.2700e-003	0.0000	2.2800e-003	5.7000e-004	0.0000	5.7000e-004	0.0000	0.5304	0.5304	1.0000e-005	0.0000	0.5307
Total	**2.2000e-004**	**1.6000e-004**	**1.8500e-003**	**1.0000e-005**	**2.2700e-003**	**0.0000**	**2.2800e-003**	**5.7000e-004**	**0.0000**	**5.7000e-004**	**0.0000**	**0.5304**	**0.5304**	**1.0000e-005**	**0.0000**	**0.5307**

4.0 Operational Detail - Mobile

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0667	1.2310	0.8213	8.8600e-003	0.3988	6.2300e-003	0.4051	0.1128	5.9300e-003	0.1187	0.0000	843.2514	843.2514	0.0268	0.0000	843.9220
Unmitigated	0.0667	1.2310	0.8213	8.8600e-003	0.3988	6.2300e-003	0.4051	0.1128	5.9300e-003	0.1187	0.0000	843.2514	843.2514	0.0268	0.0000	843.9220

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	35.95	0.00	0.00	110,051	110,051
Refrigerated Warehouse-No Rail	20.00	0.00	0.00	206,001	206,001
Refrigerated Warehouse-No Rail	60.00	0.00	0.00	618,003	618,003
Total	115.95	0.00	0.00	934,056	934,056

4.3 Trip Type Information

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Refrigerated Warehouse-No	72.00	0.00	0.00	59.00	0.00	41.00	92	5	3
Refrigerated Warehouse-No	72.00	0.00	0.00	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000
Refrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,414.4640	1,414.4640	0.0878	0.0182	1,422.0693
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,414.4640	1,414.4640	0.0878	0.0182	1,422.0693
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.668e+006	353.6160	0.0219	4.5400e-003	355.5173
Refrigerated Warehouse-No Rail	5.004e+006	1,060.8480	0.0658	0.0136	1,066.5520
Total		**1,414.4640**	**0.0878**	**0.0182**	**1,422.0693**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.668e+006	353.6160	0.0219	4.5400e-003	355.5173
Refrigerated Warehouse-No Rail	5.004e+006	1,060.8480	0.0658	0.0136	1,066.5520
Total		**1,414.4640**	**0.0878**	**0.0182**	**1,422.0693**

6.0 Area Detail

6.1 Mitigation Measures Area

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3942	1.1000e-004	0.0119	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0231	0.0231	6.0000e-005	0.0000	0.0247
Unmitigated	0.3942	1.1000e-004	0.0119	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0231	0.0231	6.0000e-005	0.0000	0.0247

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0489					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3442					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-003	1.1000e-004	0.0119	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0231	0.0231	6.0000e-005	0.0000	0.0247
Total	**0.3942**	**1.1000e-004**	**0.0119**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0231**	**0.0231**	**6.0000e-005**	**0.0000**	**0.0247**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0489					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3442					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-003	1.1000e-004	0.0119	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0231	0.0231	6.0000e-005	0.0000	0.0247
Total	**0.3942**	**1.1000e-004**	**0.0119**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0231**	**0.0231**	**6.0000e-005**	**0.0000**	**0.0247**

7.0 Water Detail

7.1 Mitigation Measures Water

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	6	0	24	115	0.73	Diesel

Boilers

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

User Defined Equipment

Cactus Corridor Model Run without Tier 4 Engines - South Coast Air Basin, Annual

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (100 - 175 HP)	0.0136	0.0380	0.0493	7.0000e-005		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	6.3060	6.3060	8.8000e-004	0.0000	6.3281
Total	**0.0136**	**0.0380**	**0.0493**	**7.0000e-005**		**2.0000e-003**	**2.0000e-003**		**2.0000e-003**	**2.0000e-003**	**0.0000**	**6.3060**	**6.3060**	**8.8000e-004**	**0.0000**	**6.3281**

11.0 Vegetation

Cactus Corridor Model Run with Tier 4 Engines

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	20.00	1000sqft	0.46	20,000.00	0
Refrigerated Warehouse-No Rail	60.00	1000sqft	1.38	60,000.00	0
Other Asphalt Surfaces	133.00	1000sqft	3.05	133,000.00	0
Other Non-Asphalt Surfaces	719.00	1000sqft	16.51	719,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	467.38	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

Project Characteristics - Based on 2018 SCE information for Intensity Factor

Land Use - First Line is the larger of the two treatment site options
Second line includes all the area of the well sites
Third line is the pipeline.
Fourth is 6 well site well pads

Construction Phase - Based on Engineer estimates and CalEEMod Default Ratios

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Equipment included in Pipeline Construction phase because all work happens simultaneously

Off-road Equipment - Based on Engineering Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engeering Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on engineering estimates

Off-road Equipment - Based on Engineering Estimates

Off-road Equipment - Based on Engineering Estimates.
This phase lasts 24 hours a day to prevent borehold collapse. Thus, all normal 8hr/workday estimates have been multiplied by 3.

Trips and VMT - based on engineering estimates

Architectural Coating - No residential structures being built.
Parking lot is very small, based on project experience

Vehicle Trips - Based on Engineering estimates

Road Dust - Based on engineering estimates

Energy Use - Based on engineer estimates = 20,000 treatment plant 60,000 well sites = 80,000 sqft

Water And Wastewater - No additional water use needed

Solid Waste - Brine disposal is covered in VMT

Construction Off-road Equipment Mitigation - Based on standard mitigation required by SCAQMD

Fleet Mix - Based on Engineerng estimates

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generators for 6 well sites / treatment facility

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	51,120.00	3,000.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	13.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	132.00
tblConstructionPhase	NumDays	10.00	32.00
tblConstructionPhase	NumDays	35.00	29.00
tblConstructionPhase	NumDays	370.00	288.00
tblConstructionPhase	NumDays	20.00	331.00
tblConstructionPhase	NumDays	35.00	84.00
tblConstructionPhase	NumDays	370.00	265.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblEnergyUse	NT24E	36.52	81.03
tblEnergyUse	NT24NG	48.51	0.00
tblEnergyUse	T24E	1.06	0.00
tblEnergyUse	T24NG	3.25	0.00
tblFleetMix	HHD	0.03	0.20
tblFleetMix	HHD	0.03	0.20
tblFleetMix	HHD	0.03	0.20
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MHD	0.02	0.20
tblFleetMix	MHD	0.02	0.20
tblFleetMix	MHD	0.02	0.20
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	OBUS	2.1100e-003	0.00

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblOffRoadEquipment	HorsePower	158.00	97.00
tblOffRoadEquipment	HorsePower	402.00	97.00
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	467.38
tblRoadDust	MeanVehicleSpeed	40	15
tblSolidWaste	SolidWasteGenerationRate	75.20	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	115.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	24.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	6.00
tblTripsAndVMT	HaulingTripNumber	0.00	27.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,406.00
tblTripsAndVMT	HaulingTripNumber	0.00	250.00
tblTripsAndVMT	HaulingTripNumber	0.00	87.00

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

tblTripsAndVMT	HaulingTripNumber	0.00	45.00
tblTripsAndVMT	VendorTripNumber	153.00	1.00
tblTripsAndVMT	VendorTripNumber	153.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	38.00	30.00
tblTripsAndVMT	WorkerTripNumber	25.00	10.00
tblTripsAndVMT	WorkerTripNumber	391.00	15.00
tblTripsAndVMT	WorkerTripNumber	78.00	4.00
tblTripsAndVMT	WorkerTripNumber	38.00	19.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	391.00	11.00
tblTripsAndVMT	WorkerTripNumber	20.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	0.00	41.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	72.00
tblVehicleTrips	CW_TTP	0.00	59.00

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

tblVehicleTrips	DV_TP	0.00	5.00
tblVehicleTrips	PB_TP	0.00	3.00
tblVehicleTrips	PR_TP	0.00	92.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	0.00	0.05
tblVehicleTrips	WD_TR	1.68	1.00
tblWater	IndoorWaterUseRate	18,500,000.00	0.00

2.0 Emissions Summary

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	12.8292	114.9967	75.9833	0.1690	36.8185	5.1126	41.7488	20.0432	4.7501	24.6244	0.0000	16,427.4453	16,427.4453	4.3328	0.0000	16,535.7650
2022	17.5646	138.0282	131.0242	0.2923	10.4947	6.2269	16.7216	4.0626	5.9018	9.9644	0.0000	28,049.1184	28,049.1184	6.4969	0.0000	28,211.5402
2023	2.3036	19.5873	22.8548	0.0427	0.1328	0.9371	1.0699	0.0351	0.8906	0.9257	0.0000	4,070.3120	4,070.3120	0.8566	0.0000	4,091.7276
Maximum	**17.5646**	**138.0282**	**131.0242**	**0.2923**	**36.8185**	**6.2269**	**41.7488**	**20.0432**	**5.9018**	**24.6244**	**0.0000**	**28,049.1184**	**28,049.1184**	**6.4969**	**0.0000**	**28,211.5402**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	9.4930	99.2506	77.7436	0.1690	16.1326	4.0803	20.0413	8.6726	3.7603	12.2748	0.0000	16,427.4452	16,427.4452	4.3328	0.0000	16,535.7650
2022	11.9665	92.2951	134.3217	0.2923	5.5293	3.4533	8.9825	2.0036	3.1917	5.1953	0.0000	28,049.1184	28,049.1184	6.4969	0.0000	28,211.5402
2023	1.0591	8.7522	23.6094	0.0427	0.1328	0.3221	0.4549	0.0351	0.2994	0.3345	0.0000	4,070.3120	4,070.3120	0.8566	0.0000	4,091.7276
Maximum	**11.9665**	**99.2506**	**134.3217**	**0.2923**	**16.1326**	**4.0803**	**20.0413**	**8.6726**	**3.7603**	**12.2748**	**0.0000**	**28,049.1184**	**28,049.1184**	**6.4969**	**0.0000**	**28,211.5402**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**31.13**	**26.53**	**-2.53**	**0.00**	**54.06**	**36.01**	**50.49**	**55.63**	**37.18**	**49.87**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5169	9.0787	6.4869	0.0687	3.1183	0.0479	3.1662	0.8800	0.0456	0.9257		7,210.1379	7,210.1379	0.2275		7,215.8247
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.6796**	**9.0796**	**6.5821**	**0.0687**	**3.1183**	**0.0482**	**3.1665**	**0.8800**	**0.0460**	**0.9260**		**7,210.3419**	**7,210.3419**	**0.2280**	**0.0000**	**7,216.0420**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5169	9.0787	6.4869	0.0687	3.1183	0.0479	3.1662	0.8800	0.0456	0.9257		7,210.1379	7,210.1379	0.2275		7,215.8247
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.6796**	**9.0796**	**6.5821**	**0.0687**	**3.1183**	**0.0482**	**3.1665**	**0.8800**	**0.0460**	**0.9260**		**7,210.3419**	**7,210.3419**	**0.2280**	**0.0000**	**7,216.0420**

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

3.0 Construction Detail

Construction Phase

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Well Sites - Site Prep	Site Preparation	7/1/2021	12/31/2021	5	132	
2	Treatment Plants - Site Prep	Site Preparation	7/1/2021	8/13/2021	5	32	
3	Pipeline - Trenching	Trenching	7/1/2021	5/2/2022	5	218	
4	Treatment Plants - Grading	Grading	8/16/2021	9/23/2021	5	29	
5	Treatment Plants - Building Construction	Building Construction	9/24/2021	11/1/2022	5	288	
6	Treatment Plants - Architectural Coating	Architectural Coating	9/24/2021	12/30/2022	5	331	
7	Well Sites - Well Drilling	Grading	1/3/2022	3/27/2022	7	84	
8	Well Sites - Pump installation/construction	Building Construction	3/28/2022	3/31/2023	5	265	
9	Treatment Plants - Paving	Paving	11/2/2022	12/2/2022	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 19.56

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 120,000; Non-Residential Outdoor: 40,000; Striped Parking Area: 3,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Well Sites - Site Prep	Off-Highway Trucks	1	2.00	97	0.37
Well Sites - Site Prep	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Site Prep	Rubber Tired Dozers	3	8.00	247	0.40
Well Sites - Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Treatment Plants - Site Prep	Off-Highway Trucks	1	2.00	402	0.38
Treatment Plants - Site Prep	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Site Prep	Rubber Tired Dozers	3	8.00	247	0.40

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

Treatment Plants - Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipeline - Trenching	Air Compressors	1	6.00	78	0.48
Pipeline - Trenching	Concrete/Industrial Saws	1	6.00	81	0.73
Pipeline - Trenching	Cranes	1	4.00	231	0.29
Pipeline - Trenching	Dumpers/Tenders	2	6.00	16	0.38
Pipeline - Trenching	Excavators	1	6.00	158	0.38
Pipeline - Trenching	Generator Sets	1	6.00	84	0.74
Pipeline - Trenching	Off-Highway Trucks	1	2.00	402	0.38
Pipeline - Trenching	Off-Highway Trucks	1	4.00	402	0.38
Pipeline - Trenching	Pavers	1	6.00	130	0.42
Pipeline - Trenching	Pumps	1	6.00	84	0.74
Pipeline - Trenching	Sweepers/Scrubbers	1	6.00	64	0.46
Pipeline - Trenching	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Pipeline - Trenching	Welders	1	6.00	46	0.45
Treatment Plants - Grading	Cement and Mortar Mixers	1	6.00	9	0.56
Treatment Plants - Grading	Excavators	2	8.00	158	0.38
Treatment Plants - Grading	Graders	1	8.00	187	0.41
Treatment Plants - Grading	Off-Highway Trucks	1	2.00	402	0.38
Treatment Plants - Grading	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Grading	Rubber Tired Dozers	1	8.00	247	0.40
Treatment Plants - Grading	Scrapers	2	8.00	367	0.48
Treatment Plants - Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Treatment Plants - Building Construction	Air Compressors	1	6.00	78	0.48
Treatment Plants - Building Construction	Cement and Mortar Mixers	1	6.00	9	0.56
Treatment Plants - Building Construction	Cranes	1	7.00	231	0.29
Treatment Plants - Building Construction	Excavators	2	6.00	97	0.37

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

Treatment Plants - Building Construction	Forklifts	3	8.00	89	0.20
Treatment Plants - Building Construction	Forklifts	2	6.00	89	0.20
Treatment Plants - Building Construction	Generator Sets	1	8.00	84	0.74
Treatment Plants - Building Construction	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Building Construction	Pumps	1	6.00	84	0.74
Treatment Plants - Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Treatment Plants - Building Construction	Welders	1	6.00	46	0.45
Treatment Plants - Architectural Coating	Air Compressors	1	6.00	78	0.48
Treatment Plants - Architectural Coating	Generator Sets	1	6.00	84	0.74
Treatment Plants - Architectural Coating	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Well Drilling	Air Compressors	1	18.00	78	0.48
Well Sites - Well Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Well Sites - Well Drilling	Cranes	1	24.00	231	0.29
Well Sites - Well Drilling	Excavators	2	8.00	158	0.38
Well Sites - Well Drilling	Generator Sets	1	18.00	84	0.74
Well Sites - Well Drilling	Graders	1	8.00	187	0.41
Well Sites - Well Drilling	Off-Highway Trucks	1	12.00	402	0.38
Well Sites - Well Drilling	Pumps	1	18.00	84	0.74
Well Sites - Well Drilling	Rubber Tired Dozers	1	8.00	247	0.40
Well Sites - Well Drilling	Scrapers	2	8.00	367	0.48
Well Sites - Well Drilling	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Well Sites - Well Drilling	Welders	1	18.00	46	0.45
Well Sites - Pump installation/construction	Air Compressors	1	6.00	78	0.48
Well Sites - Pump installation/construction	Cranes	1	7.00	231	0.29

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

Well Sites - Pump installation/construction	Forklifts	3	8.00	89	0.20
Well Sites - Pump installation/construction	Generator Sets	1	8.00	84	0.74
Well Sites - Pump installation/construction	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Pump installation/construction	Pumps	1	6.00	84	0.74
Well Sites - Pump installation/construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Well Sites - Pump installation/construction	Welders	1	8.00	46	0.45
Treatment Plants - Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Treatment Plants - Paving	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Paving	Pavers	2	8.00	130	0.42
Treatment Plants - Paving	Paving Equipment	2	8.00	132	0.36
Treatment Plants - Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Well Sites - Site Prep	6	8.00	0.00	27.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Site Prep	6	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline - Trenching	15	30.00	0.00	1,406.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Grading	10	10.00	0.00	250.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Building Construction	16	15.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Architectural Coating	3	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	19.00	0.00	87.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Pump installation/constructio	12	11.00	0.00	45.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.2 Well Sites - Site Prep - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.6293	37.4414	16.1757	0.0353		1.8057	1.8057		1.6612	1.6612		3,422.2182	3,422.2182	1.1068		3,449.8885
Total	**3.6293**	**37.4414**	**16.1757**	**0.0353**	**18.0663**	**1.8057**	**19.8719**	**9.9307**	**1.6612**	**11.5919**		**3,422.2182**	**3,422.2182**	**1.1068**		**3,449.8885**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5500e-003	0.0530	0.0117	1.6000e-004	3.5700e-003	1.7000e-004	3.7400e-003	9.8000e-004	1.6000e-004	1.1400e-003		17.0440	17.0440	1.2000e-003		17.0741
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0335	0.0218	0.3004	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5519	88.5519	2.3900e-003		88.6115
Total	**0.0350**	**0.0749**	**0.3121**	**1.0500e-003**	**0.0930**	**8.3000e-004**	**0.0938**	**0.0247**	**7.7000e-004**	**0.0255**		**105.5959**	**105.5959**	**3.5900e-003**		**105.6856**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.2 Well Sites - Site Prep - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	3.5054	36.0044	16.2437	0.0353		1.7171	1.7171		1.5801	1.5801	0.0000	3,422.2182	3,422.2182	1.1068		3,449.8885
Total	**3.5054**	**36.0044**	**16.2437**	**0.0353**	**7.7233**	**1.7171**	**9.4404**	**4.2454**	**1.5801**	**5.8254**	**0.0000**	**3,422.2182**	**3,422.2182**	**1.1068**		**3,449.8885**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5500e-003	0.0530	0.0117	1.6000e-004	3.5700e-003	1.7000e-004	3.7400e-003	9.8000e-004	1.6000e-004	1.1400e-003		17.0440	17.0440	1.2000e-003		17.0741
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0335	0.0218	0.3004	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5519	88.5519	2.3900e-003		88.6115
Total	**0.0350**	**0.0749**	**0.3121**	**1.0500e-003**	**0.0930**	**8.3000e-004**	**0.0938**	**0.0247**	**7.7000e-004**	**0.0255**		**105.5959**	**105.5959**	**3.5900e-003**		**105.6856**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.3 Treatment Plants - Site Prep - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.7808	38.7572	17.0768	0.0386		1.8539	1.8539		1.7056	1.7056		3,741.8489	3,741.8489	1.2102		3,772.1037
Total	**3.7808**	**38.7572**	**17.0768**	**0.0386**	**18.0663**	**1.8539**	**19.9202**	**9.9307**	**1.7056**	**11.6363**		**3,741.8489**	**3,741.8489**	**1.2102**		**3,772.1037**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0335	0.0218	0.3004	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5519	88.5519	2.3900e-003		88.6115
Total	**0.0335**	**0.0218**	**0.3004**	**8.9000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**88.5519**	**88.5519**	**2.3900e-003**		**88.6115**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.3 Treatment Plants - Site Prep - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	3.6569	37.3203	17.1447	0.0386		1.7654	1.7654		1.6245	1.6245	0.0000	3,741.8489	3,741.8489	1.2102		3,772.1037
Total	**3.6569**	**37.3203**	**17.1447**	**0.0386**	**7.7233**	**1.7654**	**9.4887**	**4.2454**	**1.6245**	**5.8698**	**0.0000**	**3,741.8489**	**3,741.8489**	**1.2102**		**3,772.1037**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0335	0.0218	0.3004	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5519	88.5519	2.3900e-003		88.6115
Total	**0.0335**	**0.0218**	**0.3004**	**8.9000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**88.5519**	**88.5519**	**2.3900e-003**		**88.6115**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.4 Pipeline - Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8678	24.7361	24.9882	0.0473		1.2615	1.2615		1.2058	1.2058		4,498.2016	4,498.2016	0.9624		4,522.2620
Total	**2.8678**	**24.7361**	**24.9882**	**0.0473**		**1.2615**	**1.2615**		**1.2058**	**1.2058**		**4,498.2016**	**4,498.2016**	**0.9624**		**4,522.2620**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0490	1.6723	0.3694	4.9500e-003	0.1682	5.2100e-003	0.1734	0.0445	4.9900e-003	0.0495		537.4168	537.4168	0.0379		538.3636
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1256	0.0819	1.1264	3.3300e-003	0.3353	2.4800e-003	0.3378	0.0889	2.2900e-003	0.0912		332.0695	332.0695	8.9500e-003		332.2932
Total	**0.1746**	**1.7541**	**1.4958**	**8.2800e-003**	**0.5035**	**7.6900e-003**	**0.5112**	**0.1334**	**7.2800e-003**	**0.1407**		**869.4863**	**869.4863**	**0.0468**		**870.6569**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.4 Pipeline - Trenching - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3362	12.1400	26.0637	0.0473		0.4171	0.4171		0.3890	0.3890	0.0000	4,498.2016	4,498.2016	0.9624		4,522.2620
Total	**1.3362**	**12.1400**	**26.0637**	**0.0473**		**0.4171**	**0.4171**		**0.3890**	**0.3890**	**0.0000**	**4,498.2016**	**4,498.2016**	**0.9624**		**4,522.2620**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0490	1.6723	0.3694	4.9500e-003	0.1682	5.2100e-003	0.1734	0.0445	4.9900e-003	0.0495		537.4168	537.4168	0.0379		538.3636
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1256	0.0819	1.1264	3.3300e-003	0.3353	2.4800e-003	0.3378	0.0889	2.2900e-003	0.0912		332.0695	332.0695	8.9500e-003		332.2932
Total	**0.1746**	**1.7541**	**1.4958**	**8.2800e-003**	**0.5035**	**7.6900e-003**	**0.5112**	**0.1334**	**7.2800e-003**	**0.1407**		**869.4863**	**869.4863**	**0.0468**		**870.6569**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.4 Pipeline - Trenching - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5839	21.6011	24.6302	0.0473		1.0564	1.0564		1.0115	1.0115		4,499.1169	4,499.1169	0.9552		4,522.9975
Total	**2.5839**	**21.6011**	**24.6302**	**0.0473**		**1.0564**	**1.0564**		**1.0115**	**1.0115**		**4,499.1169**	**4,499.1169**	**0.9552**		**4,522.9975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0466	1.5479	0.3655	4.8800e-003	0.2435	4.5100e-003	0.2480	0.0630	4.3100e-003	0.0673		531.0137	531.0137	0.0373		531.9454
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1178	0.0740	1.0417	3.2100e-003	0.3353	2.4100e-003	0.3377	0.0889	2.2200e-003	0.0912		320.1789	320.1789	8.0900e-003		320.3812
Total	**0.1644**	**1.6219**	**1.4071**	**8.0900e-003**	**0.5789**	**6.9200e-003**	**0.5858**	**0.1519**	**6.5300e-003**	**0.1585**		**851.1927**	**851.1927**	**0.0454**		**852.3266**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.4 Pipeline - Trenching - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2323	10.5316	25.8161	0.0473		0.3506	0.3506		0.3279	0.3279	0.0000	4,499.1169	4,499.1169	0.9552		4,522.9975
Total	**1.2323**	**10.5316**	**25.8161**	**0.0473**		**0.3506**	**0.3506**		**0.3279**	**0.3279**	**0.0000**	**4,499.1169**	**4,499.1169**	**0.9552**		**4,522.9975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0466	1.5479	0.3655	4.8800e-003	0.2435	4.5100e-003	0.2480	0.0630	4.3100e-003	0.0673		531.0137	531.0137	0.0373		531.9454
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1178	0.0740	1.0417	3.2100e-003	0.3353	2.4100e-003	0.3377	0.0889	2.2200e-003	0.0912		320.1789	320.1789	8.0900e-003		320.3812
Total	**0.1644**	**1.6219**	**1.4071**	**8.0900e-003**	**0.5789**	**6.9200e-003**	**0.5858**	**0.1519**	**6.5300e-003**	**0.1585**		**851.1927**	**851.1927**	**0.0454**		**852.3266**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.5 Treatment Plants - Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.5024	48.7277	31.5528	0.0694		2.0291	2.0291		1.8676	1.8676		6,702.9229	6,702.9229	2.1595		6,756.9114
Total	**4.5024**	**48.7277**	**31.5528**	**0.0694**	**8.6733**	**2.0291**	**10.7024**	**3.5965**	**1.8676**	**5.4641**		**6,702.9229**	**6,702.9229**	**2.1595**		**6,756.9114**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0655	2.2352	0.4937	6.6100e-003	0.1506	6.9700e-003	0.1575	0.0413	6.6700e-003	0.0479		718.3307	718.3307	0.0506		719.5963
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0419	0.0273	0.3755	1.1100e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.6898	110.6898	2.9800e-003		110.7644
Total	**0.1074**	**2.2625**	**0.8692**	**7.7200e-003**	**0.2624**	**7.8000e-003**	**0.2701**	**0.0709**	**7.4300e-003**	**0.0783**		**829.0205**	**829.0205**	**0.0536**		**830.3607**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.5 Treatment Plants - Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	4.3344	47.0146	31.3894	0.0694		1.9298	1.9298		1.7757	1.7757	0.0000	6,702.9228	6,702.9228	2.1595		6,756.9114
Total	**4.3344**	**47.0146**	**31.3894**	**0.0694**	**3.7079**	**1.9298**	**5.6376**	**1.5375**	**1.7757**	**3.3132**	**0.0000**	**6,702.9228**	**6,702.9228**	**2.1595**		**6,756.9114**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0655	2.2352	0.4937	6.6100e-003	0.1506	6.9700e-003	0.1575	0.0413	6.6700e-003	0.0479		718.3307	718.3307	0.0506		719.5963
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0419	0.0273	0.3755	1.1100e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.6898	110.6898	2.9800e-003		110.7644
Total	**0.1074**	**2.2625**	**0.8692**	**7.7200e-003**	**0.2624**	**7.8000e-003**	**0.2701**	**0.0709**	**7.4300e-003**	**0.0783**		**829.0205**	**829.0205**	**0.0536**		**830.3607**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.6 Treatment Plants - Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9678	26.7119	25.8916	0.0455		1.4549	1.4549		1.3754	1.3754		4,330.2877	4,330.2877	0.9951		4,355.1642
Total	**2.9678**	**26.7119**	**25.8916**	**0.0455**		**1.4549**	**1.4549**		**1.3754**	**1.3754**		**4,330.2877**	**4,330.2877**	**0.9951**		**4,355.1642**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.8100e-003	0.0958	0.0233	2.5000e-004	6.4000e-003	2.0000e-004	6.5900e-003	1.8400e-003	1.9000e-004	2.0300e-003		27.0744	27.0744	1.6700e-003		27.1162
Worker	0.0628	0.0410	0.5632	1.6700e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		166.0347	166.0347	4.4800e-003		166.1466
Total	**0.0656**	**0.1367**	**0.5865**	**1.9200e-003**	**0.1741**	**1.4400e-003**	**0.1755**	**0.0463**	**1.3300e-003**	**0.0476**		**193.1091**	**193.1091**	**6.1500e-003**		**193.2629**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.6 Treatment Plants - Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4230	13.3655	26.2148	0.0455		0.5861	0.5861		0.5422	0.5422	0.0000	4,330.2877	4,330.2877	0.9951		4,355.1642
Total	**1.4230**	**13.3655**	**26.2148**	**0.0455**		**0.5861**	**0.5861**		**0.5422**	**0.5422**	**0.0000**	**4,330.2877**	**4,330.2877**	**0.9951**		**4,355.1642**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.8100e-003	0.0958	0.0233	2.5000e-004	6.4000e-003	2.0000e-004	6.5900e-003	1.8400e-003	1.9000e-004	2.0300e-003		27.0744	27.0744	1.6700e-003		27.1162
Worker	0.0628	0.0410	0.5632	1.6700e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		166.0347	166.0347	4.4800e-003		166.1466
Total	**0.0656**	**0.1367**	**0.5865**	**1.9200e-003**	**0.1741**	**1.4400e-003**	**0.1755**	**0.0463**	**1.3300e-003**	**0.0476**		**193.1091**	**193.1091**	**6.1500e-003**		**193.2629**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.6 Treatment Plants - Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6790	23.7590	25.5329	0.0455		1.2318	1.2318		1.1656	1.1656		4,331.0346	4,331.0346	0.9888		4,355.7553
Total	**2.6790**	**23.7590**	**25.5329**	**0.0455**		**1.2318**	**1.2318**		**1.1656**	**1.1656**		**4,331.0346**	**4,331.0346**	**0.9888**		**4,355.7553**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.6400e-003	0.0910	0.0220	2.5000e-004	6.4000e-003	1.7000e-004	6.5700e-003	1.8400e-003	1.6000e-004	2.0000e-003		26.8370	26.8370	1.6200e-003		26.8774
Worker	0.0589	0.0370	0.5208	1.6100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		160.0895	160.0895	4.0500e-003		160.1906
Total	**0.0615**	**0.1280**	**0.5429**	**1.8600e-003**	**0.1741**	**1.3800e-003**	**0.1754**	**0.0463**	**1.2700e-003**	**0.0476**		**186.9265**	**186.9265**	**5.6700e-003**		**187.0681**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.6 Treatment Plants - Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3027	11.7233	25.9726	0.0455		0.4983	0.4983		0.4615	0.4615	0.0000	4,331.0346	4,331.0346	0.9888		4,355.7553
Total	**1.3027**	**11.7233**	**25.9726**	**0.0455**		**0.4983**	**0.4983**		**0.4615**	**0.4615**	**0.0000**	**4,331.0346**	**4,331.0346**	**0.9888**		**4,355.7553**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.6400e-003	0.0910	0.0220	2.5000e-004	6.4000e-003	1.7000e-004	6.5700e-003	1.8400e-003	1.6000e-004	2.0000e-003		26.8370	26.8370	1.6200e-003		26.8774
Worker	0.0589	0.0370	0.5208	1.6100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		160.0895	160.0895	4.0500e-003		160.1906
Total	**0.0615**	**0.1280**	**0.5429**	**1.8600e-003**	**0.1741**	**1.3800e-003**	**0.1754**	**0.0463**	**1.2700e-003**	**0.0476**		**186.9265**	**186.9265**	**5.6700e-003**		**187.0681**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.7 Treatment Plants - Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7899	6.5332	6.3833	0.0145		0.3164	0.3164		0.3087	0.3087		1,387.9855	1,387.9855	0.2499		1,394.2332
Total	**3.0724**	**6.5332**	**6.3833**	**0.0145**		**0.3164**	**0.3164**		**0.3087**	**0.3087**		**1,387.9855**	**1,387.9855**	**0.2499**		**1,394.2332**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0167	0.0109	0.1502	4.4000e-004	0.0447	3.3000e-004	0.0450	0.0119	3.0000e-004	0.0122		44.2759	44.2759	1.1900e-003		44.3058
Total	**0.0167**	**0.0109**	**0.1502**	**4.4000e-004**	**0.0447**	**3.3000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**44.2759**	**44.2759**	**1.1900e-003**		**44.3058**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.7 Treatment Plants - Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3820	2.9742	6.6769	0.0145		0.1071	0.1071		0.0994	0.0994	0.0000	1,387.9855	1,387.9855	0.2499		1,394.2332
Total	**2.6645**	**2.9742**	**6.6769**	**0.0145**		**0.1071**	**0.1071**		**0.0994**	**0.0994**	**0.0000**	**1,387.9855**	**1,387.9855**	**0.2499**		**1,394.2332**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0167	0.0109	0.1502	4.4000e-004	0.0447	3.3000e-004	0.0450	0.0119	3.0000e-004	0.0122		44.2759	44.2759	1.1900e-003		44.3058
Total	**0.0167**	**0.0109**	**0.1502**	**4.4000e-004**	**0.0447**	**3.3000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**44.2759**	**44.2759**	**1.1900e-003**		**44.3058**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.7 Treatment Plants - Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7162	5.6115	6.2499	0.0145		0.2649	0.2649		0.2590	0.2590		1,388.2166	1,388.2166	0.2474		1,394.4004
Total	**2.9987**	**5.6115**	**6.2499**	**0.0145**		**0.2649**	**0.2649**		**0.2590**	**0.2590**		**1,388.2166**	**1,388.2166**	**0.2474**		**1,394.4004**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0157	9.8600e-003	0.1389	4.3000e-004	0.0447	3.2000e-004	0.0450	0.0119	3.0000e-004	0.0122		42.6905	42.6905	1.0800e-003		42.7175
Total	**0.0157**	**9.8600e-003**	**0.1389**	**4.3000e-004**	**0.0447**	**3.2000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**42.6905**	**42.6905**	**1.0800e-003**		**42.7175**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.7 Treatment Plants - Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3433	2.3494	6.5541	0.0145		0.0835	0.0835		0.0777	0.0777	0.0000	1,388.2166	1,388.2166	0.2474		1,394.4004
Total	**2.6258**	**2.3494**	**6.5541**	**0.0145**		**0.0835**	**0.0835**		**0.0777**	**0.0777**	**0.0000**	**1,388.2166**	**1,388.2166**	**0.2474**		**1,394.4004**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0157	9.8600e-003	0.1389	4.3000e-004	0.0447	3.2000e-004	0.0450	0.0119	3.0000e-004	0.0122		42.6905	42.6905	1.0800e-003		42.7175
Total	**0.0157**	**9.8600e-003**	**0.1389**	**4.3000e-004**	**0.0447**	**3.2000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**42.6905**	**42.6905**	**1.0800e-003**		**42.7175**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.8 Well Sites - Well Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	8.9793	85.0015	71.8040	0.1718		3.6630	3.6630		3.4555	3.4555		16,461.8866	16,461.8866	4.2423		16,567.9430
Total	**8.9793**	**85.0015**	**71.8040**	**0.1718**	**8.6733**	**3.6630**	**12.3363**	**3.5965**	**3.4555**	**7.0520**		**16,461.8866**	**16,461.8866**	**4.2423**		**16,567.9430**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.4800e-003	0.2486	0.0587	7.8000e-004	0.0729	7.2000e-004	0.0736	0.0184	6.9000e-004	0.0191		85.2741	85.2741	5.9800e-003		85.4237
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0746	0.0469	0.6597	2.0300e-003	0.9509	1.5300e-003	0.9524	0.2376	1.4100e-003	0.2390		202.7800	202.7800	5.1200e-003		202.9081
Total	**0.0821**	**0.2954**	**0.7184**	**2.8100e-003**	**1.0238**	**2.2500e-003**	**1.0260**	**0.2560**	**2.1000e-003**	**0.2581**		**288.0541**	**288.0541**	**0.0111**		**288.3318**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.8 Well Sites - Well Drilling - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	6.4821	65.6357	73.1717	0.1718		2.5100	2.5100		2.3145	2.3145	0.0000	16,461.8866	16,461.8866	4.2423		16,567.9430
Total	**6.4821**	**65.6357**	**73.1717**	**0.1718**	**3.7079**	**2.5100**	**6.2179**	**1.5375**	**2.3145**	**3.8520**	**0.0000**	**16,461.8866**	**16,461.8866**	**4.2423**		**16,567.9430**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.4800e-003	0.2486	0.0587	7.8000e-004	0.0729	7.2000e-004	0.0736	0.0184	6.9000e-004	0.0191		85.2741	85.2741	5.9800e-003		85.4237
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0746	0.0469	0.6597	2.0300e-003	0.9509	1.5300e-003	0.9524	0.2376	1.4100e-003	0.2390		202.7800	202.7800	5.1200e-003		202.9081
Total	**0.0821**	**0.2954**	**0.7184**	**2.8100e-003**	**1.0238**	**2.2500e-003**	**1.0260**	**0.2560**	**2.1000e-003**	**0.2581**		**288.0541**	**288.0541**	**0.0111**		**288.3318**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.9 Well Sites - Pump installation/construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4389	21.2576	22.6553	0.0415		1.0805	1.0805		1.0268	1.0268		3,942.5502	3,942.5502	0.8609		3,964.0737
Total	**2.4389**	**21.2576**	**22.6553**	**0.0415**		**1.0805**	**1.0805**		**1.0268**	**1.0268**		**3,942.5502**	**3,942.5502**	**0.8609**		**3,964.0737**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.2300e-003	0.0408	9.6200e-003	1.3000e-004	3.7000e-003	1.2000e-004	3.8100e-003	9.9000e-004	1.1000e-004	1.1100e-003		13.9812	13.9812	9.8000e-004		14.0057
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0432	0.0271	0.3819	1.1800e-003	0.1230	8.8000e-004	0.1238	0.0326	8.1000e-004	0.0334		117.3990	117.3990	2.9700e-003		117.4731
Total	**0.0444**	**0.0679**	**0.3916**	**1.3100e-003**	**0.1267**	**1.0000e-003**	**0.1277**	**0.0336**	**9.2000e-004**	**0.0345**		**131.3801**	**131.3801**	**3.9500e-003**		**131.4788**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.9 Well Sites - Pump installation/construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0630	9.3808	23.3434	0.0415		0.3565	0.3565		0.3311	0.3311	0.0000	3,942.5502	3,942.5502	0.8609		3,964.0737
Total	**1.0630**	**9.3808**	**23.3434**	**0.0415**		**0.3565**	**0.3565**		**0.3311**	**0.3311**	**0.0000**	**3,942.5502**	**3,942.5502**	**0.8609**		**3,964.0737**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.2300e-003	0.0408	9.6200e-003	1.3000e-004	3.7000e-003	1.2000e-004	3.8100e-003	9.9000e-004	1.1000e-004	1.1100e-003		13.9812	13.9812	9.8000e-004		14.0057
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0432	0.0271	0.3819	1.1800e-003	0.1230	8.8000e-004	0.1238	0.0326	8.1000e-004	0.0334		117.3990	117.3990	2.9700e-003		117.4731
Total	**0.0444**	**0.0679**	**0.3916**	**1.3100e-003**	**0.1267**	**1.0000e-003**	**0.1277**	**0.0336**	**9.2000e-004**	**0.0345**		**131.3801**	**131.3801**	**3.9500e-003**		**131.4788**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.9 Well Sites - Pump installation/construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2622	19.5365	22.4933	0.0415		0.9362	0.9362		0.8897	0.8897		3,943.8782	3,943.8782	0.8530		3,965.2040
Total	**2.2622**	**19.5365**	**22.4933**	**0.0415**		**0.9362**	**0.9362**		**0.8897**	**0.8897**		**3,943.8782**	**3,943.8782**	**0.8530**		**3,965.2040**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.1000e-004	0.0263	8.7800e-003	1.2000e-004	9.8700e-003	5.0000e-005	9.9200e-003	2.5100e-003	5.0000e-005	2.5500e-003		13.4078	13.4078	9.1000e-004		13.4306
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0406	0.0246	0.3527	1.1300e-003	0.1230	8.6000e-004	0.1238	0.0326	7.9000e-004	0.0334		113.0261	113.0261	2.6800e-003		113.0930
Total	**0.0414**	**0.0508**	**0.3615**	**1.2500e-003**	**0.1328**	**9.1000e-004**	**0.1337**	**0.0351**	**8.4000e-004**	**0.0360**		**126.4339**	**126.4339**	**3.5900e-003**		**126.5236**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.9 Well Sites - Pump installation/construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0176	8.7014	23.2479	0.0415		0.3212	0.3212		0.2986	0.2986	0.0000	3,943.8782	3,943.8782	0.8530		3,965.2040
Total	**1.0176**	**8.7014**	**23.2479**	**0.0415**		**0.3212**	**0.3212**		**0.2986**	**0.2986**	**0.0000**	**3,943.8782**	**3,943.8782**	**0.8530**		**3,965.2040**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.1000e-004	0.0263	8.7800e-003	1.2000e-004	9.8700e-003	5.0000e-005	9.9200e-003	2.5100e-003	5.0000e-005	2.5500e-003		13.4078	13.4078	9.1000e-004		13.4306
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0406	0.0246	0.3527	1.1300e-003	0.1230	8.6000e-004	0.1238	0.0326	7.9000e-004	0.0334		113.0261	113.0261	2.6800e-003		113.0930
Total	**0.0414**	**0.0508**	**0.3615**	**1.2500e-003**	**0.1328**	**9.1000e-004**	**0.1337**	**0.0351**	**8.4000e-004**	**0.0360**		**126.4339**	**126.4339**	**3.5900e-003**		**126.5236**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.10 Treatment Plants - Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4258	13.4999	16.5683	0.0301		0.6552	0.6552		0.6039	0.6039		2,897.6693	2,897.6693	0.9261		2,920.8211
Paving	0.3474					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7732**	**13.4999**	**16.5683**	**0.0301**		**0.6552**	**0.6552**		**0.6039**	**0.6039**		**2,897.6693**	**2,897.6693**	**0.9261**		**2,920.8211**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0196	0.0123	0.1736	5.4000e-004	0.2017	4.0000e-004	0.2021	0.0506	3.7000e-004	0.0510		53.3632	53.3632	1.3500e-003		53.3969
Total	**0.0196**	**0.0123**	**0.1736**	**5.4000e-004**	**0.2017**	**4.0000e-004**	**0.2021**	**0.0506**	**3.7000e-004**	**0.0510**		**53.3632**	**53.3632**	**1.3500e-003**		**53.3969**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

3.10 Treatment Plants - Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5447	3.2222	18.9750	0.0301		0.1104	0.1104		0.1045	0.1045	0.0000	2,897.6693	2,897.6693	0.9261		2,920.8210
Paving	0.3474					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8921**	**3.2222**	**18.9750**	**0.0301**		**0.1104**	**0.1104**		**0.1045**	**0.1045**	**0.0000**	**2,897.6693**	**2,897.6693**	**0.9261**		**2,920.8210**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0196	0.0123	0.1736	5.4000e-004	0.2017	4.0000e-004	0.2021	0.0506	3.7000e-004	0.0510		53.3632	53.3632	1.3500e-003		53.3969
Total	**0.0196**	**0.0123**	**0.1736**	**5.4000e-004**	**0.2017**	**4.0000e-004**	**0.2021**	**0.0506**	**3.7000e-004**	**0.0510**		**53.3632**	**53.3632**	**1.3500e-003**		**53.3969**

4.0 Operational Detail - Mobile

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5169	9.0787	6.4869	0.0687	3.1183	0.0479	3.1662	0.8800	0.0456	0.9257		7,210.1379	7,210.1379	0.2275		7,215.8247
Unmitigated	0.5169	9.0787	6.4869	0.0687	3.1183	0.0479	3.1662	0.8800	0.0456	0.9257		7,210.1379	7,210.1379	0.2275		7,215.8247

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	35.95	0.00	0.00	110,051	110,051
Refrigerated Warehouse-No Rail	20.00	0.00	0.00	206,001	206,001
Refrigerated Warehouse-No Rail	60.00	0.00	0.00	618,003	618,003
Total	115.95	0.00	0.00	934,056	934,056

4.3 Trip Type Information

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Refrigerated Warehouse-No	72.00	0.00	0.00	59.00	0.00	41.00	92	5	3
Refrigerated Warehouse-No	72.00	0.00	0.00	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000
Refrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Unmitigated	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2681					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.8858					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.8100e-003	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Total	**2.1627**	**8.7000e-004**	**0.0951**	**1.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**		**0.2040**	**0.2040**	**5.3000e-004**		**0.2173**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2681					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.8858					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.8100e-003	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Total	**2.1627**	**8.7000e-004**	**0.0951**	**1.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**		**0.2040**	**0.2040**	**5.3000e-004**		**0.2173**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Summer

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	6	0	24	115	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (100 - 175 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

11.0 Vegetation

Cactus Corridor Model Run with Tier 4 Engines

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	20.00	1000sqft	0.46	20,000.00	0
Refrigerated Warehouse-No Rail	60.00	1000sqft	1.38	60,000.00	0
Other Asphalt Surfaces	133.00	1000sqft	3.05	133,000.00	0
Other Non-Asphalt Surfaces	719.00	1000sqft	16.51	719,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	467.38	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

Project Characteristics - Based on 2018 SCE information for Intensity Factor

Land Use - First Line is the larger of the two treatment site options
Second line includes all the area of the well sites
Third line is the pipeline.
Fourth is 6 well site well pads

Construction Phase - Based on Engineer estimates and CalEEMod Default Ratios

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Equipment included in Pipeline Construction phase because all work happens simultaneously

Off-road Equipment - Based on Engineering Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engeering Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on engineering estimates

Off-road Equipment - Based on Engineering Estimates

Off-road Equipment - Based on Engineering Estimates.
This phase lasts 24 hours a day to prevent borehold collapse. Thus, all normal 8hr/workday estimates have been multiplied by 3.

Trips and VMT - based on engineering estimates

Architectural Coating - No residential structures being built.
Parking lot is very small, based on project experience

Vehicle Trips - Based on Engineering estimates

Road Dust - Based on engineering estimates

Energy Use - Based on engineer estimates = 20,000 treatment plant 60,000 well sites = 80,000 sqft

Water And Wastewater - No additional water use needed

Solid Waste - Brine disposal is covered in VMT

Construction Off-road Equipment Mitigation - Based on standard mitigation required by SCAQMD

Fleet Mix - Based on Engineerng estimates

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generators for 6 well sites / treatment facility

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	51,120.00	3,000.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	13.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	331.00
tblConstructionPhase	NumDays	370.00	288.00
tblConstructionPhase	NumDays	370.00	265.00
tblConstructionPhase	NumDays	35.00	29.00
tblConstructionPhase	NumDays	35.00	84.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	10.00	132.00
tblConstructionPhase	NumDays	10.00	32.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblEnergyUse	NT24E	36.52	81.03
tblEnergyUse	NT24NG	48.51	0.00
tblEnergyUse	T24E	1.06	0.00
tblEnergyUse	T24NG	3.25	0.00
tblFleetMix	HHD	0.03	0.20
tblFleetMix	HHD	0.03	0.20
tblFleetMix	HHD	0.03	0.20
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MHD	0.02	0.20
tblFleetMix	MHD	0.02	0.20
tblFleetMix	MHD	0.02	0.20
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	OBUS	2.1100e-003	0.00

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblOffRoadEquipment	HorsePower	158.00	97.00
tblOffRoadEquipment	HorsePower	402.00	97.00
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	467.38
tblRoadDust	MeanVehicleSpeed	40	15
tblSolidWaste	SolidWasteGenerationRate	75.20	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	115.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	24.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	6.00
tblTripsAndVMT	HaulingTripNumber	0.00	27.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,406.00
tblTripsAndVMT	HaulingTripNumber	0.00	250.00
tblTripsAndVMT	HaulingTripNumber	0.00	87.00

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

tblTripsAndVMT	HaulingTripNumber	0.00	45.00
tblTripsAndVMT	VendorTripNumber	153.00	1.00
tblTripsAndVMT	VendorTripNumber	153.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	38.00	30.00
tblTripsAndVMT	WorkerTripNumber	25.00	10.00
tblTripsAndVMT	WorkerTripNumber	391.00	15.00
tblTripsAndVMT	WorkerTripNumber	78.00	4.00
tblTripsAndVMT	WorkerTripNumber	38.00	19.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	391.00	11.00
tblTripsAndVMT	WorkerTripNumber	20.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	0.00	41.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	72.00
tblVehicleTrips	CW_TTP	0.00	59.00

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

tblVehicleTrips	DV_TP	0.00	5.00
tblVehicleTrips	PB_TP	0.00	3.00
tblVehicleTrips	PR_TP	0.00	92.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	0.00	0.05
tblVehicleTrips	WD_TR	1.68	1.00
tblWater	IndoorWaterUseRate	18,500,000.00	0.00

2.0 Emissions Summary

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	12.8550	115.0584	75.8079	0.1685	36.8185	5.1128	41.7488	20.0432	4.7502	24.6245	0.0000	16,372.5929	16,372.5929	4.3352	0.0000	16,480.9737
2022	17.5941	138.0648	130.8258	0.2918	10.4947	6.2269	16.7217	4.0626	5.9019	9.9644	0.0000	27,992.6382	27,992.6382	6.4974	0.0000	28,155.0721
2023	2.3080	19.5898	22.8206	0.0426	0.1328	0.9371	1.0699	0.0351	0.8906	0.9257	0.0000	4,063.0615	4,063.0615	0.8565	0.0000	4,084.4733
Maximum	**17.5941**	**138.0648**	**130.8258**	**0.2918**	**36.8185**	**6.2269**	**41.7488**	**20.0432**	**5.9019**	**24.6245**	**0.0000**	**27,992.6382**	**27,992.6382**	**6.4974**	**0.0000**	**28,155.0721**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	9.5165	99.3123	77.5682	0.1685	16.1326	4.0804	20.0414	8.6726	3.7605	12.2749	0.0000	16,372.5929	16,372.5929	4.3352	0.0000	16,480.9737
2022	11.9961	92.3317	134.1232	0.2918	5.5293	3.4534	8.9826	2.0036	3.1918	5.1954	0.0000	27,992.6382	27,992.6382	6.4974	0.0000	28,155.0721
2023	1.0635	8.7548	23.5752	0.0426	0.1328	0.3221	0.4549	0.0351	0.2994	0.3345	0.0000	4,063.0615	4,063.0615	0.8565	0.0000	4,084.4733
Maximum	**11.9961**	**99.3123**	**134.1232**	**0.2918**	**16.1326**	**4.0804**	**20.0414**	**8.6726**	**3.7605**	**12.2749**	**0.0000**	**27,992.6382**	**27,992.6382**	**6.4974**	**0.0000**	**28,155.0721**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**31.08**	**26.52**	**-2.53**	**0.00**	**54.06**	**36.01**	**50.49**	**55.63**	**37.17**	**49.87**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5172	9.3222	6.2998	0.0679	3.1183	0.0481	3.1664	0.8800	0.0458	0.9258		7,128.1908	7,128.1908	0.2295		7,133.9292
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.6799**	**9.3231**	**6.3950**	**0.0679**	**3.1183**	**0.0484**	**3.1667**	**0.8800**	**0.0462**	**0.9262**		**7,128.3948**	**7,128.3948**	**0.2301**	**0.0000**	**7,134.1466**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.5172	9.3222	6.2998	0.0679	3.1183	0.0481	3.1664	0.8800	0.0458	0.9258		7,128.1908	7,128.1908	0.2295		7,133.9292
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.6799**	**9.3231**	**6.3950**	**0.0679**	**3.1183**	**0.0484**	**3.1667**	**0.8800**	**0.0462**	**0.9262**		**7,128.3948**	**7,128.3948**	**0.2301**	**0.0000**	**7,134.1466**

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

3.0 Construction Detail

Construction Phase

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Well Sites - Site Prep	Site Preparation	7/1/2021	12/31/2021	5	132	
2	Treatment Plants - Site Prep	Site Preparation	7/1/2021	8/13/2021	5	32	
3	Pipeline - Trenching	Trenching	7/1/2021	5/2/2022	5	218	
4	Treatment Plants - Grading	Grading	8/16/2021	9/23/2021	5	29	
5	Treatment Plants - Building Construction	Building Construction	9/24/2021	11/1/2022	5	288	
6	Treatment Plants - Architectural Coating	Architectural Coating	9/24/2021	12/30/2022	5	331	
7	Well Sites - Well Drilling	Grading	1/3/2022	3/27/2022	7	84	
8	Well Sites - Pump installation/construction	Building Construction	3/28/2022	3/31/2023	5	265	
9	Treatment Plants - Paving	Paving	11/2/2022	12/2/2022	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 19.56

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 120,000; Non-Residential Outdoor: 40,000; Striped Parking Area: 3,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Well Sites - Site Prep	Off-Highway Trucks	1	2.00	97	0.37
Well Sites - Site Prep	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Site Prep	Rubber Tired Dozers	3	8.00	247	0.40
Well Sites - Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Treatment Plants - Site Prep	Off-Highway Trucks	1	2.00	402	0.38
Treatment Plants - Site Prep	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Site Prep	Rubber Tired Dozers	3	8.00	247	0.40

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

Treatment Plants - Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipeline - Trenching	Air Compressors	1	6.00	78	0.48
Pipeline - Trenching	Concrete/Industrial Saws	1	6.00	81	0.73
Pipeline - Trenching	Cranes	1	4.00	231	0.29
Pipeline - Trenching	Dumpers/Tenders	2	6.00	16	0.38
Pipeline - Trenching	Excavators	1	6.00	158	0.38
Pipeline - Trenching	Generator Sets	1	6.00	84	0.74
Pipeline - Trenching	Off-Highway Trucks	1	2.00	402	0.38
Pipeline - Trenching	Off-Highway Trucks	1	4.00	402	0.38
Pipeline - Trenching	Pavers	1	6.00	130	0.42
Pipeline - Trenching	Pumps	1	6.00	84	0.74
Pipeline - Trenching	Sweepers/Scrubbers	1	6.00	64	0.46
Pipeline - Trenching	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Pipeline - Trenching	Welders	1	6.00	46	0.45
Treatment Plants - Grading	Cement and Mortar Mixers	1	6.00	9	0.56
Treatment Plants - Grading	Excavators	2	8.00	158	0.38
Treatment Plants - Grading	Graders	1	8.00	187	0.41
Treatment Plants - Grading	Off-Highway Trucks	1	2.00	402	0.38
Treatment Plants - Grading	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Grading	Rubber Tired Dozers	1	8.00	247	0.40
Treatment Plants - Grading	Scrapers	2	8.00	367	0.48
Treatment Plants - Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Treatment Plants - Building Construction	Air Compressors	1	6.00	78	0.48
Treatment Plants - Building Construction	Cement and Mortar Mixers	1	6.00	9	0.56
Treatment Plants - Building Construction	Cranes	1	7.00	231	0.29
Treatment Plants - Building Construction	Excavators	2	6.00	97	0.37

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

Treatment Plants - Building Construction	Forklifts	3	8.00	89	0.20
Treatment Plants - Building Construction	Forklifts	2	6.00	89	0.20
Treatment Plants - Building Construction	Generator Sets	1	8.00	84	0.74
Treatment Plants - Building Construction	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Building Construction	Pumps	1	6.00	84	0.74
Treatment Plants - Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Treatment Plants - Building Construction	Welders	1	6.00	46	0.45
Treatment Plants - Architectural Coating	Air Compressors	1	6.00	78	0.48
Treatment Plants - Architectural Coating	Generator Sets	1	6.00	84	0.74
Treatment Plants - Architectural Coating	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Well Drilling	Air Compressors	1	18.00	78	0.48
Well Sites - Well Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Well Sites - Well Drilling	Cranes	1	24.00	231	0.29
Well Sites - Well Drilling	Excavators	2	8.00	158	0.38
Well Sites - Well Drilling	Generator Sets	1	18.00	84	0.74
Well Sites - Well Drilling	Graders	1	8.00	187	0.41
Well Sites - Well Drilling	Off-Highway Trucks	1	12.00	402	0.38
Well Sites - Well Drilling	Pumps	1	18.00	84	0.74
Well Sites - Well Drilling	Rubber Tired Dozers	1	8.00	247	0.40
Well Sites - Well Drilling	Scrapers	2	8.00	367	0.48
Well Sites - Well Drilling	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Well Sites - Well Drilling	Welders	1	18.00	46	0.45
Well Sites - Pump installation/construction	Air Compressors	1	6.00	78	0.48
Well Sites - Pump installation/construction	Cranes	1	7.00	231	0.29
Well Sites - Pump installation/construction	Forklifts	3	8.00	89	0.20

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

Well Sites - Pump installation/construction	Generator Sets	1	8.00	84	0.74
Well Sites - Pump installation/construction	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Pump installation/construction	Pumps	1	6.00	84	0.74
Well Sites - Pump installation/construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Well Sites - Pump installation/construction	Welders	1	8.00	46	0.45
Treatment Plants - Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Treatment Plants - Paving	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Paving	Pavers	2	8.00	130	0.42
Treatment Plants - Paving	Paving Equipment	2	8.00	132	0.36
Treatment Plants - Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Well Sites - Site Prep	6	8.00	0.00	27.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Site Prep	6	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline - Trenching	15	30.00	0.00	1,406.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Grading	10	10.00	0.00	250.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Building Construction	16	15.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Architectural Coating	3	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	19.00	0.00	87.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Pump installation/constructio	12	11.00	0.00	45.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.2 Well Sites - Site Prep - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.6293	37.4414	16.1757	0.0353		1.8057	1.8057		1.6612	1.6612		3,422.2182	3,422.2182	1.1068		3,449.8885
Total	**3.6293**	**37.4414**	**16.1757**	**0.0353**	**18.0663**	**1.8057**	**19.8719**	**9.9307**	**1.6612**	**11.5919**		**3,422.2182**	**3,422.2182**	**1.1068**		**3,449.8885**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5900e-003	0.0537	0.0125	1.5000e-004	3.5700e-003	1.7000e-004	3.7400e-003	9.8000e-004	1.6000e-004	1.1400e-003		16.7514	16.7514	1.2500e-003		16.7825
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2719	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		83.0521	83.0521	2.2300e-003		83.1079
Total	**0.0385**	**0.0777**	**0.2844**	**9.8000e-004**	**0.0930**	**8.3000e-004**	**0.0938**	**0.0247**	**7.7000e-004**	**0.0255**		**99.8035**	**99.8035**	**3.4800e-003**		**99.8905**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.2 Well Sites - Site Prep - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	3.5054	36.0044	16.2437	0.0353		1.7171	1.7171		1.5801	1.5801	0.0000	3,422.2182	3,422.2182	1.1068		3,449.8885
Total	**3.5054**	**36.0044**	**16.2437**	**0.0353**	**7.7233**	**1.7171**	**9.4404**	**4.2454**	**1.5801**	**5.8254**	**0.0000**	**3,422.2182**	**3,422.2182**	**1.1068**		**3,449.8885**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5900e-003	0.0537	0.0125	1.5000e-004	3.5700e-003	1.7000e-004	3.7400e-003	9.8000e-004	1.6000e-004	1.1400e-003		16.7514	16.7514	1.2500e-003		16.7825
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2719	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		83.0521	83.0521	2.2300e-003		83.1079
Total	**0.0385**	**0.0777**	**0.2844**	**9.8000e-004**	**0.0930**	**8.3000e-004**	**0.0938**	**0.0247**	**7.7000e-004**	**0.0255**		**99.8035**	**99.8035**	**3.4800e-003**		**99.8905**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.3 Treatment Plants - Site Prep - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.7808	38.7572	17.0768	0.0386		1.8539	1.8539		1.7056	1.7056		3,741.8489	3,741.8489	1.2102		3,772.1037
Total	**3.7808**	**38.7572**	**17.0768**	**0.0386**	**18.0663**	**1.8539**	**19.9202**	**9.9307**	**1.7056**	**11.6363**		**3,741.8489**	**3,741.8489**	**1.2102**		**3,772.1037**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2719	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		83.0521	83.0521	2.2300e-003		83.1079
Total	**0.0369**	**0.0240**	**0.2719**	**8.3000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**83.0521**	**83.0521**	**2.2300e-003**		**83.1079**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.3 Treatment Plants - Site Prep - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	3.6569	37.3203	17.1447	0.0386		1.7654	1.7654		1.6245	1.6245	0.0000	3,741.8489	3,741.8489	1.2102		3,772.1037
Total	**3.6569**	**37.3203**	**17.1447**	**0.0386**	**7.7233**	**1.7654**	**9.4887**	**4.2454**	**1.6245**	**5.8698**	**0.0000**	**3,741.8489**	**3,741.8489**	**1.2102**		**3,772.1037**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2719	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		83.0521	83.0521	2.2300e-003		83.1079
Total	**0.0369**	**0.0240**	**0.2719**	**8.3000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**83.0521**	**83.0521**	**2.2300e-003**		**83.1079**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.4 Pipeline - Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8678	24.7361	24.9882	0.0473		1.2615	1.2615		1.2058	1.2058		4,498.2016	4,498.2016	0.9624		4,522.2620
Total	**2.8678**	**24.7361**	**24.9882**	**0.0473**		**1.2615**	**1.2615**		**1.2058**	**1.2058**		**4,498.2016**	**4,498.2016**	**0.9624**		**4,522.2620**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0503	1.6929	0.3936	4.8600e-003	0.1682	5.2900e-003	0.1735	0.0445	5.0600e-003	0.0496		528.1894	528.1894	0.0393		529.1717
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1384	0.0899	1.0196	3.1300e-003	0.3353	2.4800e-003	0.3378	0.0889	2.2900e-003	0.0912		311.4454	311.4454	8.3800e-003		311.6548
Total	**0.1886**	**1.7828**	**1.4132**	**7.9900e-003**	**0.5035**	**7.7700e-003**	**0.5113**	**0.1334**	**7.3500e-003**	**0.1408**		**839.6347**	**839.6347**	**0.0477**		**840.8264**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.4 Pipeline - Trenching - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3362	12.1400	26.0637	0.0473		0.4171	0.4171		0.3890	0.3890	0.0000	4,498.2016	4,498.2016	0.9624		4,522.2620
Total	**1.3362**	**12.1400**	**26.0637**	**0.0473**		**0.4171**	**0.4171**		**0.3890**	**0.3890**	**0.0000**	**4,498.2016**	**4,498.2016**	**0.9624**		**4,522.2620**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0503	1.6929	0.3936	4.8600e-003	0.1682	5.2900e-003	0.1735	0.0445	5.0600e-003	0.0496		528.1894	528.1894	0.0393		529.1717
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1384	0.0899	1.0196	3.1300e-003	0.3353	2.4800e-003	0.3378	0.0889	2.2900e-003	0.0912		311.4454	311.4454	8.3800e-003		311.6548
Total	**0.1886**	**1.7828**	**1.4132**	**7.9900e-003**	**0.5035**	**7.7700e-003**	**0.5113**	**0.1334**	**7.3500e-003**	**0.1408**		**839.6347**	**839.6347**	**0.0477**		**840.8264**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.4 Pipeline - Trenching - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5839	21.6011	24.6302	0.0473		1.0564	1.0564		1.0115	1.0115		4,499.1169	4,499.1169	0.9552		4,522.9975
Total	**2.5839**	**21.6011**	**24.6302**	**0.0473**		**1.0564**	**1.0564**		**1.0115**	**1.0115**		**4,499.1169**	**4,499.1169**	**0.9552**		**4,522.9975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0478	1.5655	0.3885	4.8000e-003	0.2435	4.5800e-003	0.2481	0.0630	4.3800e-003	0.0674		521.8183	521.8183	0.0386		522.7838
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1301	0.0812	0.9412	3.0100e-003	0.3353	2.4100e-003	0.3377	0.0889	2.2200e-003	0.0912		300.2937	300.2937	7.5700e-003		300.4828
Total	**0.1779**	**1.6467**	**1.3297**	**7.8100e-003**	**0.5789**	**6.9900e-003**	**0.5858**	**0.1519**	**6.6000e-003**	**0.1585**		**822.1120**	**822.1120**	**0.0462**		**823.2666**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.4 Pipeline - Trenching - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2323	10.5316	25.8161	0.0473		0.3506	0.3506		0.3279	0.3279	0.0000	4,499.1169	4,499.1169	0.9552		4,522.9975
Total	**1.2323**	**10.5316**	**25.8161**	**0.0473**		**0.3506**	**0.3506**		**0.3279**	**0.3279**	**0.0000**	**4,499.1169**	**4,499.1169**	**0.9552**		**4,522.9975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0478	1.5655	0.3885	4.8000e-003	0.2435	4.5800e-003	0.2481	0.0630	4.3800e-003	0.0674		521.8183	521.8183	0.0386		522.7838
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1301	0.0812	0.9412	3.0100e-003	0.3353	2.4100e-003	0.3377	0.0889	2.2200e-003	0.0912		300.2937	300.2937	7.5700e-003		300.4828
Total	**0.1779**	**1.6467**	**1.3297**	**7.8100e-003**	**0.5789**	**6.9900e-003**	**0.5858**	**0.1519**	**6.6000e-003**	**0.1585**		**822.1120**	**822.1120**	**0.0462**		**823.2666**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.5 Treatment Plants - Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.5024	48.7277	31.5528	0.0694		2.0291	2.0291		1.8676	1.8676		6,702.9229	6,702.9229	2.1595		6,756.9114
Total	**4.5024**	**48.7277**	**31.5528**	**0.0694**	**8.6733**	**2.0291**	**10.7024**	**3.5965**	**1.8676**	**5.4641**		**6,702.9229**	**6,702.9229**	**2.1595**		**6,756.9114**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0672	2.2627	0.5260	6.5000e-003	0.1506	7.0700e-003	0.1576	0.0413	6.7700e-003	0.0480		705.9970	705.9970	0.0525		707.3100
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0461	0.0300	0.3399	1.0400e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.8151	103.8151	2.7900e-003		103.8849
Total	**0.1133**	**2.2927**	**0.8659**	**7.5400e-003**	**0.2624**	**7.9000e-003**	**0.2702**	**0.0709**	**7.5300e-003**	**0.0784**		**809.8121**	**809.8121**	**0.0553**		**811.1949**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.5 Treatment Plants - Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	4.3344	47.0146	31.3894	0.0694		1.9298	1.9298		1.7757	1.7757	0.0000	6,702.9228	6,702.9228	2.1595		6,756.9114
Total	**4.3344**	**47.0146**	**31.3894**	**0.0694**	**3.7079**	**1.9298**	**5.6376**	**1.5375**	**1.7757**	**3.3132**	**0.0000**	**6,702.9228**	**6,702.9228**	**2.1595**		**6,756.9114**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0672	2.2627	0.5260	6.5000e-003	0.1506	7.0700e-003	0.1576	0.0413	6.7700e-003	0.0480		705.9970	705.9970	0.0525		707.3100
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0461	0.0300	0.3399	1.0400e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.8151	103.8151	2.7900e-003		103.8849
Total	**0.1133**	**2.2927**	**0.8659**	**7.5400e-003**	**0.2624**	**7.9000e-003**	**0.2702**	**0.0709**	**7.5300e-003**	**0.0784**		**809.8121**	**809.8121**	**0.0553**		**811.1949**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.6 Treatment Plants - Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9678	26.7119	25.8916	0.0455		1.4549	1.4549		1.3754	1.3754		4,330.2877	4,330.2877	0.9951		4,355.1642
Total	**2.9678**	**26.7119**	**25.8916**	**0.0455**		**1.4549**	**1.4549**		**1.3754**	**1.3754**		**4,330.2877**	**4,330.2877**	**0.9951**		**4,355.1642**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.9600e-003	0.0955	0.0259	2.5000e-004	6.4000e-003	2.0000e-004	6.6000e-003	1.8400e-003	1.9000e-004	2.0300e-003		26.3374	26.3374	1.7900e-003		26.3821
Worker	0.0692	0.0450	0.5098	1.5600e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		155.7227	155.7227	4.1900e-003		155.8274
Total	**0.0721**	**0.1405**	**0.5357**	**1.8100e-003**	**0.1741**	**1.4400e-003**	**0.1755**	**0.0463**	**1.3300e-003**	**0.0476**		**182.0601**	**182.0601**	**5.9800e-003**		**182.2095**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.6 Treatment Plants - Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4230	13.3655	26.2148	0.0455		0.5861	0.5861		0.5422	0.5422	0.0000	4,330.2877	4,330.2877	0.9951		4,355.1642
Total	**1.4230**	**13.3655**	**26.2148**	**0.0455**		**0.5861**	**0.5861**		**0.5422**	**0.5422**	**0.0000**	**4,330.2877**	**4,330.2877**	**0.9951**		**4,355.1642**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.9600e-003	0.0955	0.0259	2.5000e-004	6.4000e-003	2.0000e-004	6.6000e-003	1.8400e-003	1.9000e-004	2.0300e-003		26.3374	26.3374	1.7900e-003		26.3821
Worker	0.0692	0.0450	0.5098	1.5600e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		155.7227	155.7227	4.1900e-003		155.8274
Total	**0.0721**	**0.1405**	**0.5357**	**1.8100e-003**	**0.1741**	**1.4400e-003**	**0.1755**	**0.0463**	**1.3300e-003**	**0.0476**		**182.0601**	**182.0601**	**5.9800e-003**		**182.2095**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.6 Treatment Plants - Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6790	23.7590	25.5329	0.0455		1.2318	1.2318		1.1656	1.1656		4,331.0346	4,331.0346	0.9888		4,355.7553
Total	**2.6790**	**23.7590**	**25.5329**	**0.0455**		**1.2318**	**1.2318**		**1.1656**	**1.1656**		**4,331.0346**	**4,331.0346**	**0.9888**		**4,355.7553**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7700e-003	0.0907	0.0245	2.4000e-004	6.4000e-003	1.8000e-004	6.5700e-003	1.8400e-003	1.7000e-004	2.0100e-003		26.1022	26.1022	1.7300e-003		26.1454
Worker	0.0651	0.0406	0.4706	1.5100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		150.1468	150.1468	3.7800e-003		150.2414
Total	**0.0678**	**0.1313**	**0.4951**	**1.7500e-003**	**0.1741**	**1.3900e-003**	**0.1754**	**0.0463**	**1.2800e-003**	**0.0476**		**176.2490**	**176.2490**	**5.5100e-003**		**176.3868**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.6 Treatment Plants - Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3027	11.7233	25.9726	0.0455		0.4983	0.4983		0.4615	0.4615	0.0000	4,331.0346	4,331.0346	0.9888		4,355.7553
Total	**1.3027**	**11.7233**	**25.9726**	**0.0455**		**0.4983**	**0.4983**		**0.4615**	**0.4615**	**0.0000**	**4,331.0346**	**4,331.0346**	**0.9888**		**4,355.7553**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7700e-003	0.0907	0.0245	2.4000e-004	6.4000e-003	1.8000e-004	6.5700e-003	1.8400e-003	1.7000e-004	2.0100e-003		26.1022	26.1022	1.7300e-003		26.1454
Worker	0.0651	0.0406	0.4706	1.5100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		150.1468	150.1468	3.7800e-003		150.2414
Total	**0.0678**	**0.1313**	**0.4951**	**1.7500e-003**	**0.1741**	**1.3900e-003**	**0.1754**	**0.0463**	**1.2800e-003**	**0.0476**		**176.2490**	**176.2490**	**5.5100e-003**		**176.3868**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.7 Treatment Plants - Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7899	6.5332	6.3833	0.0145		0.3164	0.3164		0.3087	0.3087		1,387.9855	1,387.9855	0.2499		1,394.2332
Total	**3.0724**	**6.5332**	**6.3833**	**0.0145**		**0.3164**	**0.3164**		**0.3087**	**0.3087**		**1,387.9855**	**1,387.9855**	**0.2499**		**1,394.2332**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0185	0.0120	0.1360	4.2000e-004	0.0447	3.3000e-004	0.0450	0.0119	3.0000e-004	0.0122		41.5261	41.5261	1.1200e-003		41.5540
Total	**0.0185**	**0.0120**	**0.1360**	**4.2000e-004**	**0.0447**	**3.3000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**41.5261**	**41.5261**	**1.1200e-003**		**41.5540**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.7 Treatment Plants - Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3820	2.9742	6.6769	0.0145		0.1071	0.1071		0.0994	0.0994	0.0000	1,387.9855	1,387.9855	0.2499		1,394.2332
Total	**2.6645**	**2.9742**	**6.6769**	**0.0145**		**0.1071**	**0.1071**		**0.0994**	**0.0994**	**0.0000**	**1,387.9855**	**1,387.9855**	**0.2499**		**1,394.2332**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0185	0.0120	0.1360	4.2000e-004	0.0447	3.3000e-004	0.0450	0.0119	3.0000e-004	0.0122		41.5261	41.5261	1.1200e-003		41.5540
Total	**0.0185**	**0.0120**	**0.1360**	**4.2000e-004**	**0.0447**	**3.3000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**41.5261**	**41.5261**	**1.1200e-003**		**41.5540**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.7 Treatment Plants - Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7162	5.6115	6.2499	0.0145		0.2649	0.2649		0.2590	0.2590		1,388.2166	1,388.2166	0.2474		1,394.4004
Total	**2.9987**	**5.6115**	**6.2499**	**0.0145**		**0.2649**	**0.2649**		**0.2590**	**0.2590**		**1,388.2166**	**1,388.2166**	**0.2474**		**1,394.4004**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0174	0.0108	0.1255	4.0000e-004	0.0447	3.2000e-004	0.0450	0.0119	3.0000e-004	0.0122		40.0392	40.0392	1.0100e-003		40.0644
Total	**0.0174**	**0.0108**	**0.1255**	**4.0000e-004**	**0.0447**	**3.2000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**40.0392**	**40.0392**	**1.0100e-003**		**40.0644**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.7 Treatment Plants - Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.2825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3433	2.3494	6.5541	0.0145		0.0835	0.0835		0.0777	0.0777	0.0000	1,388.2166	1,388.2166	0.2474		1,394.4004
Total	**2.6258**	**2.3494**	**6.5541**	**0.0145**		**0.0835**	**0.0835**		**0.0777**	**0.0777**	**0.0000**	**1,388.2166**	**1,388.2166**	**0.2474**		**1,394.4004**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0174	0.0108	0.1255	4.0000e-004	0.0447	3.2000e-004	0.0450	0.0119	3.0000e-004	0.0122		40.0392	40.0392	1.0100e-003		40.0644
Total	**0.0174**	**0.0108**	**0.1255**	**4.0000e-004**	**0.0447**	**3.2000e-004**	**0.0450**	**0.0119**	**3.0000e-004**	**0.0122**		**40.0392**	**40.0392**	**1.0100e-003**		**40.0644**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.8 Well Sites - Well Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	8.9793	85.0015	71.8040	0.1718		3.6630	3.6630		3.4555	3.4555		16,461.8866	16,461.8866	4.2423		16,567.9430
Total	**8.9793**	**85.0015**	**71.8040**	**0.1718**	**8.6733**	**3.6630**	**12.3363**	**3.5965**	**3.4555**	**7.0520**		**16,461.8866**	**16,461.8866**	**4.2423**		**16,567.9430**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.6800e-003	0.2514	0.0624	7.7000e-004	0.0729	7.3000e-004	0.0736	0.0184	7.0000e-004	0.0191		83.7974	83.7974	6.2000e-003		83.9524
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0824	0.0514	0.5961	1.9100e-003	0.9509	1.5300e-003	0.9524	0.2376	1.4100e-003	0.2390		190.1860	190.1860	4.7900e-003		190.3058
Total	**0.0901**	**0.3028**	**0.6585**	**2.6800e-003**	**1.0238**	**2.2600e-003**	**1.0260**	**0.2560**	**2.1100e-003**	**0.2581**		**273.9834**	**273.9834**	**0.0110**		**274.2582**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.8 Well Sites - Well Drilling - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	6.4821	65.6357	73.1717	0.1718		2.5100	2.5100		2.3145	2.3145	0.0000	16,461.8866	16,461.8866	4.2423		16,567.9430
Total	**6.4821**	**65.6357**	**73.1717**	**0.1718**	**3.7079**	**2.5100**	**6.2179**	**1.5375**	**2.3145**	**3.8520**	**0.0000**	**16,461.8866**	**16,461.8866**	**4.2423**		**16,567.9430**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.6800e-003	0.2514	0.0624	7.7000e-004	0.0729	7.3000e-004	0.0736	0.0184	7.0000e-004	0.0191		83.7974	83.7974	6.2000e-003		83.9524
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0824	0.0514	0.5961	1.9100e-003	0.9509	1.5300e-003	0.9524	0.2376	1.4100e-003	0.2390		190.1860	190.1860	4.7900e-003		190.3058
Total	**0.0901**	**0.3028**	**0.6585**	**2.6800e-003**	**1.0238**	**2.2600e-003**	**1.0260**	**0.2560**	**2.1100e-003**	**0.2581**		**273.9834**	**273.9834**	**0.0110**		**274.2582**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.9 Well Sites - Pump installation/construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4389	21.2576	22.6553	0.0415		1.0805	1.0805		1.0268	1.0268		3,942.5502	3,942.5502	0.8609		3,964.0737
Total	**2.4389**	**21.2576**	**22.6553**	**0.0415**		**1.0805**	**1.0805**		**1.0268**	**1.0268**		**3,942.5502**	**3,942.5502**	**0.8609**		**3,964.0737**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.2600e-003	0.0412	0.0102	1.3000e-004	3.7000e-003	1.2000e-004	3.8200e-003	9.9000e-004	1.2000e-004	1.1100e-003		13.7391	13.7391	1.0200e-003		13.7645
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0477	0.0298	0.3451	1.1000e-003	0.1230	8.8000e-004	0.1238	0.0326	8.1000e-004	0.0334		110.1077	110.1077	2.7700e-003		110.1770
Total	**0.0490**	**0.0710**	**0.3553**	**1.2300e-003**	**0.1267**	**1.0000e-003**	**0.1277**	**0.0336**	**9.3000e-004**	**0.0345**		**123.8467**	**123.8467**	**3.7900e-003**		**123.9415**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.9 Well Sites - Pump installation/construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0630	9.3808	23.3434	0.0415		0.3565	0.3565		0.3311	0.3311	0.0000	3,942.5502	3,942.5502	0.8609		3,964.0737
Total	**1.0630**	**9.3808**	**23.3434**	**0.0415**		**0.3565**	**0.3565**		**0.3311**	**0.3311**	**0.0000**	**3,942.5502**	**3,942.5502**	**0.8609**		**3,964.0737**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.2600e-003	0.0412	0.0102	1.3000e-004	3.7000e-003	1.2000e-004	3.8200e-003	9.9000e-004	1.2000e-004	1.1100e-003		13.7391	13.7391	1.0200e-003		13.7645
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0477	0.0298	0.3451	1.1000e-003	0.1230	8.8000e-004	0.1238	0.0326	8.1000e-004	0.0334		110.1077	110.1077	2.7700e-003		110.1770
Total	**0.0490**	**0.0710**	**0.3553**	**1.2300e-003**	**0.1267**	**1.0000e-003**	**0.1277**	**0.0336**	**9.3000e-004**	**0.0345**		**123.8467**	**123.8467**	**3.7900e-003**		**123.9415**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.9 Well Sites - Pump installation/construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2622	19.5365	22.4933	0.0415		0.9362	0.9362		0.8897	0.8897		3,943.8782	3,943.8782	0.8530		3,965.2040
Total	**2.2622**	**19.5365**	**22.4933**	**0.0415**		**0.9362**	**0.9362**		**0.8897**	**0.8897**		**3,943.8782**	**3,943.8782**	**0.8530**		**3,965.2040**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.3000e-004	0.0264	9.1800e-003	1.2000e-004	9.8700e-003	5.0000e-005	9.9200e-003	2.5100e-003	5.0000e-005	2.5600e-003		13.1772	13.1772	9.4000e-004		13.2007
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0450	0.0269	0.3181	1.0600e-003	0.1230	8.6000e-004	0.1238	0.0326	7.9000e-004	0.0334		106.0062	106.0062	2.5000e-003		106.0687
Total	**0.0458**	**0.0534**	**0.3273**	**1.1800e-003**	**0.1328**	**9.1000e-004**	**0.1337**	**0.0351**	**8.4000e-004**	**0.0360**		**119.1833**	**119.1833**	**3.4400e-003**		**119.2693**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.9 Well Sites - Pump installation/construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0176	8.7014	23.2479	0.0415		0.3212	0.3212		0.2986	0.2986	0.0000	3,943.8782	3,943.8782	0.8530		3,965.2040
Total	**1.0176**	**8.7014**	**23.2479**	**0.0415**		**0.3212**	**0.3212**		**0.2986**	**0.2986**	**0.0000**	**3,943.8782**	**3,943.8782**	**0.8530**		**3,965.2040**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.3000e-004	0.0264	9.1800e-003	1.2000e-004	9.8700e-003	5.0000e-005	9.9200e-003	2.5100e-003	5.0000e-005	2.5600e-003		13.1772	13.1772	9.4000e-004		13.2007
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0450	0.0269	0.3181	1.0600e-003	0.1230	8.6000e-004	0.1238	0.0326	7.9000e-004	0.0334		106.0062	106.0062	2.5000e-003		106.0687
Total	**0.0458**	**0.0534**	**0.3273**	**1.1800e-003**	**0.1328**	**9.1000e-004**	**0.1337**	**0.0351**	**8.4000e-004**	**0.0360**		**119.1833**	**119.1833**	**3.4400e-003**		**119.2693**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.10 Treatment Plants - Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4258	13.4999	16.5683	0.0301		0.6552	0.6552		0.6039	0.6039		2,897.6693	2,897.6693	0.9261		2,920.8211
Paving	0.3474					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7732**	**13.4999**	**16.5683**	**0.0301**		**0.6552**	**0.6552**		**0.6039**	**0.6039**		**2,897.6693**	**2,897.6693**	**0.9261**		**2,920.8211**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0217	0.0135	0.1569	5.0000e-004	0.2017	4.0000e-004	0.2021	0.0506	3.7000e-004	0.0510		50.0489	50.0489	1.2600e-003		50.0805
Total	**0.0217**	**0.0135**	**0.1569**	**5.0000e-004**	**0.2017**	**4.0000e-004**	**0.2021**	**0.0506**	**3.7000e-004**	**0.0510**		**50.0489**	**50.0489**	**1.2600e-003**		**50.0805**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

3.10 Treatment Plants - Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5447	3.2222	18.9750	0.0301		0.1104	0.1104		0.1045	0.1045	0.0000	2,897.6693	2,897.6693	0.9261		2,920.8210
Paving	0.3474					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8921**	**3.2222**	**18.9750**	**0.0301**		**0.1104**	**0.1104**		**0.1045**	**0.1045**	**0.0000**	**2,897.6693**	**2,897.6693**	**0.9261**		**2,920.8210**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0217	0.0135	0.1569	5.0000e-004	0.2017	4.0000e-004	0.2021	0.0506	3.7000e-004	0.0510		50.0489	50.0489	1.2600e-003		50.0805
Total	**0.0217**	**0.0135**	**0.1569**	**5.0000e-004**	**0.2017**	**4.0000e-004**	**0.2021**	**0.0506**	**3.7000e-004**	**0.0510**		**50.0489**	**50.0489**	**1.2600e-003**		**50.0805**

4.0 Operational Detail - Mobile

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5172	9.3222	6.2998	0.0679	3.1183	0.0481	3.1664	0.8800	0.0458	0.9258		7,128.1908	7,128.1908	0.2295		7,133.9292
Unmitigated	0.5172	9.3222	6.2998	0.0679	3.1183	0.0481	3.1664	0.8800	0.0458	0.9258		7,128.1908	7,128.1908	0.2295		7,133.9292

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	35.95	0.00	0.00	110,051	110,051
Refrigerated Warehouse-No Rail	20.00	0.00	0.00	206,001	206,001
Refrigerated Warehouse-No Rail	60.00	0.00	0.00	618,003	618,003
Total	115.95	0.00	0.00	934,056	934,056

4.3 Trip Type Information

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Refrigerated Warehouse-No	72.00	0.00	0.00	59.00	0.00	41.00	92	5	3
Refrigerated Warehouse-No	72.00	0.00	0.00	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000
Refrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Unmitigated	2.1627	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2681					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.8858					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.8100e-003	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Total	**2.1627**	**8.7000e-004**	**0.0951**	**1.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**		**0.2040**	**0.2040**	**5.3000e-004**		**0.2173**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2681					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.8858					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.8100e-003	8.7000e-004	0.0951	1.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004		0.2040	0.2040	5.3000e-004		0.2173
Total	**2.1627**	**8.7000e-004**	**0.0951**	**1.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**		**0.2040**	**0.2040**	**5.3000e-004**		**0.2173**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Winter

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	6	0	24	115	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (100 - 175 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

11.0 Vegetation

Cactus Corridor Model Run with Tier 4 Engines

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	20.00	1000sqft	0.46	20,000.00	0
Refrigerated Warehouse-No Rail	60.00	1000sqft	1.38	60,000.00	0
Other Asphalt Surfaces	133.00	1000sqft	3.05	133,000.00	0
Other Non-Asphalt Surfaces	719.00	1000sqft	16.51	719,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	467.38	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Project Characteristics - Based on 2018 SCE information for Intensity Factor

Land Use - First Line is the larger of the two treatment site options
Second line includes all the area of the well sites
Third line is the pipeline.
Fourth is 6 well site well pads

Construction Phase - Based on Engineer estimates and CalEEMod Default Ratios

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Equipment included in Pipeline Construction phase because all work happens simultaneously

Off-road Equipment - Based on Engineering Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engeering Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on engineering estimates

Off-road Equipment - Based on Engineering Estimates

Off-road Equipment - Based on Engineering Estimates.
This phase lasts 24 hours a day to prevent borehold collapse. Thus, all normal 8hr/workday estimates have been multiplied by 3.

Trips and VMT - based on engineering estimates

Architectural Coating - No residential structures being built.
Parking lot is very small, based on project experience

Vehicle Trips - Based on Engineering estimates

Road Dust - Based on engineering estimates

Energy Use - Based on engineer estimates = 20,000 treatment plant 60,000 well sites = 80,000 sqft

Water And Wastewater - No additional water use needed

Solid Waste - Brine disposal is covered in VMT

Construction Off-road Equipment Mitigation - Based on standard mitigation required by SCAQMD

Fleet Mix - Based on Engineerng estimates

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generators for 6 well sites / treatment facility

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	51,120.00	3,000.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	13.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	132.00
tblConstructionPhase	NumDays	10.00	32.00
tblConstructionPhase	NumDays	35.00	29.00
tblConstructionPhase	NumDays	370.00	288.00
tblConstructionPhase	NumDays	20.00	331.00
tblConstructionPhase	NumDays	35.00	84.00
tblConstructionPhase	NumDays	370.00	265.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblEnergyUse	NT24E	36.52	81.03
tblEnergyUse	NT24NG	48.51	0.00
tblEnergyUse	T24E	1.06	0.00
tblEnergyUse	T24NG	3.25	0.00
tblFleetMix	HHD	0.03	0.20
tblFleetMix	HHD	0.03	0.20
tblFleetMix	HHD	0.03	0.20
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD1	0.02	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	LHD2	5.8470e-003	0.20
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MCY	4.8220e-003	0.00
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MDV	0.12	0.20
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MH	8.6900e-004	0.00
tblFleetMix	MHD	0.02	0.20
tblFleetMix	MHD	0.02	0.20
tblFleetMix	MHD	0.02	0.20
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	OBUS	2.1100e-003	0.00
tblFleetMix	OBUS	2.1100e-003	0.00

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	SBUS	7.1000e-004	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblFleetMix	UBUS	1.7690e-003	0.00
tblOffRoadEquipment	HorsePower	158.00	97.00
tblOffRoadEquipment	HorsePower	402.00	97.00
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	467.38
tblRoadDust	MeanVehicleSpeed	40	15
tblSolidWaste	SolidWasteGenerationRate	75.20	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	115.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	24.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	6.00
tblTripsAndVMT	HaulingTripNumber	0.00	27.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,406.00
tblTripsAndVMT	HaulingTripNumber	0.00	250.00
tblTripsAndVMT	HaulingTripNumber	0.00	87.00

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

tblTripsAndVMT	HaulingTripNumber	0.00	45.00
tblTripsAndVMT	VendorTripNumber	153.00	1.00
tblTripsAndVMT	VendorTripNumber	153.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	38.00	30.00
tblTripsAndVMT	WorkerTripNumber	25.00	10.00
tblTripsAndVMT	WorkerTripNumber	391.00	15.00
tblTripsAndVMT	WorkerTripNumber	78.00	4.00
tblTripsAndVMT	WorkerTripNumber	38.00	19.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblTripsAndVMT	WorkerTripNumber	391.00	11.00
tblTripsAndVMT	WorkerTripNumber	20.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	0.00	41.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	72.00
tblVehicleTrips	CW_TTP	0.00	59.00

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

tblVehicleTrips	DV_TP	0.00	5.00
tblVehicleTrips	PB_TP	0.00	3.00
tblVehicleTrips	PR_TP	0.00	92.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	0.00	0.05
tblVehicleTrips	WD_TR	1.68	1.00
tblWater	IndoorWaterUseRate	18,500,000.00	0.00

2.0 Emissions Summary

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.7878	6.7756	4.7480	0.0100	1.6586	0.3252	1.9838	0.8801	0.3041	1.1842	0.0000	877.1288	877.1288	0.2140	0.0000	882.4778
2022	1.4568	10.1959	10.3097	0.0214	0.4698	0.4836	0.9534	0.1783	0.4590	0.6374	0.0000	1,858.0485	1,858.0485	0.4164	0.0000	1,868.4581
2023	0.0749	0.6367	0.7420	1.3900e-003	4.2400e-003	0.0305	0.0347	1.1200e-003	0.0289	0.0301	0.0000	119.8465	119.8465	0.0253	0.0000	120.4778
Maximum	**1.4568**	**10.1959**	**10.3097**	**0.0214**	**1.6586**	**0.4836**	**1.9838**	**0.8801**	**0.4590**	**1.1842**	**0.0000**	**1,858.0485**	**1,858.0485**	**0.4164**	**0.0000**	**1,868.4581**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.6048	5.2014	4.8441	0.0100	0.7385	0.2224	0.9609	0.3841	0.2052	0.5893	0.0000	877.1278	877.1278	0.2140	0.0000	882.4768
2022	0.9483	5.8707	10.6019	0.0214	0.2612	0.2230	0.4843	0.0919	0.2064	0.2983	0.0000	1,858.0464	1,858.0464	0.4164	0.0000	1,868.4559
2023	0.0344	0.2846	0.7665	1.3900e-003	4.2400e-003	0.0105	0.0147	1.1200e-003	9.7300e-003	0.0109	0.0000	119.8463	119.8463	0.0253	0.0000	120.4776
Maximum	**0.9483**	**5.8707**	**10.6019**	**0.0214**	**0.7385**	**0.2230**	**0.9609**	**0.3841**	**0.2064**	**0.5893**	**0.0000**	**1,858.0464**	**1,858.0464**	**0.4164**	**0.0000**	**1,868.4559**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**31.56**	**35.50**	**-2.61**	**0.00**	**52.92**	**45.67**	**50.88**	**54.98**	**46.80**	**51.48**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2021**	**9-30-2021**	3.8660	3.2526
2	**10-1-2021**	**12-31-2021**	3.6238	2.4887
3	**1-1-2022**	**3-31-2022**	5.9676	4.0832
4	**4-1-2022**	**6-30-2022**	2.2167	1.0900
5	**7-1-2022**	**9-30-2022**	1.9409	0.9454
6	**10-1-2022**	**12-31-2022**	1.5372	0.7068
7	**1-1-2023**	**3-31-2023**	0.7039	0.3156
		Highest	5.9676	4.0832

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3942	1.1000e-004	0.0119	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0231	0.0231	6.0000e-005	0.0000	0.0247
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1,414.4640	1,414.4640	0.0878	0.0182	1,422.0693
Mobile	0.0667	1.2310	0.8213	8.8600e-003	0.3988	6.2300e-003	0.4051	0.1128	5.9300e-003	0.1187	0.0000	843.2514	843.2514	0.0268	0.0000	843.9220
Stationary	0.0136	0.0380	0.0493	7.0000e-005		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	6.3060	6.3060	8.8000e-004	0.0000	6.3281
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4745**	**1.2691**	**0.8825**	**8.9300e-003**	**0.3988**	**8.2700e-003**	**0.4071**	**0.1128**	**7.9700e-003**	**0.1208**	**0.0000**	**2,264.0445**	**2,264.0445**	**0.1155**	**0.0182**	**2,272.3441**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3942	1.1000e-004	0.0119	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0231	0.0231	6.0000e-005	0.0000	0.0247
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1,414.4640	1,414.4640	0.0878	0.0182	1,422.0693
Mobile	0.0667	1.2310	0.8213	8.8600e-003	0.3988	6.2300e-003	0.4051	0.1128	5.9300e-003	0.1187	0.0000	843.2514	843.2514	0.0268	0.0000	843.9220
Stationary	0.0136	0.0380	0.0493	7.0000e-005		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	6.3060	6.3060	8.8000e-004	0.0000	6.3281
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4745**	**1.2691**	**0.8825**	**8.9300e-003**	**0.3988**	**8.2700e-003**	**0.4071**	**0.1128**	**7.9700e-003**	**0.1208**	**0.0000**	**2,264.0445**	**2,264.0445**	**0.1155**	**0.0182**	**2,272.3441**

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

3.0 Construction Detail

Construction Phase

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Well Sites - Site Prep	Site Preparation	7/1/2021	12/31/2021	5	132	
2	Treatment Plants - Site Prep	Site Preparation	7/1/2021	8/13/2021	5	32	
3	Pipeline - Trenching	Trenching	7/1/2021	5/2/2022	5	218	
4	Treatment Plants - Grading	Grading	8/16/2021	9/23/2021	5	29	
5	Treatment Plants - Building Construction	Building Construction	9/24/2021	11/1/2022	5	288	
6	Treatment Plants - Architectural Coating	Architectural Coating	9/24/2021	12/30/2022	5	331	
7	Well Sites - Well Drilling	Grading	1/3/2022	3/27/2022	7	84	
8	Well Sites - Pump installation/construction	Building Construction	3/28/2022	3/31/2023	5	265	
9	Treatment Plants - Paving	Paving	11/2/2022	12/2/2022	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 19.56

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 120,000; Non-Residential Outdoor: 40,000; Striped Parking Area: 3,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Well Sites - Site Prep	Off-Highway Trucks	1	2.00	97	0.37
Well Sites - Site Prep	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Site Prep	Rubber Tired Dozers	3	8.00	247	0.40
Well Sites - Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Treatment Plants - Site Prep	Off-Highway Trucks	1	2.00	402	0.38
Treatment Plants - Site Prep	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Site Prep	Rubber Tired Dozers	3	8.00	247	0.40

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Treatment Plants - Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipeline - Trenching	Air Compressors	1	6.00	78	0.48
Pipeline - Trenching	Concrete/Industrial Saws	1	6.00	81	0.73
Pipeline - Trenching	Cranes	1	4.00	231	0.29
Pipeline - Trenching	Dumpers/Tenders	2	6.00	16	0.38
Pipeline - Trenching	Excavators	1	6.00	158	0.38
Pipeline - Trenching	Generator Sets	1	6.00	84	0.74
Pipeline - Trenching	Off-Highway Trucks	1	2.00	402	0.38
Pipeline - Trenching	Off-Highway Trucks	1	4.00	402	0.38
Pipeline - Trenching	Pavers	1	6.00	130	0.42
Pipeline - Trenching	Pumps	1	6.00	84	0.74
Pipeline - Trenching	Sweepers/Scrubbers	1	6.00	64	0.46
Pipeline - Trenching	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Pipeline - Trenching	Welders	1	6.00	46	0.45
Treatment Plants - Grading	Cement and Mortar Mixers	1	6.00	9	0.56
Treatment Plants - Grading	Excavators	2	8.00	158	0.38
Treatment Plants - Grading	Graders	1	8.00	187	0.41
Treatment Plants - Grading	Off-Highway Trucks	1	2.00	402	0.38
Treatment Plants - Grading	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Grading	Rubber Tired Dozers	1	8.00	247	0.40
Treatment Plants - Grading	Scrapers	2	8.00	367	0.48
Treatment Plants - Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Treatment Plants - Building Construction	Air Compressors	1	6.00	78	0.48
Treatment Plants - Building Construction	Cement and Mortar Mixers	1	6.00	9	0.56
Treatment Plants - Building Construction	Cranes	1	7.00	231	0.29
Treatment Plants - Building Construction	Excavators	2	6.00	97	0.37

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Treatment Plants - Building Construction	Forklifts	3	8.00	89	0.20
Treatment Plants - Building Construction	Forklifts	2	6.00	89	0.20
Treatment Plants - Building Construction	Generator Sets	1	8.00	84	0.74
Treatment Plants - Building Construction	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Building Construction	Pumps	1	6.00	84	0.74
Treatment Plants - Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Treatment Plants - Building Construction	Welders	1	6.00	46	0.45
Treatment Plants - Architectural Coating	Air Compressors	1	6.00	78	0.48
Treatment Plants - Architectural Coating	Generator Sets	1	6.00	84	0.74
Treatment Plants - Architectural Coating	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Well Drilling	Air Compressors	1	18.00	78	0.48
Well Sites - Well Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Well Sites - Well Drilling	Cranes	1	24.00	231	0.29
Well Sites - Well Drilling	Excavators	2	8.00	158	0.38
Well Sites - Well Drilling	Generator Sets	1	18.00	84	0.74
Well Sites - Well Drilling	Graders	1	8.00	187	0.41
Well Sites - Well Drilling	Off-Highway Trucks	1	12.00	402	0.38
Well Sites - Well Drilling	Pumps	1	18.00	84	0.74
Well Sites - Well Drilling	Rubber Tired Dozers	1	8.00	247	0.40
Well Sites - Well Drilling	Scrapers	2	8.00	367	0.48
Well Sites - Well Drilling	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Well Sites - Well Drilling	Welders	1	18.00	46	0.45
Well Sites - Pump installation/construction	Air Compressors	1	6.00	78	0.48
Well Sites - Pump installation/construction	Cranes	1	7.00	231	0.29

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Well Sites - Pump installation/construction	Forklifts	3	8.00	89	0.20
Well Sites - Pump installation/construction	Generator Sets	1	8.00	84	0.74
Well Sites - Pump installation/construction	Off-Highway Trucks	1	4.00	402	0.38
Well Sites - Pump installation/construction	Pumps	1	6.00	84	0.74
Well Sites - Pump installation/construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Well Sites - Pump installation/construction	Welders	1	8.00	46	0.45
Treatment Plants - Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Treatment Plants - Paving	Off-Highway Trucks	1	4.00	402	0.38
Treatment Plants - Paving	Pavers	2	8.00	130	0.42
Treatment Plants - Paving	Paving Equipment	2	8.00	132	0.36
Treatment Plants - Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Well Sites - Site Prep	6	8.00	0.00	27.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Site Prep	6	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline - Trenching	15	30.00	0.00	1,406.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Grading	10	10.00	0.00	250.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Building Construction	16	15.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Architectural Coating	3	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	19.00	0.00	87.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	15	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Pump installation/constructio	12	11.00	0.00	45.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Treatment Plants - Paving	8	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.2 Well Sites - Site Prep - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1924	0.0000	1.1924	0.6554	0.0000	0.6554	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2395	2.4711	1.0676	2.3300e-003		0.1192	0.1192		0.1096	0.1096	0.0000	204.9026	204.9026	0.0663	0.0000	206.5593
Total	**0.2395**	**2.4711**	**1.0676**	**2.3300e-003**	**1.1924**	**0.1192**	**1.3115**	**0.6554**	**0.1096**	**0.7651**	**0.0000**	**204.9026**	**204.9026**	**0.0663**	**0.0000**	**206.5593**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-004	3.6100e-003	8.0000e-004	1.0000e-005	2.3000e-004	1.0000e-005	2.4000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	1.0131	1.0131	7.0000e-005	0.0000	1.0150
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1900e-003	1.6300e-003	0.0184	6.0000e-005	5.7900e-003	4.0000e-005	5.8400e-003	1.5400e-003	4.0000e-005	1.5800e-003	0.0000	5.0511	5.0511	1.4000e-004	0.0000	5.0545
Total	**2.2900e-003**	**5.2400e-003**	**0.0192**	**7.0000e-005**	**6.0200e-003**	**5.0000e-005**	**6.0800e-003**	**1.6000e-003**	**5.0000e-005**	**1.6500e-003**	**0.0000**	**6.0643**	**6.0643**	**2.1000e-004**	**0.0000**	**6.0695**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.2 Well Sites - Site Prep - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5097	0.0000	0.5097	0.2802	0.0000	0.2802	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2314	2.3763	1.0721	2.3300e-003		0.1133	0.1133		0.1043	0.1043	0.0000	204.9023	204.9023	0.0663	0.0000	206.5591
Total	**0.2314**	**2.3763**	**1.0721**	**2.3300e-003**	**0.5097**	**0.1133**	**0.6231**	**0.2802**	**0.1043**	**0.3845**	**0.0000**	**204.9023**	**204.9023**	**0.0663**	**0.0000**	**206.5591**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-004	3.6100e-003	8.0000e-004	1.0000e-005	2.3000e-004	1.0000e-005	2.4000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	1.0131	1.0131	7.0000e-005	0.0000	1.0150
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1900e-003	1.6300e-003	0.0184	6.0000e-005	5.7900e-003	4.0000e-005	5.8400e-003	1.5400e-003	4.0000e-005	1.5800e-003	0.0000	5.0511	5.0511	1.4000e-004	0.0000	5.0545
Total	**2.2900e-003**	**5.2400e-003**	**0.0192**	**7.0000e-005**	**6.0200e-003**	**5.0000e-005**	**6.0800e-003**	**1.6000e-003**	**5.0000e-005**	**1.6500e-003**	**0.0000**	**6.0643**	**6.0643**	**2.1000e-004**	**0.0000**	**6.0695**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.3 Treatment Plants - Site Prep - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2891	0.0000	0.2891	0.1589	0.0000	0.1589	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0605	0.6201	0.2732	6.2000e-004		0.0297	0.0297		0.0273	0.0273	0.0000	54.3128	54.3128	0.0176	0.0000	54.7519
Total	**0.0605**	**0.6201**	**0.2732**	**6.2000e-004**	**0.2891**	**0.0297**	**0.3187**	**0.1589**	**0.0273**	**0.1862**	**0.0000**	**54.3128**	**54.3128**	**0.0176**	**0.0000**	**54.7519**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-004	3.9000e-004	4.4700e-003	1.0000e-005	1.4000e-003	1.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.2245	1.2245	3.0000e-005	0.0000	1.2253
Total	**5.3000e-004**	**3.9000e-004**	**4.4700e-003**	**1.0000e-005**	**1.4000e-003**	**1.0000e-005**	**1.4100e-003**	**3.7000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.2245**	**1.2245**	**3.0000e-005**	**0.0000**	**1.2253**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.3 Treatment Plants - Site Prep - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1236	0.0000	0.1236	0.0679	0.0000	0.0679	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0585	0.5971	0.2743	6.2000e-004		0.0283	0.0283		0.0260	0.0260	0.0000	54.3127	54.3127	0.0176	0.0000	54.7519
Total	**0.0585**	**0.5971**	**0.2743**	**6.2000e-004**	**0.1236**	**0.0283**	**0.1518**	**0.0679**	**0.0260**	**0.0939**	**0.0000**	**54.3127**	**54.3127**	**0.0176**	**0.0000**	**54.7519**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-004	3.9000e-004	4.4700e-003	1.0000e-005	1.4000e-003	1.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.2245	1.2245	3.0000e-005	0.0000	1.2253
Total	**5.3000e-004**	**3.9000e-004**	**4.4700e-003**	**1.0000e-005**	**1.4000e-003**	**1.0000e-005**	**1.4100e-003**	**3.7000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.2245**	**1.2245**	**3.0000e-005**	**0.0000**	**1.2253**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.4 Pipeline - Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1893	1.6326	1.6492	3.1200e-003		0.0833	0.0833		0.0796	0.0796	0.0000	269.3262	269.3262	0.0576	0.0000	270.7668
Total	**0.1893**	**1.6326**	**1.6492**	**3.1200e-003**		**0.0833**	**0.0833**		**0.0796**	**0.0796**	**0.0000**	**269.3262**	**269.3262**	**0.0576**	**0.0000**	**270.7668**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2700e-003	0.1139	0.0251	3.2000e-004	0.0109	3.5000e-004	0.0113	2.8900e-003	3.3000e-004	3.2200e-003	0.0000	31.9454	31.9454	2.3000e-003	0.0000	32.0030
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2300e-003	6.1100e-003	0.0691	2.1000e-004	0.0217	1.6000e-004	0.0219	5.7700e-003	1.5000e-004	5.9200e-003	0.0000	18.9417	18.9417	5.1000e-004	0.0000	18.9545
Total	**0.0115**	**0.1200**	**0.0942**	**5.3000e-004**	**0.0326**	**5.1000e-004**	**0.0331**	**8.6600e-003**	**4.8000e-004**	**9.1400e-003**	**0.0000**	**50.8871**	**50.8871**	**2.8100e-003**	**0.0000**	**50.9574**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.4 Pipeline - Trenching - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0882	0.8012	1.7202	3.1200e-003		0.0275	0.0275		0.0257	0.0257	0.0000	269.3259	269.3259	0.0576	0.0000	270.7665
Total	**0.0882**	**0.8012**	**1.7202**	**3.1200e-003**		**0.0275**	**0.0275**		**0.0257**	**0.0257**	**0.0000**	**269.3259**	**269.3259**	**0.0576**	**0.0000**	**270.7665**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2700e-003	0.1139	0.0251	3.2000e-004	0.0109	3.5000e-004	0.0113	2.8900e-003	3.3000e-004	3.2200e-003	0.0000	31.9454	31.9454	2.3000e-003	0.0000	32.0030
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2300e-003	6.1100e-003	0.0691	2.1000e-004	0.0217	1.6000e-004	0.0219	5.7700e-003	1.5000e-004	5.9200e-003	0.0000	18.9417	18.9417	5.1000e-004	0.0000	18.9545
Total	**0.0115**	**0.1200**	**0.0942**	**5.3000e-004**	**0.0326**	**5.1000e-004**	**0.0331**	**8.6600e-003**	**4.8000e-004**	**9.1400e-003**	**0.0000**	**50.8871**	**50.8871**	**2.8100e-003**	**0.0000**	**50.9574**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.4 Pipeline - Trenching - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1111	0.9289	1.0591	2.0400e-003		0.0454	0.0454		0.0435	0.0435	0.0000	175.5058	175.5058	0.0373	0.0000	176.4374
Total	**0.1111**	**0.9289**	**1.0591**	**2.0400e-003**		**0.0454**	**0.0454**		**0.0435**	**0.0435**	**0.0000**	**175.5058**	**175.5058**	**0.0373**	**0.0000**	**176.4374**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0300e-003	0.0686	0.0162	2.1000e-004	0.0103	2.0000e-004	0.0105	2.6600e-003	1.9000e-004	2.8500e-003	0.0000	20.5636	20.5636	1.4800e-003	0.0000	20.6006
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0400e-003	3.5900e-003	0.0416	1.3000e-004	0.0142	1.0000e-004	0.0143	3.7600e-003	1.0000e-004	3.8500e-003	0.0000	11.8988	11.8988	3.0000e-004	0.0000	11.9063
Total	**7.0700e-003**	**0.0722**	**0.0577**	**3.4000e-004**	**0.0244**	**3.0000e-004**	**0.0247**	**6.4200e-003**	**2.9000e-004**	**6.7000e-003**	**0.0000**	**32.4624**	**32.4624**	**1.7800e-003**	**0.0000**	**32.5068**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.4 Pipeline - Trenching - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0530	0.4529	1.1101	2.0400e-003		0.0151	0.0151		0.0141	0.0141	0.0000	175.5056	175.5056	0.0373	0.0000	176.4372
Total	**0.0530**	**0.4529**	**1.1101**	**2.0400e-003**		**0.0151**	**0.0151**		**0.0141**	**0.0141**	**0.0000**	**175.5056**	**175.5056**	**0.0373**	**0.0000**	**176.4372**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0300e-003	0.0686	0.0162	2.1000e-004	0.0103	2.0000e-004	0.0105	2.6600e-003	1.9000e-004	2.8500e-003	0.0000	20.5636	20.5636	1.4800e-003	0.0000	20.6006
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0400e-003	3.5900e-003	0.0416	1.3000e-004	0.0142	1.0000e-004	0.0143	3.7600e-003	1.0000e-004	3.8500e-003	0.0000	11.8988	11.8988	3.0000e-004	0.0000	11.9063
Total	**7.0700e-003**	**0.0722**	**0.0577**	**3.4000e-004**	**0.0244**	**3.0000e-004**	**0.0247**	**6.4200e-003**	**2.9000e-004**	**6.7000e-003**	**0.0000**	**32.4624**	**32.4624**	**1.7800e-003**	**0.0000**	**32.5068**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.5 Treatment Plants - Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1258	0.0000	0.1258	0.0522	0.0000	0.0522	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0653	0.7066	0.4575	1.0100e-003		0.0294	0.0294		0.0271	0.0271	0.0000	88.1715	88.1715	0.0284	0.0000	88.8816
Total	**0.0653**	**0.7066**	**0.4575**	**1.0100e-003**	**0.1258**	**0.0294**	**0.1552**	**0.0522**	**0.0271**	**0.0792**	**0.0000**	**88.1715**	**88.1715**	**0.0284**	**0.0000**	**88.8816**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.6000e-004	0.0334	7.3600e-003	1.0000e-004	2.1500e-003	1.0000e-004	2.2500e-003	5.9000e-004	1.0000e-004	6.9000e-004	0.0000	9.3809	9.3809	6.8000e-004	0.0000	9.3978
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.5000e-004	5.0600e-003	2.0000e-005	1.5900e-003	1.0000e-005	1.6000e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3872	1.3872	4.0000e-005	0.0000	1.3881
Total	**1.5600e-003**	**0.0339**	**0.0124**	**1.2000e-004**	**3.7400e-003**	**1.1000e-004**	**3.8500e-003**	**1.0100e-003**	**1.1000e-004**	**1.1200e-003**	**0.0000**	**10.7681**	**10.7681**	**7.2000e-004**	**0.0000**	**10.7859**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.5 Treatment Plants - Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0538	0.0000	0.0538	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0629	0.6817	0.4552	1.0100e-003		0.0280	0.0280		0.0258	0.0258	0.0000	88.1713	88.1713	0.0284	0.0000	88.8815
Total	**0.0629**	**0.6817**	**0.4552**	**1.0100e-003**	**0.0538**	**0.0280**	**0.0817**	**0.0223**	**0.0258**	**0.0480**	**0.0000**	**88.1713**	**88.1713**	**0.0284**	**0.0000**	**88.8815**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.6000e-004	0.0334	7.3600e-003	1.0000e-004	2.1500e-003	1.0000e-004	2.2500e-003	5.9000e-004	1.0000e-004	6.9000e-004	0.0000	9.3809	9.3809	6.8000e-004	0.0000	9.3978
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.5000e-004	5.0600e-003	2.0000e-005	1.5900e-003	1.0000e-005	1.6000e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3872	1.3872	4.0000e-005	0.0000	1.3881
Total	**1.5600e-003**	**0.0339**	**0.0124**	**1.2000e-004**	**3.7400e-003**	**1.1000e-004**	**3.8500e-003**	**1.0100e-003**	**1.1000e-004**	**1.1200e-003**	**0.0000**	**10.7681**	**10.7681**	**7.2000e-004**	**0.0000**	**10.7859**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.6 Treatment Plants - Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1054	0.9483	0.9192	1.6100e-003		0.0517	0.0517		0.0488	0.0488	0.0000	139.4572	139.4572	0.0321	0.0000	140.2583
Total	**0.1054**	**0.9483**	**0.9192**	**1.6100e-003**		**0.0517**	**0.0517**		**0.0488**	**0.0488**	**0.0000**	**139.4572**	**139.4572**	**0.0321**	**0.0000**	**140.2583**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-004	3.4500e-003	8.7000e-004	1.0000e-005	2.2000e-004	1.0000e-005	2.3000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.8620	0.8620	6.0000e-005	0.0000	0.8634
Worker	2.2100e-003	1.6400e-003	0.0186	6.0000e-005	5.8400e-003	4.0000e-005	5.8900e-003	1.5500e-003	4.0000e-005	1.5900e-003	0.0000	5.0942	5.0942	1.4000e-004	0.0000	5.0976
Total	**2.3100e-003**	**5.0900e-003**	**0.0195**	**7.0000e-005**	**6.0600e-003**	**5.0000e-005**	**6.1200e-003**	**1.6100e-003**	**5.0000e-005**	**1.6600e-003**	**0.0000**	**5.9561**	**5.9561**	**2.0000e-004**	**0.0000**	**5.9610**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.6 Treatment Plants - Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0505	0.4745	0.9306	1.6100e-003		0.0208	0.0208		0.0193	0.0193	0.0000	139.4570	139.4570	0.0321	0.0000	140.2582
Total	**0.0505**	**0.4745**	**0.9306**	**1.6100e-003**		**0.0208**	**0.0208**		**0.0193**	**0.0193**	**0.0000**	**139.4570**	**139.4570**	**0.0321**	**0.0000**	**140.2582**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-004	3.4500e-003	8.7000e-004	1.0000e-005	2.2000e-004	1.0000e-005	2.3000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.8620	0.8620	6.0000e-005	0.0000	0.8634
Worker	2.2100e-003	1.6400e-003	0.0186	6.0000e-005	5.8400e-003	4.0000e-005	5.8900e-003	1.5500e-003	4.0000e-005	1.5900e-003	0.0000	5.0942	5.0942	1.4000e-004	0.0000	5.0976
Total	**2.3100e-003**	**5.0900e-003**	**0.0195**	**7.0000e-005**	**6.0600e-003**	**5.0000e-005**	**6.1200e-003**	**1.6100e-003**	**5.0000e-005**	**1.6600e-003**	**0.0000**	**5.9561**	**5.9561**	**2.0000e-004**	**0.0000**	**5.9610**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.6 Treatment Plants - Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2907	2.5779	2.7703	4.9400e-003		0.1337	0.1337		0.1265	0.1265	0.0000	426.3018	426.3018	0.0973	0.0000	428.7350
Total	**0.2907**	**2.5779**	**2.7703**	**4.9400e-003**		**0.1337**	**0.1337**		**0.1265**	**0.1265**	**0.0000**	**426.3018**	**426.3018**	**0.0973**	**0.0000**	**428.7350**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9000e-004	0.0100	2.5300e-003	3.0000e-005	6.8000e-004	2.0000e-005	7.0000e-004	2.0000e-004	2.0000e-005	2.2000e-004	0.0000	2.6112	2.6112	1.6000e-004	0.0000	2.6153
Worker	6.3500e-003	4.5300e-003	0.0525	1.7000e-004	0.0179	1.3000e-004	0.0180	4.7400e-003	1.2000e-004	4.8600e-003	0.0000	15.0118	15.0118	3.8000e-004	0.0000	15.0213
Total	**6.6400e-003**	**0.0145**	**0.0550**	**2.0000e-004**	**0.0185**	**1.5000e-004**	**0.0187**	**4.9400e-003**	**1.4000e-004**	**5.0800e-003**	**0.0000**	**17.6230**	**17.6230**	**5.4000e-004**	**0.0000**	**17.6366**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.6 Treatment Plants - Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1414	1.2720	2.8180	4.9400e-003		0.0541	0.0541		0.0501	0.0501	0.0000	426.3013	426.3013	0.0973	0.0000	428.7345
Total	**0.1414**	**1.2720**	**2.8180**	**4.9400e-003**		**0.0541**	**0.0541**		**0.0501**	**0.0501**	**0.0000**	**426.3013**	**426.3013**	**0.0973**	**0.0000**	**428.7345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9000e-004	0.0100	2.5300e-003	3.0000e-005	6.8000e-004	2.0000e-005	7.0000e-004	2.0000e-004	2.0000e-005	2.2000e-004	0.0000	2.6112	2.6112	1.6000e-004	0.0000	2.6153
Worker	6.3500e-003	4.5300e-003	0.0525	1.7000e-004	0.0179	1.3000e-004	0.0180	4.7400e-003	1.2000e-004	4.8600e-003	0.0000	15.0118	15.0118	3.8000e-004	0.0000	15.0213
Total	**6.6400e-003**	**0.0145**	**0.0550**	**2.0000e-004**	**0.0185**	**1.5000e-004**	**0.0187**	**4.9400e-003**	**1.4000e-004**	**5.0800e-003**	**0.0000**	**17.6230**	**17.6230**	**5.4000e-004**	**0.0000**	**17.6366**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.7 Treatment Plants - Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0810					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0280	0.2319	0.2266	5.2000e-004		0.0112	0.0112		0.0110	0.0110	0.0000	44.7002	44.7002	8.0500e-003	0.0000	44.9014
Total	**0.1091**	**0.2319**	**0.2266**	**5.2000e-004**		**0.0112**	**0.0112**		**0.0110**	**0.0110**	**0.0000**	**44.7002**	**44.7002**	**8.0500e-003**	**0.0000**	**44.9014**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9000e-004	4.4000e-004	4.9600e-003	2.0000e-005	1.5600e-003	1.0000e-005	1.5700e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3585	1.3585	4.0000e-005	0.0000	1.3594
Total	**5.9000e-004**	**4.4000e-004**	**4.9600e-003**	**2.0000e-005**	**1.5600e-003**	**1.0000e-005**	**1.5700e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.3585**	**1.3585**	**4.0000e-005**	**0.0000**	**1.3594**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.7 Treatment Plants - Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0810					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0136	0.1056	0.2370	5.2000e-004		3.8000e-003	3.8000e-003		3.5300e-003	3.5300e-003	0.0000	44.7001	44.7001	8.0500e-003	0.0000	44.9013
Total	**0.0946**	**0.1056**	**0.2370**	**5.2000e-004**		**3.8000e-003**	**3.8000e-003**		**3.5300e-003**	**3.5300e-003**	**0.0000**	**44.7001**	**44.7001**	**8.0500e-003**	**0.0000**	**44.9013**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9000e-004	4.4000e-004	4.9600e-003	2.0000e-005	1.5600e-003	1.0000e-005	1.5700e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3585	1.3585	4.0000e-005	0.0000	1.3594
Total	**5.9000e-004**	**4.4000e-004**	**4.9600e-003**	**2.0000e-005**	**1.5600e-003**	**1.0000e-005**	**1.5700e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.3585**	**1.3585**	**4.0000e-005**	**0.0000**	**1.3594**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.7 Treatment Plants - Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2967					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0931	0.7295	0.8125	1.8900e-003		0.0344	0.0344		0.0337	0.0337	0.0000	163.7180	163.7180	0.0292	0.0000	164.4472
Total	**0.3898**	**0.7295**	**0.8125**	**1.8900e-003**		**0.0344**	**0.0344**		**0.0337**	**0.0337**	**0.0000**	**163.7180**	**163.7180**	**0.0292**	**0.0000**	**164.4472**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0300e-003	1.4500e-003	0.0168	5.0000e-005	5.7100e-003	4.0000e-005	5.7500e-003	1.5200e-003	4.0000e-005	1.5500e-003	0.0000	4.7964	4.7964	1.2000e-004	0.0000	4.7994
Total	**2.0300e-003**	**1.4500e-003**	**0.0168**	**5.0000e-005**	**5.7100e-003**	**4.0000e-005**	**5.7500e-003**	**1.5200e-003**	**4.0000e-005**	**1.5500e-003**	**0.0000**	**4.7964**	**4.7964**	**1.2000e-004**	**0.0000**	**4.7994**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.7 Treatment Plants - Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2967					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0446	0.3054	0.8520	1.8900e-003		0.0109	0.0109		0.0101	0.0101	0.0000	163.7178	163.7178	0.0292	0.0000	164.4470
Total	**0.3413**	**0.3054**	**0.8520**	**1.8900e-003**		**0.0109**	**0.0109**		**0.0101**	**0.0101**	**0.0000**	**163.7178**	**163.7178**	**0.0292**	**0.0000**	**164.4470**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0300e-003	1.4500e-003	0.0168	5.0000e-005	5.7100e-003	4.0000e-005	5.7500e-003	1.5200e-003	4.0000e-005	1.5500e-003	0.0000	4.7964	4.7964	1.2000e-004	0.0000	4.7994
Total	**2.0300e-003**	**1.4500e-003**	**0.0168**	**5.0000e-005**	**5.7100e-003**	**4.0000e-005**	**5.7500e-003**	**1.5200e-003**	**4.0000e-005**	**1.5500e-003**	**0.0000**	**4.7964**	**4.7964**	**1.2000e-004**	**0.0000**	**4.7994**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.8 Well Sites - Well Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3643	0.0000	0.3643	0.1511	0.0000	0.1511	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3771	3.5701	3.0158	7.2200e-003		0.1539	0.1539		0.1451	0.1451	0.0000	627.2268	627.2268	0.1616	0.0000	631.2678
Total	**0.3771**	**3.5701**	**3.0158**	**7.2200e-003**	**0.3643**	**0.1539**	**0.5181**	**0.1511**	**0.1451**	**0.2962**	**0.0000**	**627.2268**	**627.2268**	**0.1616**	**0.0000**	**631.2678**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2000e-004	0.0108	2.5300e-003	3.0000e-005	3.0000e-003	3.0000e-005	3.0300e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	3.2255	3.2255	2.3000e-004	0.0000	3.2313
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1100e-003	2.2200e-003	0.0257	8.0000e-005	0.0391	6.0000e-005	0.0392	9.7800e-003	6.0000e-005	9.8400e-003	0.0000	7.3607	7.3607	1.9000e-004	0.0000	7.3653
Total	**3.4300e-003**	**0.0130**	**0.0283**	**1.1000e-004**	**0.0421**	**9.0000e-005**	**0.0422**	**0.0105**	**9.0000e-005**	**0.0106**	**0.0000**	**10.5861**	**10.5861**	**4.2000e-004**	**0.0000**	**10.5965**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.8 Well Sites - Well Drilling - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1557	0.0000	0.1557	0.0646	0.0000	0.0646	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2723	2.7567	3.0732	7.2200e-003		0.1054	0.1054		0.0972	0.0972	0.0000	627.2261	627.2261	0.1616	0.0000	631.2670
Total	**0.2723**	**2.7567**	**3.0732**	**7.2200e-003**	**0.1557**	**0.1054**	**0.2612**	**0.0646**	**0.0972**	**0.1618**	**0.0000**	**627.2261**	**627.2261**	**0.1616**	**0.0000**	**631.2670**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2000e-004	0.0108	2.5300e-003	3.0000e-005	3.0000e-003	3.0000e-005	3.0300e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	3.2255	3.2255	2.3000e-004	0.0000	3.2313
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1100e-003	2.2200e-003	0.0257	8.0000e-005	0.0391	6.0000e-005	0.0392	9.7800e-003	6.0000e-005	9.8400e-003	0.0000	7.3607	7.3607	1.9000e-004	0.0000	7.3653
Total	**3.4300e-003**	**0.0130**	**0.0283**	**1.1000e-004**	**0.0421**	**9.0000e-005**	**0.0422**	**0.0105**	**9.0000e-005**	**0.0106**	**0.0000**	**10.5861**	**10.5861**	**4.2000e-004**	**0.0000**	**10.5965**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.9 Well Sites - Pump installation/construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2439	2.1258	2.2655	4.1400e-003		0.1081	0.1081		0.1027	0.1027	0.0000	357.6621	357.6621	0.0781	0.0000	359.6147
Total	**0.2439**	**2.1258**	**2.2655**	**4.1400e-003**		**0.1081**	**0.1081**		**0.1027**	**0.1027**	**0.0000**	**357.6621**	**357.6621**	**0.0781**	**0.0000**	**359.6147**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2000e-004	4.2000e-003	9.9000e-004	1.0000e-005	3.6000e-004	1.0000e-005	3.8000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000	1.2591	1.2591	9.0000e-005	0.0000	1.2614
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2900e-003	3.0700e-003	0.0355	1.1000e-004	0.0121	9.0000e-005	0.0122	3.2100e-003	8.0000e-005	3.2900e-003	0.0000	10.1463	10.1463	2.6000e-004	0.0000	10.1527
Total	**4.4100e-003**	**7.2700e-003**	**0.0364**	**1.2000e-004**	**0.0124**	**1.0000e-004**	**0.0125**	**3.3100e-003**	**9.0000e-005**	**3.4000e-003**	**0.0000**	**11.4054**	**11.4054**	**3.5000e-004**	**0.0000**	**11.4140**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.9 Well Sites - Pump installation/construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1063	0.9381	2.3343	4.1400e-003		0.0357	0.0357		0.0331	0.0331	0.0000	357.6617	357.6617	0.0781	0.0000	359.6143
Total	**0.1063**	**0.9381**	**2.3343**	**4.1400e-003**		**0.0357**	**0.0357**		**0.0331**	**0.0331**	**0.0000**	**357.6617**	**357.6617**	**0.0781**	**0.0000**	**359.6143**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2000e-004	4.2000e-003	9.9000e-004	1.0000e-005	3.6000e-004	1.0000e-005	3.8000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000	1.2591	1.2591	9.0000e-005	0.0000	1.2614
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2900e-003	3.0700e-003	0.0355	1.1000e-004	0.0121	9.0000e-005	0.0122	3.2100e-003	8.0000e-005	3.2900e-003	0.0000	10.1463	10.1463	2.6000e-004	0.0000	10.1527
Total	**4.4100e-003**	**7.2700e-003**	**0.0364**	**1.2000e-004**	**0.0124**	**1.0000e-004**	**0.0125**	**3.3100e-003**	**9.0000e-005**	**3.4000e-003**	**0.0000**	**11.4054**	**11.4054**	**3.5000e-004**	**0.0000**	**11.4140**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.9 Well Sites - Pump installation/construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0735	0.6349	0.7310	1.3500e-003		0.0304	0.0304		0.0289	0.0289	0.0000	116.2794	116.2794	0.0252	0.0000	116.9081
Total	**0.0735**	**0.6349**	**0.7310**	**1.3500e-003**		**0.0304**	**0.0304**		**0.0289**	**0.0289**	**0.0000**	**116.2794**	**116.2794**	**0.0252**	**0.0000**	**116.9081**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	8.7000e-004	2.9000e-004	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.3925	0.3925	3.0000e-005	0.0000	0.3931
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	9.0000e-004	0.0106	4.0000e-005	3.9200e-003	3.0000e-005	3.9500e-003	1.0400e-003	3.0000e-005	1.0700e-003	0.0000	3.1747	3.1747	7.0000e-005	0.0000	3.1765
Total	**1.3400e-003**	**1.7700e-003**	**0.0109**	**4.0000e-005**	**4.2300e-003**	**3.0000e-005**	**4.2700e-003**	**1.1200e-003**	**3.0000e-005**	**1.1500e-003**	**0.0000**	**3.5671**	**3.5671**	**1.0000e-004**	**0.0000**	**3.5697**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.9 Well Sites - Pump installation/construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.2828	0.7556	1.3500e-003		0.0104	0.0104		9.7000e-003	9.7000e-003	0.0000	116.2792	116.2792	0.0252	0.0000	116.9080
Total	**0.0331**	**0.2828**	**0.7556**	**1.3500e-003**		**0.0104**	**0.0104**		**9.7000e-003**	**9.7000e-003**	**0.0000**	**116.2792**	**116.2792**	**0.0252**	**0.0000**	**116.9080**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	8.7000e-004	2.9000e-004	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.3925	0.3925	3.0000e-005	0.0000	0.3931
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	9.0000e-004	0.0106	4.0000e-005	3.9200e-003	3.0000e-005	3.9500e-003	1.0400e-003	3.0000e-005	1.0700e-003	0.0000	3.1747	3.1747	7.0000e-005	0.0000	3.1765
Total	**1.3400e-003**	**1.7700e-003**	**0.0109**	**4.0000e-005**	**4.2300e-003**	**3.0000e-005**	**4.2700e-003**	**1.1200e-003**	**3.0000e-005**	**1.1500e-003**	**0.0000**	**3.5671**	**3.5671**	**1.0000e-004**	**0.0000**	**3.5697**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.10 Treatment Plants - Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0164	0.1553	0.1905	3.5000e-004		7.5300e-003	7.5300e-003		6.9500e-003	6.9500e-003	0.0000	30.2303	30.2303	9.6600e-003	0.0000	30.4718
Paving	4.0000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0204**	**0.1553**	**0.1905**	**3.5000e-004**		**7.5300e-003**	**7.5300e-003**		**6.9500e-003**	**6.9500e-003**	**0.0000**	**30.2303**	**30.2303**	**9.6600e-003**	**0.0000**	**30.4718**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.6000e-004	1.8500e-003	1.0000e-005	2.2700e-003	0.0000	2.2800e-003	5.7000e-004	0.0000	5.7000e-004	0.0000	0.5304	0.5304	1.0000e-005	0.0000	0.5307
Total	**2.2000e-004**	**1.6000e-004**	**1.8500e-003**	**1.0000e-005**	**2.2700e-003**	**0.0000**	**2.2800e-003**	**5.7000e-004**	**0.0000**	**5.7000e-004**	**0.0000**	**0.5304**	**0.5304**	**1.0000e-005**	**0.0000**	**0.5307**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.10 Treatment Plants - Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.2600e-003	0.0371	0.2182	3.5000e-004		1.2700e-003	1.2700e-003		1.2000e-003	1.2000e-003	0.0000	30.2303	30.2303	9.6600e-003	0.0000	30.4718
Paving	4.0000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.0371**	**0.2182**	**3.5000e-004**		**1.2700e-003**	**1.2700e-003**		**1.2000e-003**	**1.2000e-003**	**0.0000**	**30.2303**	**30.2303**	**9.6600e-003**	**0.0000**	**30.4718**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.6000e-004	1.8500e-003	1.0000e-005	2.2700e-003	0.0000	2.2800e-003	5.7000e-004	0.0000	5.7000e-004	0.0000	0.5304	0.5304	1.0000e-005	0.0000	0.5307
Total	**2.2000e-004**	**1.6000e-004**	**1.8500e-003**	**1.0000e-005**	**2.2700e-003**	**0.0000**	**2.2800e-003**	**5.7000e-004**	**0.0000**	**5.7000e-004**	**0.0000**	**0.5304**	**0.5304**	**1.0000e-005**	**0.0000**	**0.5307**

4.0 Operational Detail - Mobile

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0667	1.2310	0.8213	8.8600e-003	0.3988	6.2300e-003	0.4051	0.1128	5.9300e-003	0.1187	0.0000	843.2514	843.2514	0.0268	0.0000	843.9220
Unmitigated	0.0667	1.2310	0.8213	8.8600e-003	0.3988	6.2300e-003	0.4051	0.1128	5.9300e-003	0.1187	0.0000	843.2514	843.2514	0.0268	0.0000	843.9220

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	35.95	0.00	0.00	110,051	110,051
Refrigerated Warehouse-No Rail	20.00	0.00	0.00	206,001	206,001
Refrigerated Warehouse-No Rail	60.00	0.00	0.00	618,003	618,003
Total	115.95	0.00	0.00	934,056	934,056

4.3 Trip Type Information

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Refrigerated Warehouse-No	72.00	0.00	0.00	59.00	0.00	41.00	92	5	3
Refrigerated Warehouse-No	72.00	0.00	0.00	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000
Refrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.200000	0.200000	0.200000	0.200000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,414.4640	1,414.4640	0.0878	0.0182	1,422.0693
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,414.4640	1,414.4640	0.0878	0.0182	1,422.0693
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.668e+006	353.6160	0.0219	4.5400e-003	355.5173
Refrigerated Warehouse-No Rail	5.004e+006	1,060.8480	0.0658	0.0136	1,066.5520
Total		**1,414.4640**	**0.0878**	**0.0182**	**1,422.0693**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.668e+006	353.6160	0.0219	4.5400e-003	355.5173
Refrigerated Warehouse-No Rail	5.004e+006	1,060.8480	0.0658	0.0136	1,066.5520
Total		**1,414.4640**	**0.0878**	**0.0182**	**1,422.0693**

6.0 Area Detail

6.1 Mitigation Measures Area

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3942	1.1000e-004	0.0119	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0231	0.0231	6.0000e-005	0.0000	0.0247
Unmitigated	0.3942	1.1000e-004	0.0119	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0231	0.0231	6.0000e-005	0.0000	0.0247

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0489					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3442					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-003	1.1000e-004	0.0119	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0231	0.0231	6.0000e-005	0.0000	0.0247
Total	**0.3942**	**1.1000e-004**	**0.0119**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0231**	**0.0231**	**6.0000e-005**	**0.0000**	**0.0247**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0489					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3442					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-003	1.1000e-004	0.0119	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0231	0.0231	6.0000e-005	0.0000	0.0247
Total	**0.3942**	**1.1000e-004**	**0.0119**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0231**	**0.0231**	**6.0000e-005**	**0.0000**	**0.0247**

7.0 Water Detail

7.1 Mitigation Measures Water

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	6	0	24	115	0.73	Diesel

Boilers

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

User Defined Equipment

Cactus Corridor Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (100 - 175 HP)	0.0136	0.0380	0.0493	7.0000e-005		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	6.3060	6.3060	8.8000e-004	0.0000	6.3281
Total	**0.0136**	**0.0380**	**0.0493**	**7.0000e-005**		**2.0000e-003**	**2.0000e-003**		**2.0000e-003**	**2.0000e-003**	**0.0000**	**6.3060**	**6.3060**	**8.8000e-004**	**0.0000**	**6.3281**

11.0 Vegetation

APPENDIX B: BIOLOGICAL RESOURCES ASSESSMENT

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March 2, 2020
Project No: 19-08223

Ms. Rosalyn Prickett
Woodard & Curran
9665 Chesapeake Drive, Suite 320
San Diego, California 92123

Subject: Biological Resources Assessment for the Cactus Avenue Corridor Project, Riverside County, California

Dear Ms. Prickett:

This report documents the findings of a Biological Resources Assessment conducted by Rincon Consultants, Inc. (Rincon), for the proposed Cactus Avenue Corridor Project ("project"). The Eastern Municipal Water District (EMWD) proposes the construction and operation of extraction wells, raw water and treated water pipelines, and a water treatment and blending plant at 11 locations throughout the city of Moreno Valley (City) in Riverside County, California. This assessment was completed to document existing site conditions via desktop analysis and field survey to determine potential impacts to sensitive biological resources for the approximately 6.3-mile long, 34.22-acre project. The report also contains the results of a habitat assessment for burrowing owl (*Athene cunicularia*; BUOW) and includes an analysis of potential project-related impacts to the study area. The study area includes the proposed limits of work (34.22-acre project site) and an additional 500-foot buffer around proposed extraction well and treatment plant locations for the BUOW habitat assessment.

Project Location and Description

The project site is located in the city of Moreno Valley in western Riverside County, California (Figure 1) in Township 3 south, Range 3 west, Sections 7, 8, and 17-21 of the United States Geological Survey (USGS) *Riverside East, CA* and *Sunnymead, CA* 7.5-minute topographic quadrangles (Figure 2). Proposed project elements include 11 lots totaling 34.22 acres with interconnecting pipelines spanning approximately 6.3 miles of developed area throughout the City. The site is generally characterized by vacant areas with surrounding lands used for residential, commercial, and light industrial purposes.

The proposed project involves the development and operation of groundwater extraction, treatment, and distribution facilities in the Perris North Groundwater Management Zone. The project includes construction and operation of extraction wells, raw water and treated water pipelines, and a water treatment and blending plant. Descriptions of the various project elements are provided below.

Extraction Wells

Up to six extraction wells would be constructed as part of the project. EMWD has identified nine potential locations for the well sites. The extraction wells would be constructed in two phases: a well drilling phase and a well equipping phase. Construction of the extraction wells is expected to result in temporary disturbance of 100 percent of each of the six selected parcel sites. Each well site would be

designed to utilize the existing grade of the parcel where applicable. Each well would be constructed with an accompanying overflow (i.e., blow-off) pond. Portable, steel liquid container tanks (i.e., Baker Tanks) would be used for onsite dewatering clarification.

Pipelines

Approximately 30,000 linear feet of pipeline would be constructed to convey raw water from the extraction wells to the proposed treatment plant and to convey treated water to the distribution system. These pipelines would be located primarily within easements, roadway rights of way, and EMWD owned land. The project would include up to 2,650 linear feet of 30-inch pipeline to convey treated water from the central treatment and blending facility to the distribution system, and up to 30,400 linear feet of pipe to convey raw water from the extraction wells to the treatment and blending facility. The raw water pipeline would vary in diameter from 8-, 12- or 16-inch. Additionally, the project would involve installing approximately 100 linear feet of 18-inch pipe to discharge brackish water from the central treatment and blending facility to the sanitary sewer system. As a part of the proposed project, approximately 100 linear feet of 30-inch pipeline would be constructed between the Cactus II Feeder pipelines and the proposed treatment and blending plant facilities.

Pipelines would be installed using open cut trench construction, as well as trenchless boring techniques. Open cut excavation would be used in existing roadways, except at crossings of existing facilities, utilities, and storm channels. Pipelines installed using open cut methods would include a trenching depth of three to four feet. The estimated trench width would be equal to two feet plus the pipeline diameter, for a width of up to four feet. When trenchless techniques are required, pipelines would be constructed using “bore and jack” methods. For this construction method, pits would be dug on either side of the surface feature to be avoided (e.g., storm channel or existing utilities). The pits are typically 10-15 feet wide and 10-20 feet long for the receiving pit and up to 50 feet long for the jacking pit. The depth would depend on the feature to be avoided.

Treatment Plant

The proposed treatment plant would include granular activated carbon contactors, a blending facility, a potable water distribution pump station and a chlorine residual injection system. A nitrate treatment facility would also be constructed at the centralized treatment plant site to be used when blend water of sufficient quality is not available.

EMWD has identified two potential sites for the treatment plant. The raw water from the extraction wells would be treated and blended with imported water from Metropolitan Water District (MWD) to meet drinking water standards, and then delivered to a large diameter transmission pipeline in the potable water system that would convey the water to other parts of EMWD’s service area. The water would be disinfected prior to discharging into the potable water system.

Methodology

Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees.

Environmental Statutes

For the purpose of this report, potential impacts to biological resources were analyzed based on the following statutes:

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- City of Moreno Valley Municipal Code (City of Moreno Valley, 1997)
- Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)(2003)

Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by the CEQA Guidelines Appendix G Initial Study Checklist, were used to evaluate potential environmental effects. Based on these criteria, the proposed project would have a significant effect on biological resources if it would:

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

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

c) *Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal areas, 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.*

Literature Review

Prior to the field visit, a literature review was conducted to establish the environmental and regulatory setting of the proposed project. The literature review included review of the U.S. Department of Agriculture (USDA) *Soil Survey for the Western Riverside Area* (2020a), *Riverside East, CA* and

Sunnymead, CA USGS 7.5-minute topographic quadrangles, literature detailing the habitat requirements of subject species, and aerial photographs (Google Earth 2020) and topographic maps (USGS 1979). The MSHCP, species accounts, and other reference materials were reviewed for habitat assessment requirements as well as habitat suitability elements for special status species. The primary objective of the habitat assessment was to evaluate the study area's potential to support special status species as well as to determine the applicability of other MSHCP and CEQA) requirements as they pertain to the proposed project.

The California Department of Fish and Wildlife (CDFW) California Natural Diversity Data Base (CNDDB; CDFW 2020a), Biogeographic Information and Observation System (BIOS; CDFW 2020b) and United States Fish and Wildlife Service (USFWS) Critical habitat Portal (USFWS 2020a) and Information, Planning, and Consultation (IPaC; USFWS 2020b) system were reviewed to determine if any special status wildlife, plant or vegetation communities were previously recorded within five miles of the study area. Map review of the U.S. Forestry Service (USFS) managed National Wild and Scenic River System was performed to assess whether wild or scenic rivers occurred on site (USFS 2020). The *National Wetlands Inventory* (NWI; USFWS 2020c) was reviewed to determine if any wetland and/or non-wetland waters had been previously documented and mapped on or in the vicinity of the proposed study area. Other resources reviewed included the California Native Plant Society (CNPS) online *Inventory of Rare and Endangered Plants of California* (2020), and CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (2020c).

Field Reconnaissance Survey

A field reconnaissance survey of the study area was conducted to document existing site conditions and the potential presence of sensitive biological resources, including sensitive plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. Rincon Senior Biologist Ryan Gilmore conducted the reconnaissance survey on January 20 and 21, 2020. The biologist surveyed the study area on foot and visually inspected the area with the aid of binoculars (8 x 40) as necessary.

Identification of potentially jurisdictional aquatic resources during the reconnaissance survey included any potential wetlands and non-wetland waters that may constitute waters of the U.S., waters of the State, streambeds, and/or riparian/riverine or vernal pool resources. During the survey, the biologist noted general site characteristics, documented vegetation, and took representative photographs (Appendix A). Survey conditions included a temperature of 64 degrees Fahrenheit (°F), clear skies, and winds of 0-3 miles per hour (mph).

BUOW Habitat Assessment

The BUOW habitat assessment and focused BUOW burrow survey were conducted on January 20 and 21, 2020 between the hours of 0700-1100. Rincon biologist, Ryan Gilmore, walked the entire study area (i.e., the 34.22-acre project site and 500-foot buffer, where accessible) to identify potential burrows and BUOW sign. Areas of particular interest included all topographic relief areas characterized by low growing vegetation, grasslands, shrub lands with low density shrub cover, earthen berms, and any large debris piles. Access to adjacent properties was not granted. Therefore, these areas were surveyed with binoculars to the maximum extent feasible from the edge of the project site boundary. The survey included a systematic search for burrows and BUOW sign by walking through potential habitat within the study area. Survey transects were spaced to allow 100 percent visual coverage of the ground

surface. The distance between transect center lines did not exceed 30 meters (approximately 100 feet) and were reduced to account for differences in terrain, vegetation density, and ground surface visibility. Burrow openings large enough to provide entry for BUOWs were carefully checked for prey remains, cast pellets, white-wash, feathers, or any other indication of BUOW presence. Potential burrows, BUOW individuals, and/or sign (if observed) were recorded and mapped using Global Positions System (GPS) coordinates.

Existing Conditions

Physical Characteristics

The study area is located in arid western Riverside County which is characterized by long, hot, dry summers and short, relatively wet winters. Average temperatures range from 65 to 96 degrees Fahrenheit (°F) during the summer and 41 to 65°F during the winter. The average annual precipitation in the region is 6-11 inches (United States Climate Data 2020).

Current land use at the project site consist of vacant areas and public parks. Areas of similar land use are located in the surrounding vicinity. The locations for the proposed extraction wells and treatment facilities include vacant lots adjacent to commercial and residential areas as well as Parque Amistad and Victoriano City-maintained public parks.

Rincon's biologist observed various levels of recent debris dumping (concrete and trash), large soil storage areas, small soil spoil piles, and homeless campsites throughout the entire study area.

Watershed and Drainages

The study area is within the approximate 2,650-square mile Santa Ana River Watershed. The Santa Ana River Watershed spans from portions of the San Jacinto Mountains, San Bernardino Mountains, San Gabriel Mountains, and Santa Ana Mountains, to the cities of Rialto, Lake Elsinore, Anaheim, Huntington Beach, and Irvine. Two major rivers drain the Santa Ana River watershed: the Santa Ana River and the San Jacinto River. A formal jurisdictional delineation of waters and wetlands was not completed as the project is not proposed to be located within potentially jurisdictional features.

The project site is underlain by moderately well-drained soils. The only area with evidence of standing water was observed at the Santiago Well Site/Treatment Site Option 3. This ponding was wholly contained within an onsite water detainment basin with no off-site connection.

Topography and Soils

Topography at the project site remains relatively level throughout the approximate 6.3-mile span of proposed pipeline that would traverse throughout the City. The elevation ranges from 1,500 feet above mean sea level (msl) in the southeast corner of the project site and gradually increases to approximately 1,600 feet above msl in the northeast corner. Additionally, locations where extraction wells and treatment sites are proposed consist of level terrain within vacant lots and public park spaces.

The National Resources Conservation Service (NRCS) Web Soil Survey identifies eleven soil map units within the project site (Figure 3a and Figure 3b) (NRCS 2020a). These eleven map units can be organized into six soil series that are described below. Based on Rincon's observations of soil surface conditions

during the reconnaissance survey, the soils on site are generally consistent with those mapped by the NRCS Web Soil Survey. No soils present at the project site are designated as hydric.

Greenfield Soils

Greenfield sandy loam with 0-2 percent slopes is found throughout the project site. This series consists of deep, well drained soils that formed in moderately coarse and coarse textured alluvium derived from granitic and mixed rock sources. Greenfield sandy loam is found on alluvial fans and terraces at elevations from 100 to 3,500 feet in dry, subhumid and mesothermal climates. It can be used for the production of a wide variety of irrigated field, forage, and fruit crops as well as for growing dryland grain and pasture. Vegetation on uncultivated areas consists of annual grass, forbs, shrubs, and scattered oak (*Quercus* sp.) trees.

Hanford Soils

Hanford coarse sandy loam with 0-8 percent slopes is found in the northern portion of the project site. Additionally, Hanford fine sandy loam with 0-2 percent slopes is found on the southern edge of the project site. This series consists of very deep, well drained soils that formed in moderately coarse textured alluvium dominantly from granite. Hanford soils are on stream bottoms, flood plains and alluvial fans from 150 to 3,500 feet in dry, subhumid and mesothermal climates. They are used for growing a wide range of fruits, vegetables, and general farm crops, as well as for urban development and dairies. Vegetation in uncultivated area is mainly annual grasses and associated herbaceous species.

Monserate Soils

Monserate sandy loam soil with 0-5 percent slopes is found in the northwestern portion of the project site. This soil series is a member of the fine-loamy, mixed, thermic family of Typic Durixeralfs. Typically, Monserate soils have brown and yellowish-red, slightly acidic, sandy loam A horizons, reddish brown, neutral, sandy clay loam B2t horizons underlain by silica-cemented duripans. This series is typically found on nearly-level to moderately-steep old dissected terraces and fans from 700 to 2,500 feet in dry, subhumid and mesothermal climates. This soil type is used principally for growing grain, grain hay or pasture, some citrus, and field and truck crops when irrigation water is available. Naturalized vegetation is mainly annual grasses and forbs, widely spaced native canyon oak (*Quercus* sp.), and shrubs on eroded slopes.

Pachappa Soils

Pachappa fine sandy loam with 0-2 percent slopes and 2-8 percent slopes, eroded is found on the northern reaches of the project site. The Pachappa series consists of well drained (minimal) Noncalcic Brown soils developed from moderately coarse textured alluvium. They occur on gently sloping alluvial fans and flood plains under annual grass-herb vegetation at elevations under 1,000 feet in a semiarid to dry subhumid mesothermal climate. Characteristically the Pachappa soils have grayish brown, slightly acid A1 horizons and brown, slightly finer textured neutral B2 horizons that overlie moderately alkaline, slightly calcareous B3ca horizons and very slightly calcareous stratified C horizons. This soil is mostly found under irrigation for alfalfa (*Medicago* sp.), small grains and row crops as well as dry farm small grains and normally generate good yields. Annual grasses, herbs, and shrubs are found growing on this soil.

Ramona Soils

Ramona soil is found in the northern portion of the project site, specifically, Ramona fine sandy loam with 0-2 percent slopes and Ramona very fine sandy loam with 0-8 percent slopes, eroded. The Ramona series is a member of the fine-loamy, mixed, thermic family of Typic Haploxeralfs. Typically, Ramona soils have brown, slightly and medium acid, sandy loam and fine sandy loam A horizons, reddish brown and yellowish red, slightly acid, sandy clay loam B2t horizons, and strong brown, neutral, fine sandy loam C horizons. This soil is found on nearly-level to moderately-steep terrace and fans derived from granitic and related rock sources at elevations of 250 to 3,500 feet in dry, subhumid and mesothermal climates. This soil type is mostly used for the production of grain, grain-hay, pasture, irrigated citrus (*Citrus* sp.), olives (*Olea* sp.), truck crops, and deciduous fruits. Uncultivated areas have a cover of annual grasses, forbs, chamise (*Adenostoma* sp.), or chaparral.

Domino Soils

Domino fine sandy loam with 0 to 2 percent slopes is mapped in the southeastern portion of the project site. The Domino Series consists of moderately deep, moderately well drained soils over lime-cemented hardpans. These soils are typically found on nearly level basin areas and toes of alluvial fans at elevations of 1,000 to 1,800 feet, usually with a semiarid climate. Domino soils typically support dry farmed grain and annual pasture, irrigated alfalfa, and salt-tolerant truck crops. Vegetation in uncultivated areas typically consists of saltgrass (*Distichlis spicata*), sedges, annual grasses, and forbs.

Vegetation Communities

One vegetation community, non-native annual grassland, and one land cover type, developed land, occur within the study area (Figure 4). A list of plant species observed within the study area is included as Appendix B.

Developed

Developed land cover is the dominant land cover type found at the project site and consists of development such as asphalt roads, graveled access roads, parking areas, and storage areas. These areas have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. This vegetation community consists of 345.70 acres, or approximately 94 percent, of the study area.

Non-Native Annual Grassland (42200)

Non-native annual grassland is the only vegetation community found within the project site. This community is typically dominated by a dense cover of annual grasses that usually include wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*). On the project site, non-native annual grassland areas contained these annual grasses and also included Russian thistle (*Salsola tragus*), common fiddleneck (*Amsinckia intermedia*), and red stemmed filaree (*Erodium cicatarium)*. This community was found intermittently throughout the northern reach of the project site within vacant lots. This vegetation community consists of 20.75 acres, or approximately six percent, of the study area.

General Wildlife

The study area provides limited habitat for wildlife species that commonly occur within urban communities in Riverside County. Common urban-adapted avian species such as killdeer (*Charadrius vociferus*), red-tailed hawk (*Buteo jamaicensis*), Say's phoebe (*Sayornis saya*), black phoebe (*Sayornis nigricans*), mallard (*Anas platyrhynchos*), common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), bushtit (*Psaltriparus minimus*), lesser goldfinch (*Carduelis psaltria*), western kingbird (*Tyrannus verticalis*) and Anna's hummingbird (*Calypte anna*) were observed on site during the survey. Coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), and California ground squirrel (*Otospermophilus beecheyi*) were the only live mammals observed within the study area. Western fence lizard (*Sceloporus occidentalis*) was the only reptile observed within the study area. No sensitive species were observed within the study area.

Sensitive Biological Resources

Based on review of aerial photographs and the field reconnaissance survey, Rincon evaluated the potential presence of sensitive biological resources on and adjacent to the site.

Special Status Species

Local, state, and federal agencies regulate special status species and generally require an assessment of their presence or potential presence to be conducted prior to the approval of a proposed project. Assessments for the potential occurrence of special status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, species occurrence records from other sites in the vicinity of the study area, and previous reports for the project site. The potential for each special status species to occur in the study area was evaluated according to the following criteria:

- **No Potential.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last 5 years).

The literature review identified ten sensitive plant species and 30 sensitive wildlife species within five miles of the site (Appendix B; Table 1). One sensitive plant community, sycamore alder riparian

woodland, was identified approximately five miles from the project site. No woodland/riparian habitat was observed at the project site, nor is the habitat on site suitable to support such communities due the high level of disturbance/development. Sensitive plant and wildlife species typically have very specific habitat requirements, which are not found on the project site.

Special Status Plant Species

The project site is located within a highly developed urban transportation corridor. Additionally, proposed locations for extraction wells and treatment facilities are highly disturbed and surrounded by existing commercial and residential development. Due to the lack of specific habitat types or suitable substrates as well as the high levels of historic and existing disturbance, sensitive plant species are not expected to occur on the site.

Special Status Wildlife Species

The proposed project site is located within a highly developed urban transportation corridor and proposed locations for extraction wells and treatment facilities are highly disturbed and surrounded by existing commercial and residential development. Because of the lack of specific habitats as well as high levels of historic and existing disturbance, the site is not suitable for most special status wildlife species. The literature review identified 30 special status wildlife species recorded within five miles of the site. Twenty-eight of these species are not expected to occur due to lack of suitable habitat (e.g., riparian, scrub, woodland).

Low quality or marginal foraging and/or nesting habitat for two sensitive wildlife species, BUOW and California horned lark (*Eremophila alpestris actia*) occurs within and adjacent to the site. Undeveloped areas at the project site which contain marginally suitably habitat are largely dominated by low-growing, non-native ruderal species. California horned lark are typically ground nesters and are capable of nesting on bare ground which is present within the site. In addition, burrows and California ground squirrels were present at one proposed extraction well location, which indicates the presence of suitable habitat for BUOW (Figure 5). However, the habitat low quality and the potential for these species to occur is low due to the site's location within a heavily travelled urban transportation corridor and high levels of existing disturbance which would likely deter individuals from long-term use of the site. No horned larks, BUOW or signs of either species (e.g., pellets or white wash) were observed during the reconnaissance field survey.

Nesting Birds

Shrubs and trees located within the project site could provide suitable nesting habitat for several common avian species that were observed during the reconnaissance survey. Bird nests and eggs are protected by CFGC 3503 and the MBTA. Common species such as mourning dove and house finch have the potential to nest in shrubs, even in highly disturbed settings. Some species, such as horned larks, are typically ground nesters and are capable of nesting on bare ground which is present on the site. However, habitat is considered low quality due to existing disturbances and proximity to heavily travelled roadways. No nests or birds exhibiting nesting behaviors were observed during the reconnaissance site visit.

Sensitive Plant Communities

No sensitive plant communities as defined by the CNDDB or local ordinances are present on the site.

Jurisdictional Waters and Wetlands

The project site consists largely of vacant and developed areas. Additionally, locations where the extraction wells and treatment plants are proposed are interconnected by urban roadways. The majority of surrounding land use includes residential and commercially developed areas intermixed with small isolated areas of open space, vacant, and public lands. The NWI identified several potential jurisdictional features within the proposed project site; however, these features were photo-interpreted from black and white imagery in 1975 and based on the reconnaissance field survey these areas have since been developed with the features likely diverted into underground stormwater channels. Further, no hydric soils are present at the project site and no jurisdictional features were identified during the field reconnaissance survey. Therefore, no waters or wetlands potentially subject to the jurisdiction of the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), or CDFW are located within the project site.

Riparian/Riverine, Vernal Pool and Fairy Shrimp Habitat

Riparian/riverine areas are lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or depend on a nearby freshwater source or areas that contain a freshwater flow during all or a portion of the year (Riverside County, 2003). These areas may support one or more species listed in the MSHCP. Vernal pools are seasonal wetlands that occur in depressions, typically have wetland indicators that represent all three parameters (soils, vegetation, and hydrology), and are defined based on vernal pool indicator plant species during the wetter portion of the growing season but normally lack wetland indicators associated with vegetation and/or hydrology during the drier portion of the growing season.

Based upon the findings of Rincon's reconnaissance survey, no riparian/riverine habitat is present within the project site. The project site is heavily disturbed due to past agricultural uses, urban development, and is currently either unvegetated, developed, or dominated by exotic upland species not conducive to supporting riparian/riverine habitat. The proposed project would be confined to the existing developed, non-annual grasslands, and disturbed habitat areas.

No vernal pools or fairy shrimp habitat were observed within the project site. The project site is underlain by moderately well-drained soils. The only area with evidence of standing water was observed at the Santiago Well Site/Treatment Site Option 3. This ponding was wholly contained within an on-site water detainment basin with no off-site connection. In addition, areas within the survey area are heavily disturbed due to past agricultural uses, existing development, and are currently either unvegetated, developed, or dominated by exotic upland species not conducive to supporting vernal pools or vernal pool species. The proposed project would be confined to the existing developed, non-annual grasslands, and disturbed habitat areas.

Wildlife Movement

According to the Regional Conservation Authority (RCA) MSHCP Information App, the project site is not located within an MSHCP Criteria Area, Public-Quasi Public Reserve Lands or within a Core or Linkage

(RCA 2020). The CDFW BIOS (2020b) does not include any mapped essential habitat connectivity areas in the immediate vicinity of the site. The closest mapped essential habitat connectivity areas are located approximately 1.5 miles to the southeast near the Perris Reservoir and approximately three miles to the northeast in the vicinity of Box Springs Mountain Reserve Park. The proposed project would be confined to the existing developed and disturbed areas identified above. Additionally, the study area is separated from these conservation areas by public roadways and residential areas, and therefore the site is not expected to serve as a significant wildlife migratory corridor.

Resources Protected by Local Policies and Ordinances

The project site is located within the County of Riverside Stephen's Kangaroo Rat Plan and Fee Area. County of Riverside Ordinance No. 663 (Stephen's Kangaroo Rat Mitigation Fee Ordinance) requires that all proposed development projects located within the fee area are reviewed to determine the most appropriate course of action to ensure the survival of the species through one or more of the following: (1) on-site mitigation of impacts to the Stephens' Kangaroo Rat through the reservation or addition of lands included within or immediately adjacent to a potential habitat reserve site, or (2) payment of the Mitigation Fee or (3) any combination of (1) and (2) consistent with the intent and purpose of the ordinance. No other resources protected by local policies or ordinances are present on the site.

Conservation Plans

The project site is located within the boundaries of the Western Riverside MSHCP. Portions of the site are located within a habitat assessment area for BUOW, but not within a designated study area identified for any other MSHCP covered species. The proposed project is not located within a criteria cell or within Public/Quasi Public conserved lands. Public/Quasi-Public conserved lands are located approximately 1.0 mile southeast of the project site in the Lake Perris State Recreation Area (Western Riverside County RCA 2020).

Impact Analysis and Mitigation Measures

Special Status Species

As mentioned above, ten sensitive plant species and 30 sensitive wildlife species are known to occur or have potential to occur within a five-mile radius of the site. Due to the lack of specific habitats or suitable substrates as well as the high levels of historic and existing disturbance, sensitive plant species are not expected to occur on the site. Therefore, impacts to sensitive plant species would be less than significant.

Of the 30 sensitive wildlife species identified, 28 of these species are not expected to occur due to lack of suitable habitat (e.g., riparian, scrub, woodland). The remaining two species with potential to occur within the site are BUOW and California horned lark. Construction activities associated with the proposed project are primarily located within areas of high disturbance and surrounded by development. Therefore, the proposed project is not expected to result in loss of suitable habitat for BUOW or California horned lark.

No special status wildlife species were observed during the reconnaissance survey and the potential for these species to occur is low due to the site' location directly adjacent to urban development. In addition, vacant areas at the project site are highly fragmented. Such high level of disturbance would

likely deter individuals from long-term use of the project site. Notwithstanding, to avoid direct impacts to burrowing owl, the following mitigation measures should be implemented:

- **Burrowing Owl Preconstruction Clearance Survey.** A qualified wildlife biologist shall conduct a pre-construction survey of the impact areas to confirm presence/absence of burrowing owl individuals no more than 30 days prior to construction. The survey methodology will be consistent with the methods outlined in the CDFW *Staff Report on Burrowing Owl Mitigation* (2012). If no active breeding or wintering owls are identified, no further mitigation is required.

  If burrowing owls are detected onsite, the following mitigation measures shall be implemented in accordance with the CDFW *Staff Report on Burrowing Owl Mitigation* (2012):

  - A qualified wildlife biologist shall be onsite during initial ground-disturbing activities in potential burrowing owl habitat.
  - No ground-disturbing activities shall be permitted within a buffer no less than 200 meters (656 feet) from an active burrow, depending on the level of disturbance, unless otherwise authorized by CDFW. Occupied burrows will not be disturbed during the nesting season (February 1 to August 31), unless a qualified biologist verifies through noninvasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival.
  - During the nonbreeding (winter) season (September 1 to January 31), ground-disturbing work can proceed near active burrows as long as the work occurs no closer than 50 meters (165 feet) from the burrow, depending on the level of disturbance, and the site is not directly affected by the project activity. A smaller buffer may be established in consultation with CDFW. If active winter burrows are found that would be directly affected by ground-disturbing activities, owls can be excluded from winter burrows according to recommendations made in the *Staff Report on Burrowing Owl Mitigation* (2012).
  - Burrowing owls shall not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed based on the recommendations made in the St*aff Report on Burrowing Owl Mitigation* (2012). The plan shall include, at a minimum:
    - Confirmation by site surveillance that the burrow(s) is empty of burrowing owls and other species
    - Type of scope to be used and appropriate timing of scoping
    - Occupancy factors to look for and what shall guide determination of vacancy and excavation timing
    - Methods for burrow excavation
    - Removal of other potential owl burrow surrogates or refugia onsite
    - Methods for photographic documentation of the excavation and closure of the burrow
    - Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take
    - Methods for assuring the impacted site shall continually be made inhospitable to burrowing owls and fossorial mammals
  - Compensatory mitigation for lost breeding and/or wintering habitat shall be implemented onsite or off-site through implementation of a Mitigation Land Management Plan based on the

Staff Report on Burrowing Owl Mitigation (CDFW 2012) guidance. The plan shall include the following components, at a minimum:

- Temporarily disturbed habitat on the project site shall be restored, if feasible, to pre-project conditions, including decompacting soil and revegetating;
- Permanent impacts to nesting, occupied and satellite burrows and/or burrowing owl habitat shall be mitigated such that the habitat acreage, number of burrows and burrowing owl impacted are replaced based on a site-specific analysis which includes conservation of similar vegetation communities comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals;
- Mitigation land acreage shall not exceed the size of the project site;
- Permanently protect mitigation land through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a CDFW approved burrowing owl conservation bank, the project operator may purchase available burrowing owl conservation bank credits.
- Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment.
- Mitigation lands shall be on, adjacent or proximate to the impact site where possible and where habitat is sufficient to support burrowing owls present.

As described above, the project site contains trees that could provide suitable nesting habitat for several common avian species. In order to avoid impacts to nesting birds, the following mitigation measure shall be implemented:

- **Preconstruction Nesting Bird Survey.** If project activities must occur during the avian nesting season (February to September), a survey for active nests must be conducted by a qualified biologist, one to two weeks prior to the activities. If active nests are identified and present onsite, clearing and construction within 50-250 feet of the nest, depending on the species involved (50 feet for common urban-adapted native birds and up to 250 feet for raptors), shall be postponed until the nest is vacated and juveniles have fledged, and there is no evidence of a second attempt at nesting. Limits of construction to avoid a nest site shall be established in the field by a qualified biologist with flagging and stakes or construction fencing. Construction personnel shall be instructed regarding the ecological sensitivity of the fenced area. If construction must occur within this buffer, it shall be conducted at the discretion of a qualified biological monitor to assure that indirect impacts to nesting birds are avoided.

Sensitive Plant Communities

The site does not contain riparian habitat or other sensitive natural communities. Therefore, no impacts are expected.

Jurisdictional Waters and Wetlands

The site does not contain any jurisdictional drainages or wetlands. A man-made and maintained earthen retention basin was observed at the Treatment Site Option 3 location during the January 2020 field survey (Appendix A Photograph 10). No riparian vegetation, including trees, shrubs, persistent emergents, emergent mosses, or lichens, were present in or around the basin. Additionally, the feature

was contained within the on-site water detainment basin with no off-site connection. As a result, the basin is not considered a jurisdictional feature. No impacts to jurisdictional waters and wetlands are expected as a result of the proposed project.

Riparian/Riverine, Vernal Pool and Fairy Shrimp Habitat

Based upon the findings of Rincon's reconnaissance survey, no riparian/riverine habitat is present within the project site. The project site is heavily disturbed due to past agricultural uses, urban development, and is currently either unvegetated, developed, or dominated by exotic upland species not conducive to supporting riparian/riverine habitat. The proposed project would be confined to the existing developed, non-native annual grasslands, and disturbed habitat areas. No riparian/riverine habitat occurs within the proposed project site; and therefore, no further actions related to riparian/riverine habitat are required pursuant to the MSHCP. Additionally, no jurisdictional features are located within the project site that are under the jurisdiction of the USACE, RWQCB, or CDFW.

No vernal pools or fairy shrimp habitat were observed within the project site. The project site is underlain by moderately well-drained soils. The only area with evidence of standing water was observed at the Santiago Well Site/Treatment Site Option 3. This ponding was wholly contained within an on-site water detainment basin with no off-site connection. In addition, areas within the survey area are heavily disturbed due to past agricultural uses, existing development, and are currently either unvegetated, developed, or dominated by exotic upland species not conducive to supporting vernal pools or vernal pool species. The proposed project would be confined to the existing developed, non-annual grasslands, and disturbed habitat areas. No vernal pool or fairy shrimp habitat occurs within the proposed project site; and therefore, no further actions related to vernal pools are required pursuant to the MSHCP.

Wildlife Movement

As discussed above, the site is not located within an MSHCP Criteria Area, Public-Quasi Public Reserve Lands or within a Core or Linkage (RCA 2020). In addition, CDFW BIOS (2020b) does not include any mapped essential habitat connectivity areas within the immediate vicinity of the site. The closest mapped essential habitat connectivity areas are located approximately 1.5 miles to the southeast in the vicinity of the Perris Reservoir and approximately three miles to the northeast in the vicinity of Box Springs Mountain Reserve Park. The site is separated from these habitat connectivity areas by existing development and paved roadways. In addition, the site is surrounded by existing development and heavily traveled transportation corridors, including the March Air Reserve Base and Interstate 215 freeway, and is therefore, not expected to serve as a significant migratory wildlife corridor. Therefore, no impacts to wildlife movement are expected.

Local Policies and Ordinances

The proposed project is located within the County of Riverside Stephen's Kangaroo Rat Plan and Fee Area. County of Riverside Ordinance No. 663 (Stephen's Kangaroo Rat Mitigation Fee Ordinance) requires that all proposed development projects located within the fee area are reviewed to determine the most appropriate course of action to ensure the survival of the species through one or more of the following: (1) on-site mitigation of impacts to the Stephens' Kangaroo Rat through the reservation or addition of lands included within or immediately adjacent to a potential habitat reserve site, or (2) payment of the Mitigation Fee or (3) any combination of (1) and (2) consistent with the intent and

purpose of the ordinance. The proposed project site lacks suitable grassland, coastal scrub and sagebrush habitat to support Stephen's Kangaroo Rat and is located directly adjacent urban roadway. In addition, vacant areas at the project site are highly fragmented and surrounded by urban development. Therefore, the proposed project would not result in impacts to or loss of suitable habitat for Stephen's Kangaroo Rat and would not be subject to on-site mitigation or payment of the Mitigation Fee. No other resources protected by local policies or ordinances are present on the site.

Conservation Plans

The proposed project is located within the boundaries of the Western Riverside MSHCP. Portions of the site are located within the study area for BUOW, but not within a designated study area identified for any other MSHCP covered species. The proposed project is not located within a criteria cell or within Public/Quasi Public conserved lands. Public/Quasi-Public conserved lands are located approximately 1.0 mile southeast at the Lake Perris State Recreation Area. Based on the project's distance and separation from Public/Quasi-Public lands and the existing development between them, the proposed project is not expected to impact these conserved areas. As discussed above, no BUOW or their sign were observed during the reconnaissance-level biological resources field surveys on January 20 and 21, 2020. The potential for BUOW to occur is low due to the site's location within a highly disturbed area surrounded by urban development which would likely deter individuals from long-term use of the site. However, implementing the above measures for BUOW would ensure the proposed project would not result in impacts to or loss of suitable habitat for the species.

Thank you for the opportunity to provide this Biological Resources Assessment. Please contact the undersigned with any questions.

Sincerely,
Rincon Consultants, Inc.

Ryan Gilmore
Senior Biologist / Project Manager

Steven J. Hongola
Principal Biologist

Attachments

References

Figures

Appendix A Project Site Photographs

Appendix B Special Status Species Potential for Occurrence

Appendix C Observed Plant Species List

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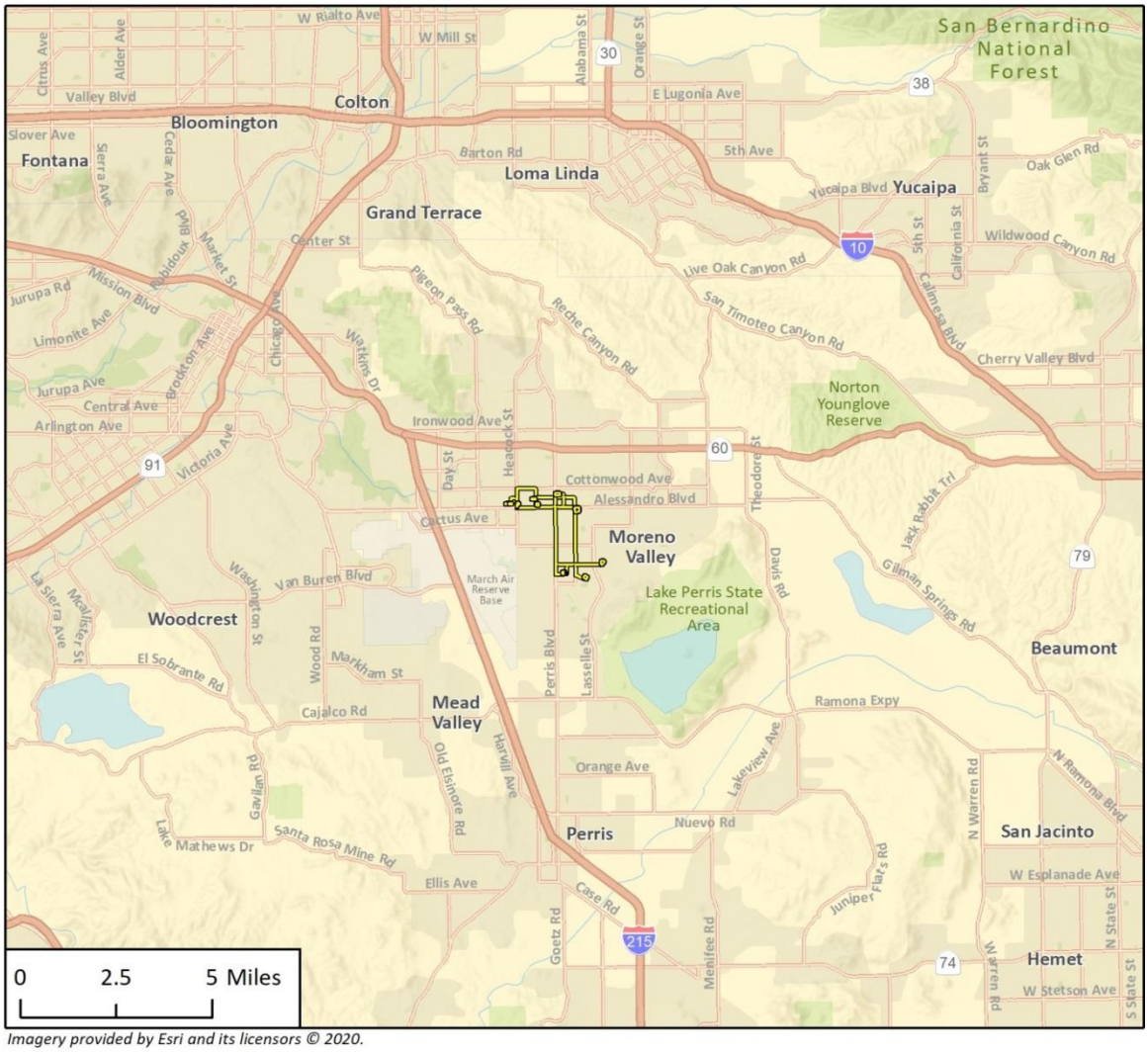
Figure 1 Project Location



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Project Location

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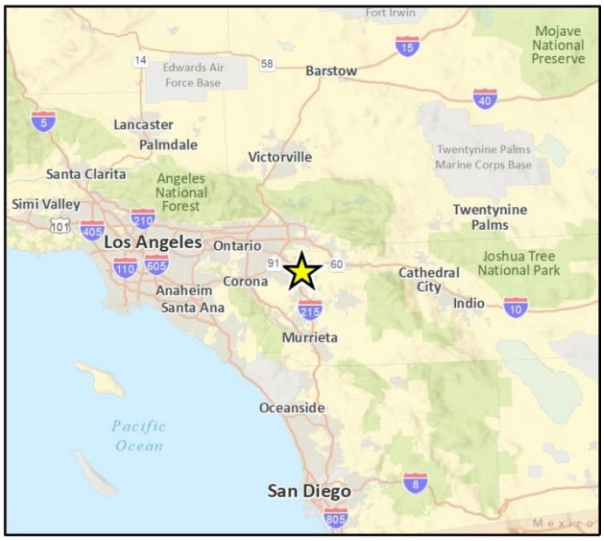

Figure 2 Topographic Map of Project Site

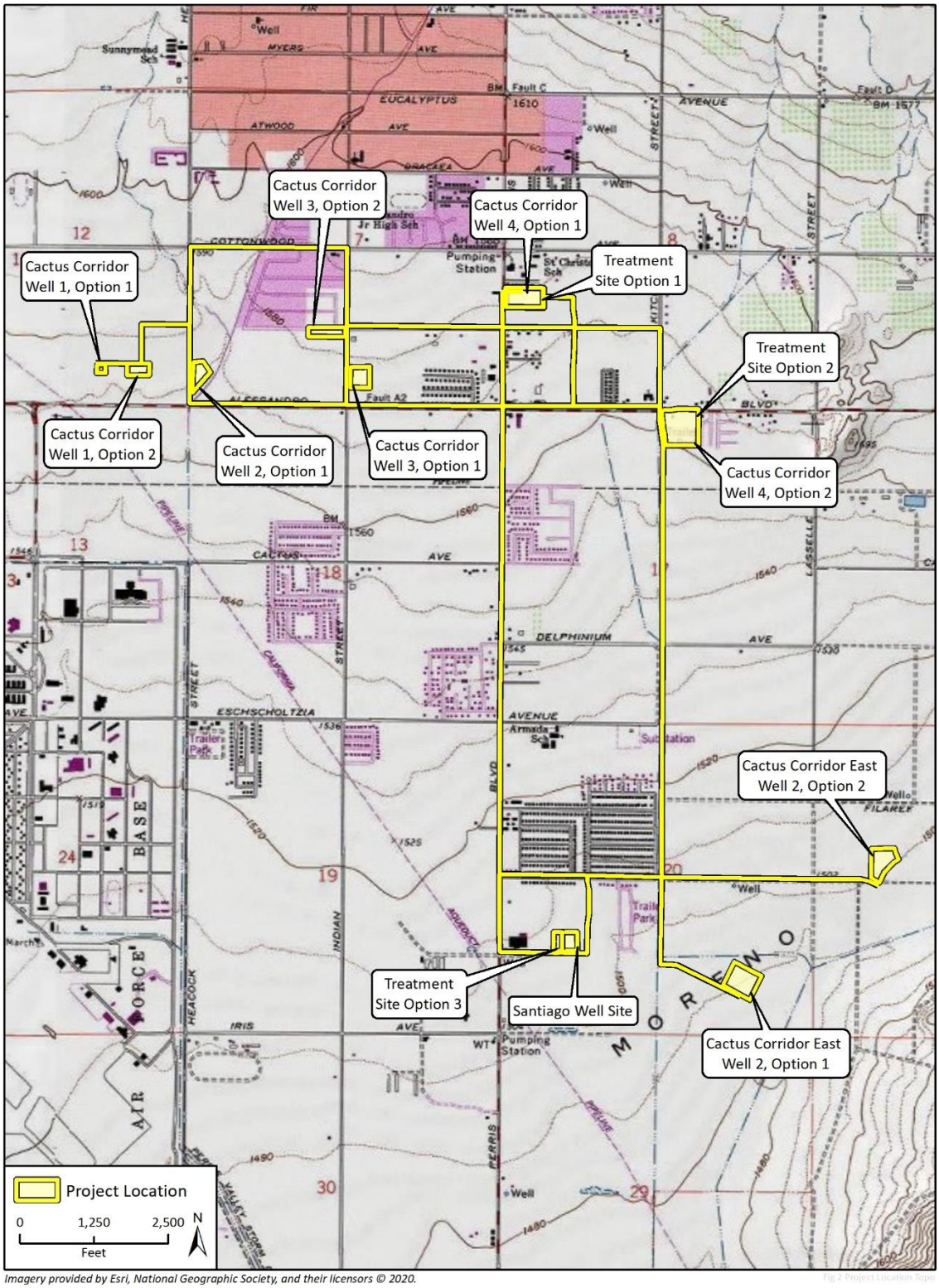

Figure 3a USDA Soils Map Northern Area

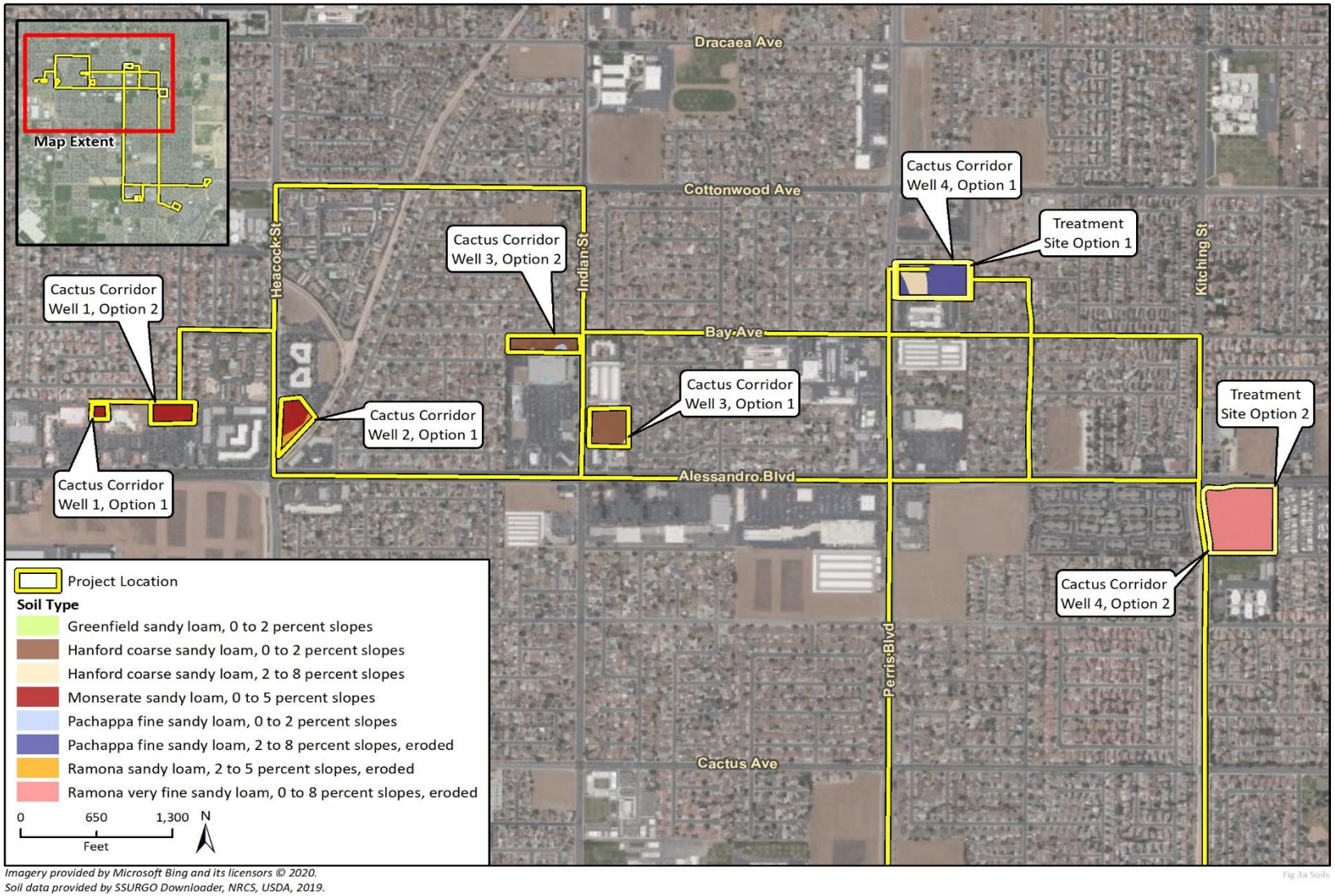

Figure 3b USDA Soils Map Southern Area

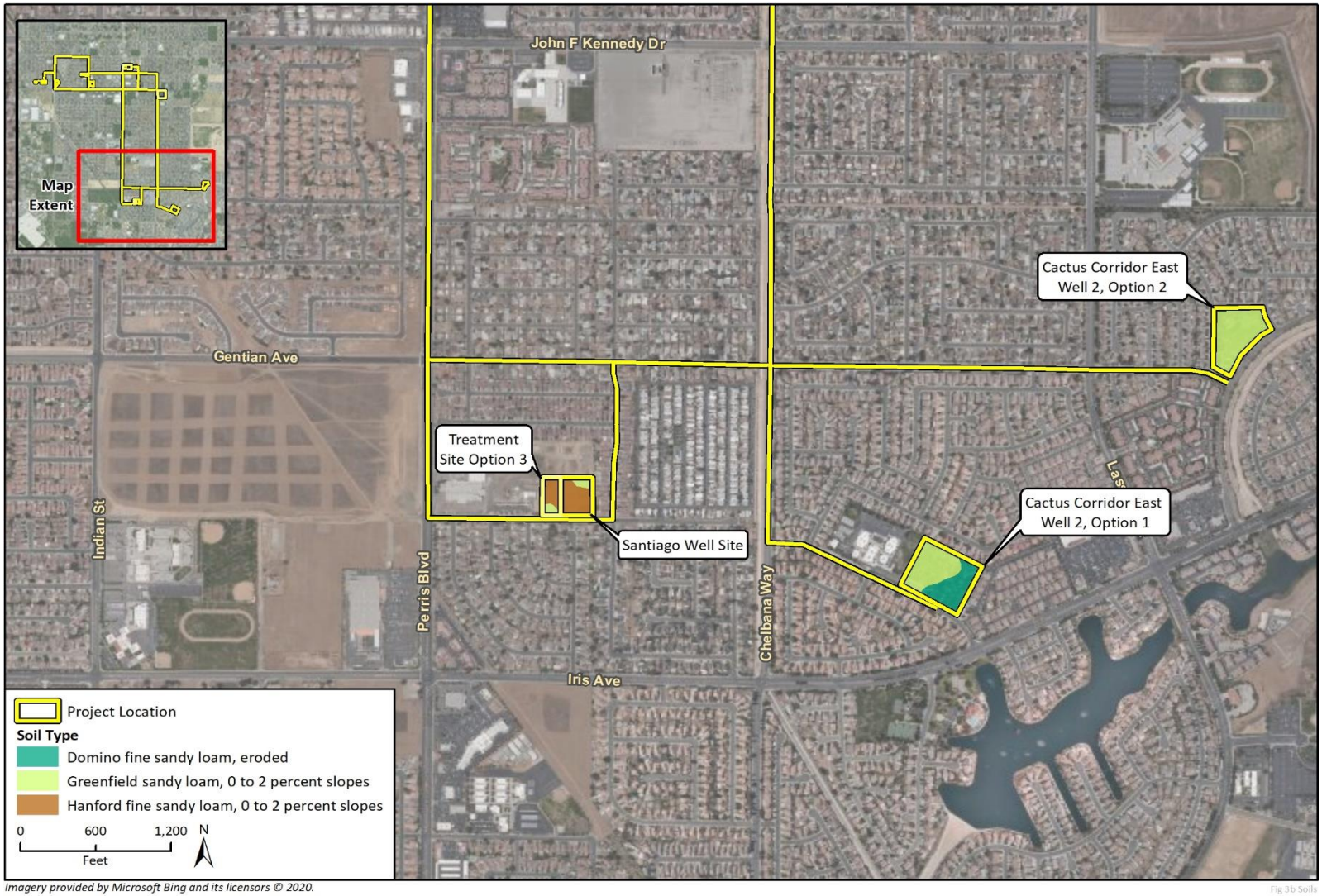

Figure 4 Vegetation Communities Map

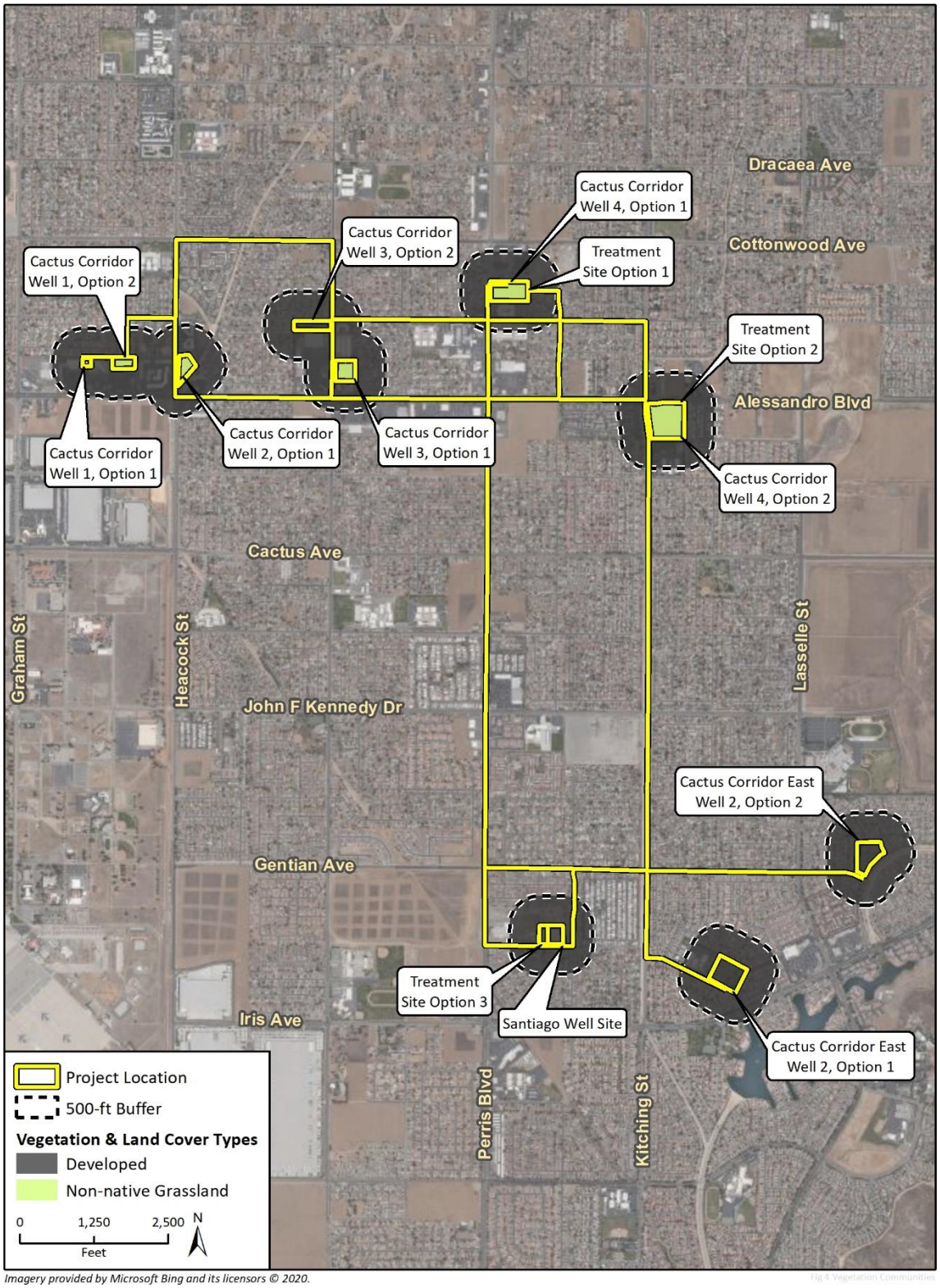

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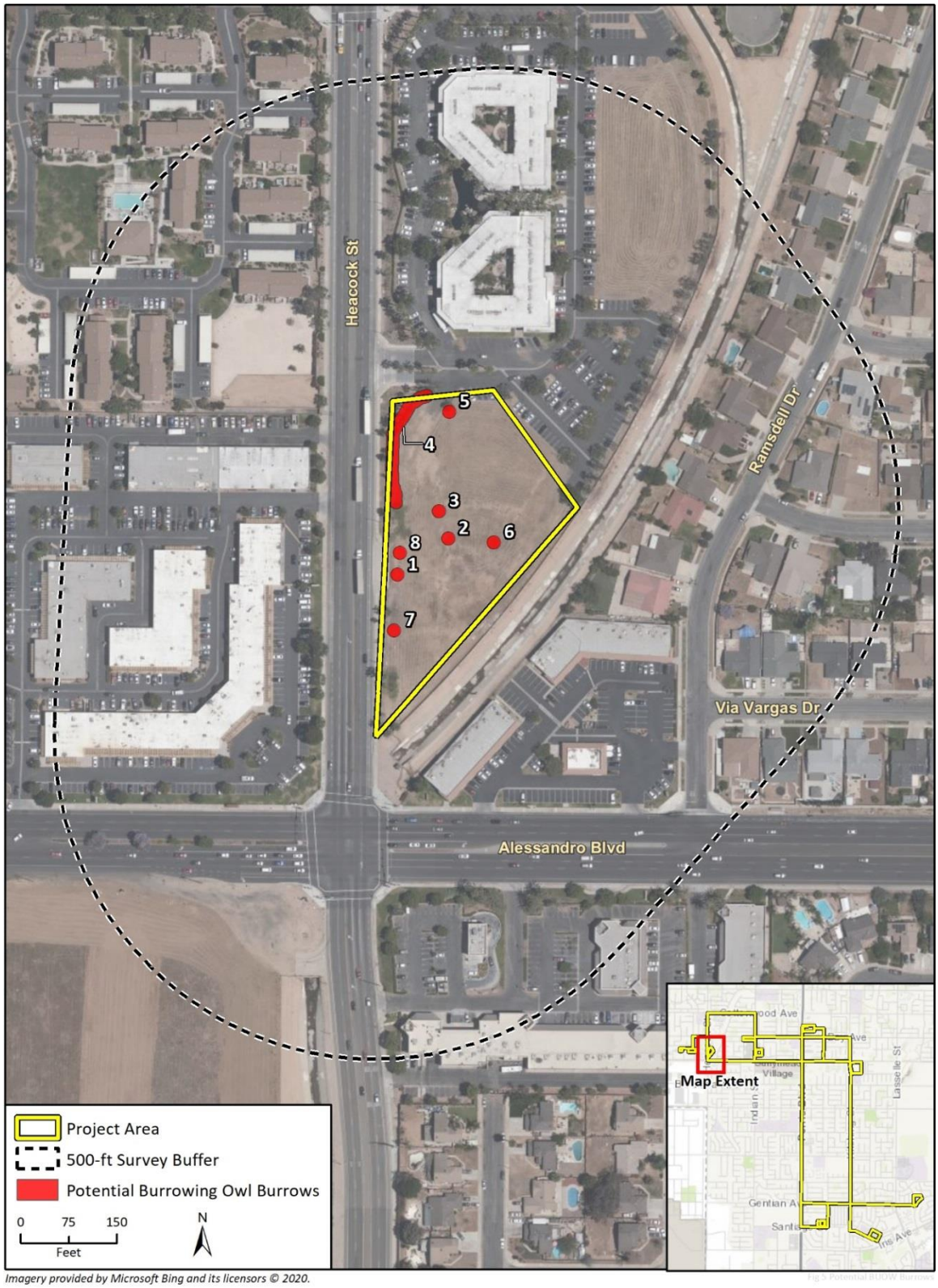
Figure 5 Potential BUOW Burrows



Appendix A

Project Site Photographs

Photograph 1. Proposed location for Cactus Corridor Well 1, Option 1 at northwest corner of project site. View to the south.

Photograph 2. Proposed location for Cactus Corridor Well 1, Option 2 at northwest corner of project site. View to the northeast.

Photograph 3. Proposed location for Cactus Corridor Well 2, Option 1 in northwest portion of the project site. View to the northeast.

Photograph 4. Potential BUOW burrows at proposed location for Cactus Corridor Well 2, Option 1. View to the west.

Photograph 5. Proposed location for Cactus Corridor Well 3, Option 1 in northern portion of the project site. View to the east.

Photograph 6. Proposed location for Cactus Corridor Well 3, Option 3 in northern portion of the project site. View to the south.

Photograph 7. Proposed location for Cactus Corridor Well 4, Option 1. View to the east.

Photograph 8. Proposed location for Treatment Site, Option 1. View to the north.

Photograph 9. Proposed location for Treatment Site Option 2. View to the east.

Photograph 10. Proposed location for Santiago Well Site. View to the east. Note: Water detainment basin located on site.

Photograph 11. Proposed location for Treatment Site Option 3. View to the northeast.

Photograph 12. Proposed location for Cactus Corridor East Well 2, Option 1. View to the east.

Photograph 13. Proposed location for Cactus Corridor East Well 2, Option 2. View to the north.

Appendix B

Special Status Species Potential for Occurrence

Table 1 Special Status Species Potential for Occurrence

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Plants				
Senecio aphanactis chaparral ragwort	None/None G3/S2 2B.2	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 20-1020 m. Annual herb. Blooms Jan-April.	Not Expected	No suitable scrub, woodland, or chaparral habitat present on site. Study area is highly developed/disturbed.
Lasthenia glabrata ssp. *Coulteri* Coulter's goldfields	None/None G4T2/S2 1B.1	Coastal salt marshes, playas, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. 1-1375 m. Annual herb. Blooms Feb-Jun.	Not Expected	No salt marshes, playas, or vernal pool habitat on site. Suitable alkaline soils do not occur on site.
Centromadia pungens ssp. *laevis* smooth tarplant	None/None G3G4T2/S2 1B.1	Valley and foothill grassland, chenopod scrub, meadows and seeps, playas, riparian woodland. Alkali meadow, alkali scrub; also in disturbed places. 5-1170 m. annual herb. Blooms Apr-Sep	Not Expected	No suitable grassland, scrub, or riparian habitat present on site. Alkali soils and vegetation absent. Study area is highly developed/ disturbed.
Chorizanthe parryi var. *parryi* Parry's spineflower	None/None G3T2/S2 1B.1	Coastal scrub, chaparral, cismontane woodland, valley and foothill grassland. Dry slopes and flats; sometimes at interface of 2 vegetation types, such as chaparral and oak woodland. Dry, sandy soils. 90-1220 m. annual herb. Blooms Apr-Jun	Not Expected	No suitable scrub, woodland, or grassland habitat present on site. Study area is highly developed/disturbed.
Calochortus plummerae Plummer's mariposa-lily	None/None G4/S4 4.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60-2500 m. Perennial herb. Blooms Mar-Jul.	Not Expected	No suitable scrub, chaparral, woodland, or grassland habitat present on site. Study area is highly developed/disturbed.
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	None/None G5T3/S3 4.3	Chaparral, coastal scrub. Dry soils, shrubland. 4-1435 m. Annual herb. Blooms Jan – Jul.	Not Expected.	No suitable chaparral or scrub habitat present on site. Project site is highly developed/disturbed.
Senecio aphanactis chaparral ragwort	None/None G3/S2 2B.2	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 20-855 m. annual herb. Blooms Jan-Apr(May)	Not Expected	No suitable scrub or woodland habitat present on site. Study area is highly developed/disturbed.
Chloropyron maritimum ssp. *maritimum* salt marsh bird's-beak	Endangered/ Endangered G4?T1/S1 1B.2	Marshes and swamps, coastal dunes. Limited to the higher zones of salt marsh habitat. 0-10 m. Annual herb. Blooms Mar-Oct.	Not Expected	No salt marsh or swamp habitat present on site. Project site is highly developed/disturbed.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Trichocoronis wrightii var. *wrightii* Wright's trichocoronis	None/None G4T3/S1 2B.1	Marshes and swamps, riparian forest, meadows and seeps, vernal pools. Mud flats of vernal lakes, drying river beds, alkali meadows. 5-435 m. Annual herb. Blooms Mar-Sep.	Not Expected	No marsh, riparian, or vernal pool habitat present. Project site is highly disturbed/developed.
Atriplex coronata var. notatior San Jacinto Valley crownscale	Endangered/ None G4T1/S1 1B.1	Playas, valley and foothill grassland, vernal pools. Alkaline areas in the San Jacinto River Valley. 35-460 m. Annual herb. Blooms Apr-Aug.	Not Expected	No playa, grassland, or vernal pool habitat present. Project site is highly disturbed/developed.
Invertebrates				
Streptocephalus woottoni Riverside fairy shrimp	Endangered/ None G1G2/S1S2	Endemic to Western Riverside, Orange, and San Diego counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	Not Expected	No suitable swales, grassland, scrub, or vernal pool habitat present on site. Study area is highly developed/disturbed.
Amphibians				
Spea hammondii western spadefoot	None/None G3/S3 SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Not Expected	No suitable grassland, woodland or vernal pool habitat present on site. Study area is highly developed/disturbed.
Reptiles				
Arizona elegans occidentalis California glossy snake	None/None G5T2/S2 SSC	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Not Expected	No suitable scrub habitat present on site. Grassland habitat present on site consists of highly disturbed, ornamental, or fragmented areas surrounded by development. Project site is highly developed/disturbed and surrounded by existing development.
Aspidoscelis tigris stejnegeri coastal whiptail	None/None G5T5/S3 SSC	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland & riparian areas. Ground may be firm soil, sandy, or rocky.	Not Expected	No desert, woodland or riparian habitat present on site. Study area is highly developed/disturbed and surrounded by existing development.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Crotalus ruber red-diamond rattlesnake	None/None G4/S3 SSC	Chaparral, woodland, grassland, & desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	Not Expected	No rocky areas or dense vegetation present on site. Study area is highly developed/disturbed and surrounded by existing development.
Phrynosoma blainvillii coast horned lizard	None/None G3G4/S3S4 SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Not Expected	No sandy washes or bushes present on site. Study area is highly developed/disturbed and surrounded by existing development.
Anniella stebbinsi Southern California legless lizard	None/None G3/S2	Generally south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County. Variety of habitats; generally in moist, loose soil. They prefer soils with a high moisture content.	Not Expected	No suitable soils or sparse vegetation present on site. Study area is highly developed/disturbed and surrounded by existing development.
Birds				
Accipiter cooperii Cooper's hawk	None/None G5/S4 WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Not Expected	No suitable woodland or riparian habitat present on site. Study area is highly developed/ disturbed and surrounded by existing development.
Agelaius tricolor tricolored blackbird	None/ Threatened G2G3/S1S2 SSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	Not Expected	No suitable riparian habitat present on site. Study area is highly developed/disturbed and surrounded by existing development.
Aimophila ruficeps canescens southern California rufous-crowned sparrow	None/None G5T3/S3 WL	Resident in Southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	Not Expected	No suitable scrub habitat present on site. Study area is highly developed/disturbed and surrounded by existing development.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Artemisiospiza belli belli Bell's sage sparrow	None/None G5T2T4/S3 WL	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range. Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yds apart.	Not Expected	No suitable chaparral or scrub habitat present on site. Study area is highly developed/ Disturbed and surrounded by existing development.
Athene cunicularia burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low	The project site contains disturbed ruderal habitat and bare ground which may provide marginal habitat for this species. California ground squirrel burrows are present nearby. Habitat quality and potential for occurrence are low due to high levels of existing development/ disturbance as well as the site's location surrounded by existing development.
Coccyzus americanus occidentalis western yellow-billed cuckoo	Threatened/ Endangered G5T2T3/S1	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Not Expected	No suitable riparian habitat present on site. Study area is highly developed/disturbed and surrounded by existing development.
Eremophila alpestris actia California horned lark	None/None G5T4Q/S4 WL	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Low	The project site contains disturbed ruderal habitat and bare ground which may provide marginal habitat for this species. Habitat quality and potential for occurrence is considered low due to high levels of existing development/ disturbance.
Icteria virens yellow-breasted chat	None/None G5/S3 SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	Not Expected	No suitable riparian habitat present on site. Study area is highly developed/disturbed and surrounded by existing development.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Lanius ludovicianus loggerhead shrike	None/None G4/S4 SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub & washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Not Expected	No suitable woodland, savannah, or scrub habitat present on site. Study area is highly developed/disturbed and surrounded by existing development.
Polioptila californica californica coastal California gnatcatcher	Threatened/ None G4G5T2Q/S2 SSC	Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	Not Expected	No suitable scrub habitat present on site. Study area is highly developed/disturbed and surrounded by existing development.
Spinus lawrencei Lawrence's goldfinch	None/None G3G4/S3S4	Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding. Closely associated with oaks.	Not Expected	No suitable woodland or chaparral habitat present on site. Study area is highly developed/disturbed and surrounded by existing development.
Vireo bellii pusillus least Bell's vireo	Endangered/ Endangered G5T2/S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Not Expected	No suitable riparian habitat present on site. Study area is highly developed/disturbed and surrounded by existing development.
Buteo regalis ferruginous hawk	None/None G4/S3S4	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	Not Expected	No suitable grassland, sagebrush, scrub, or pinyon and juniper woodland habitats present. Project site is highly disturbed/developed and surrounded by existing development.
Mammals				
Chaetodipus fallax fallax northwestern San Diego pocket mouse	None/None G5T3T4/S3S4 SSC	Coastal scrub, chaparral, grasslands, sagebrush, etc. in western San Diego County. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	Not Expected	No suitable scrub or grassland habitats present on site. Study area is highly developed/disturbed and surrounded by existing development.
Dipodomys stephensi Stephens' kangaroo rat	Endangered/ Threatened G2/S2	Primarily annual & perennial grasslands, but also occurs in coastal scrub & sagebrush with sparse canopy cover. Prefers buckwheat, chamise, brome grass and filaree. Will burrow into firm soil.	Not Expected	No suitable scrub or grassland habitats present on site. Study area is highly developed/disturbed and surrounded by existing development.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Eumops perotis californicus western mastiff bat	None/None G5T4/S3S4 SSC	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Not Expected	No suitable woodland, scrub, grassland or habitats present on site. Study area is highly developed/disturbed and surrounded by existing development.
Lasiurus xanthinus western yellow bat	None/None G5/S3 SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	Not Expected	No suitable riparian habitats or trees for roosts present on site. Study area is highly developed/disturbed and surrounded by existing development.
Lepus californicus bennettii San Diego black-tailed jackrabbit	None/None G5T3T4/S3S4 SSC	Intermediate canopy stages of shrub habitats & open shrub/herbaceous & tree/herbaceous edges. Coastal sage scrub habitats in Southern California.	Not Expected	No suitable scrub habitat present on site. Study area is highly developed/disturbed and surrounded by existing development.
Nyctinomops femorosaccus pocketed free-tailed bat	None/None G4/S3 SSC	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.	Not Expected	No suitable woodland, scrub, riparian or cliff habitats present on site. Study area is highly developed/disturbed and surrounded by existing development.
Onychomys torridus ramona southern grasshopper mouse	None/None G5T3/S3 SSC	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover. Feeds almost exclusively on arthropods, especially scorpions and orthopteran insects.	Not Expected	No suitable scrub habitat present on site. Study area is highly developed/disturbed and surrounded by existing development.
Perognathus longimembris brevinasus Los Angeles pocket mouse	None/None G5T1T2/S1S2 SSC	Lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin. Open ground with fine, sandy soils. May not dig extensive burrows, hiding under weeds and dead leaves instead.	Not Expected	No suitable scrub or grassland habitat present on site. Study area is highly developed/disturbed and surrounded by existing development.
Taxidea taxus American badger	None/None G5/S3	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not Expected	No suitable shrub, forest, or herbaceous habitats present. Project site is highly disturbed/developed and surrounded by existing development.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Dipodomys merriami parvus San Bernardino kangaroo rat	FE/SCE	Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains. Needs early to intermediate seral stages.	Not Expected	No suitable alluvial scrub vegetation present. Project site is highly disturbed/developed and surrounded by existing development.

Status: Federal/State

FE = Federal Endangered
FT = Federal Threatened
CFT = Candidate Federal Threatened
FDL = Federal Delisted
SE = State Endangered
ST = State Threatened
SCE = Candidate State Endangered
SR = State Rare
SDL = State Delisted
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List

CRPR (CNPS California Rare Plant Rank)

1A = Presumed Extinct in California
1B = Rare, Threatened, or Endangered in California and elsewhere
2 = Rare, Threatened, or Endangered in California, but more common elsewhere
3 = Need more information (a Review List)
4 = Plants of Limited Distribution (a Watch List)

CRPR Threat Code Extension

.1 = Seriously endangered in California (>80% of occurrences threatened/high degree and immediacy of threat)
.2 = Fairly endangered in California (20-80% of occurrences threatened)
.3 = Not very endangered in California (<20% of occurrences threatened)

Other Statuses

G1 or S1	Critically Imperiled Globally or Subnationally (state)
G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
GH or SH	Possibly Extirpated – missing; known from only historical occurrences but still some hope of rediscovery

Additional notations may be provided as follows

T – Intraspecific Taxon (subspecies, varieties, and other designations below the level of species)
Q – Questionable taxonomy that may reduce conservation priority
? – Inexact numeric rank

Appendix C

Observed Plant Species List

Observed Plant Species List

Scientific Name[1]	Common Name	Indicator Status[2]: Arid West Region
Amsinckia intermedia	common fiddleneck	NL (UPL)
Avena fatua	wildoats	NL (UPL)
Baccharis salicifolia	mulefat	FAC
Bromus madritensis ssp. *rubens*	red brome	UPL
Erodium cicatarium	red stemmed filaree	NL (UPL)
Helianthus annus	common sunflower	FACU
Heterotheca grandiflora	telegraph weed	NL (UPL)
Salix laevigata	red willow	FACW
Salsola tragus	Russian thistle	FACU
Schinus molle	Peruvian pepper tree	FACU
Schismus barbatus	Mediterranean schismus	NL (UPL)

[1] Scientific Name as listed in the State of California 2016 Wetland Plant List for listed species, or from Jepson eFlora for taxa not currently included in the State of California 2016 Wetland Plant List

[2] Indicator Status Codes:

FAC	Equally likely to occur in wetlands and non-wetlands.
FACU	Plants that typically occur in xeric or mesic non-wetland habitats but may frequently occur in standing water or saturated soils.
UPL	Plants that rarely occur in water or saturated soils.
NL (UPL)	Species is not listed and therefore treated as an upland plant in this region

APPENDIX C: CULTURAL RESOURCES ASSESSMENT

Cactus Avenue Corridor Project

Cultural Resources Assessment Report

prepared for

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Contact: Rosalyn Prickett, Project Manager

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February 2020

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Executive Summary

Woodard & Curran retained Rincon Consultants, Inc. (Rincon) to perform a cultural resources assessment for the Cactus Avenue Corridor Project (project) in the city of Moreno Valley, Riverside County, California. The project involves the development and operation of groundwater extraction, treatment, and distribution facilities in the Perris North Groundwater Management Zone. The Project includes construction and operation of extraction wells, raw water pipelines, a water treatment and blending plant, and treated water pipelines. The purpose of this report is to document the tasks Rincon conducted; specifically, a cultural resources records search, Native American and local historic group consultation, historical map and imagery review, and a field survey. This study has been completed in accordance with the requirements of a California Environmental Quality Act (CEQA)-Plus investigation, which includes an evaluation of project impacts under CEQA, Section 106 of the National Historic Preservation Act (NHPA), and the National Environmental Policy Act in case a federal nexus is established during the project (i.e., federal funding and/or permitting).

The records search identified 16 previously recorded cultural resources within 0.5 mile of the project's Area of Potential Effects (APE). These include five prehistoric archaeological sites, two prehistoric isolated artifacts or features, three historic-period archaeological sites, and six historic-period built-environment (buildings and structures) resources. None of these previously recorded cultural resources are located within the APE.

A search of the Sacred Lands File at the Native American Heritage Commission returned negative results. Rincon subsequently conducted consultation with local Native American groups to obtain information on known Native American resources located in the APE or vicinity. As of February 5, 2020, a total of 15 responses have been received. In addition, Rincon also conducted consultation with local historical societies to obtain additional information on historic-period cultural resources in the area. Two responses were received from the March Field Air Museum and City of Moreno Valley Environmental and Historical Preservation Board and no responses were received from the Moreno Valley Historical Society and the Riverside African American Historical Society as a result of the historic group consultation efforts.

An intensive pedestrian survey of the proposed pipeline alignments and proposed well and treatment sites identified no cultural resources within the APE. The lack of surface evidence of archaeological remains does not preclude their subsurface existence as prehistoric and historic period resources have been recorded in the region. However, results of the record search indicate no substantial prehistoric or historic period archaeological remains are present within or adjacent to the project alignment. Given these findings, the project APE does not appear to be highly sensitive for buried archaeological remains.

Based on the results of the records search, Native American and local historic group consultation, and field survey, no cultural resources were identified in the project's APE that will be impacted or adversely affected by the project. Therefore, Rincon recommends a finding of ***no impact to historical and archaeological resources*** under CEQA and ***no historic properties affected*** under Section 106 of the NHPA.

Rincon presents the following recommendation in case of unanticipated discovery of cultural resources during project development. The project is also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the discovery proves to be significant under Section 106 of the NHPA and/or CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts.

Human Remains

If human remains are found, regulations outlined in the State of California Health and Safety Code Section 7050.5 state no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of being granted access and provide recommendations as to the treatment of the remains to the landowner.

1 Introduction

Woodard & Curran retained Rincon Consultants, Inc. (Rincon) to perform a cultural resources assessment for the Eastern Municipal Water District's (EMWD) Cactus Avenue Corridor Project (project) in the city of Moreno Valley, Riverside County, California. The purpose of this report is to document the tasks Rincon conducted; specifically, a cultural resources records search, Native American and local historic group consultation, historical map and imagery review, and a field survey. Rincon understands the project requires review by the State Water Resources Control Board and may be completed using federal funding. Therefore, the cultural resources study was completed in accordance with California Environmental Quality Act (CEQA)-Plus standards for compliance with CEQA, the National Environmental Policy Act, and Section 106 of the National Historic Preservation Act (NHPA).

1.1 Project Location

The project site is within the city of Moreno Valley in western Riverside County, California (Figure 1 and Figure 2). More specifically, it encompasses a portion of Township 3 south, Range 3 west, sections 7, 8, and 17-21 of the United States Geological Survey *Riverside East, CA* and *Sunnymead, CA* 7.5-minute topographic quadrangles (Figure 3a and Figure 3b). The project site and surrounding area are characterized by a mix of residential, commercial, and light industrial development.

1.2 Project Description

The project involves the development and operation of groundwater extraction, treatment, and distribution facilities in the Perris North Groundwater Management Zone. The project includes construction and operation of extraction wells, raw water and treated water pipelines, and a water treatment and blending plant. Descriptions of the various project elements are provided below.

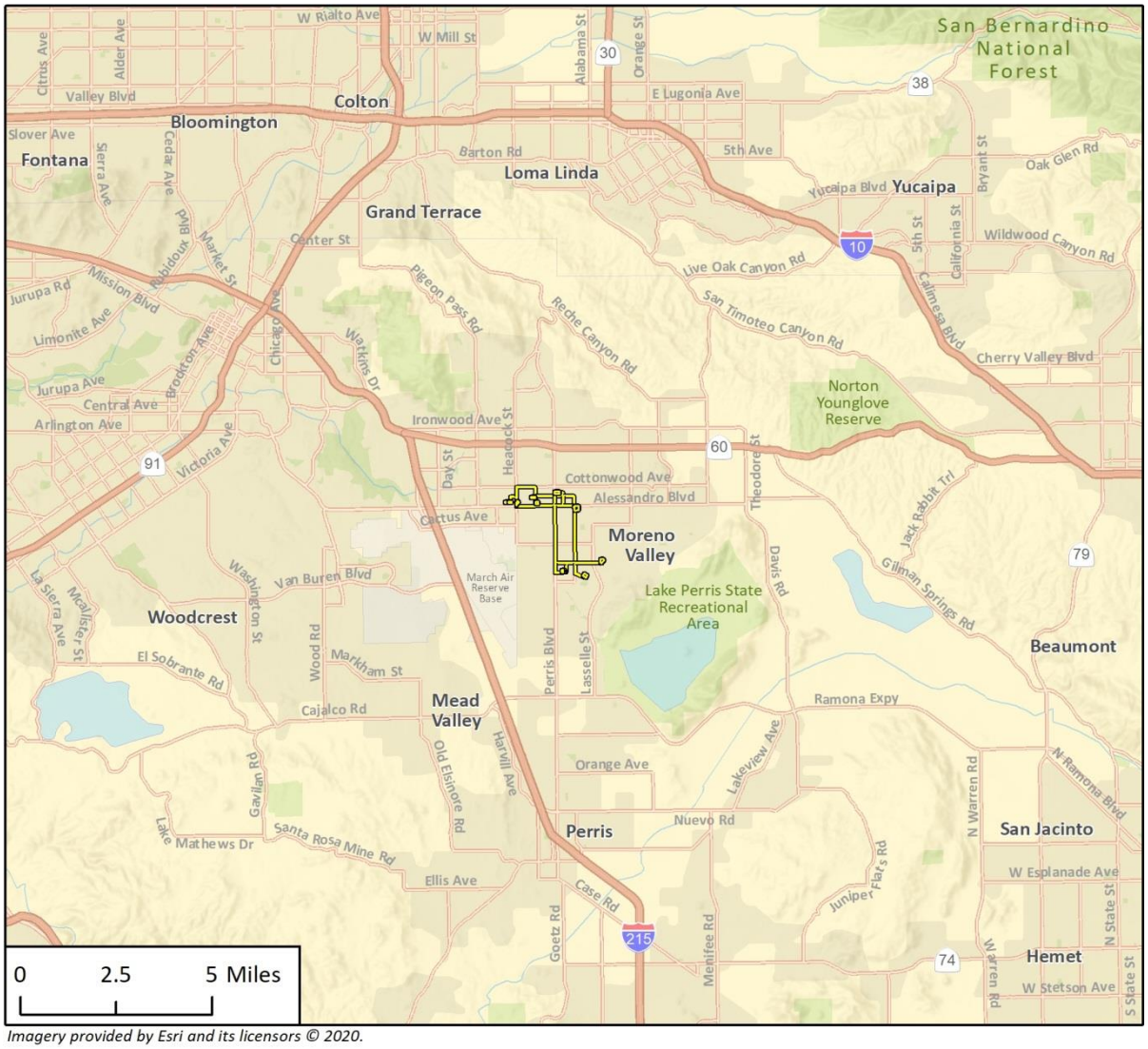
Extraction Wells

Up to six extraction wells would be constructed in the project Area of Potential Effects (APE). EMWD has identified nine potential locations for the well sites. The extraction wells would be constructed in two phases: a well drilling phase, and a well equipping phase. Construction of the extraction wells is assumed to temporarily disturb 100 percent of each of the parcel sites. Each well site would be designed to utilize the existing grade of the parcel where applicable. Each well would be constructed with an accompanying overflow (i.e., blow-off) pond. Portable, steel liquid container tanks (i.e. Baker Tanks) would be used for on-site dewatering clarification.

Pipelines

Approximately 30,000 linear feet of pipeline would be constructed to convey raw water from the extraction wells to the proposed treatment plant and to convey treated water to the distribution system. These pipelines would be located primarily within easements, roadway rights-of-way, and EMWD owned land. There would be up to 2,650 linear feet of 30-inch pipeline to convey treated

Figure 1 Project Location Map



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Project Location

N

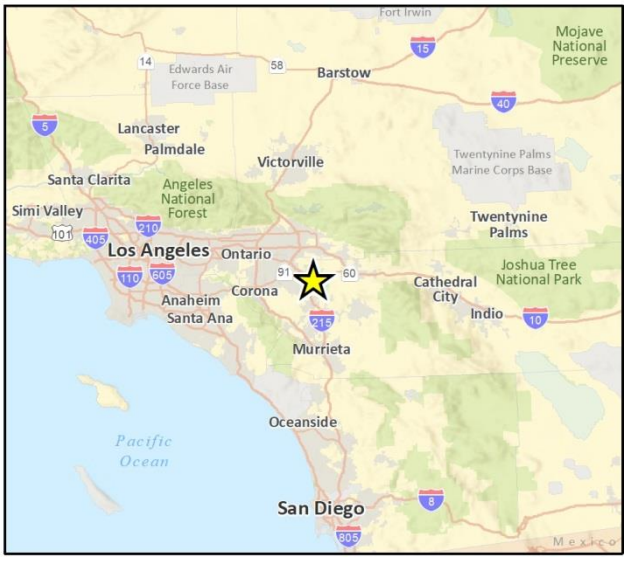

Figure 2 Project Vicinity Map

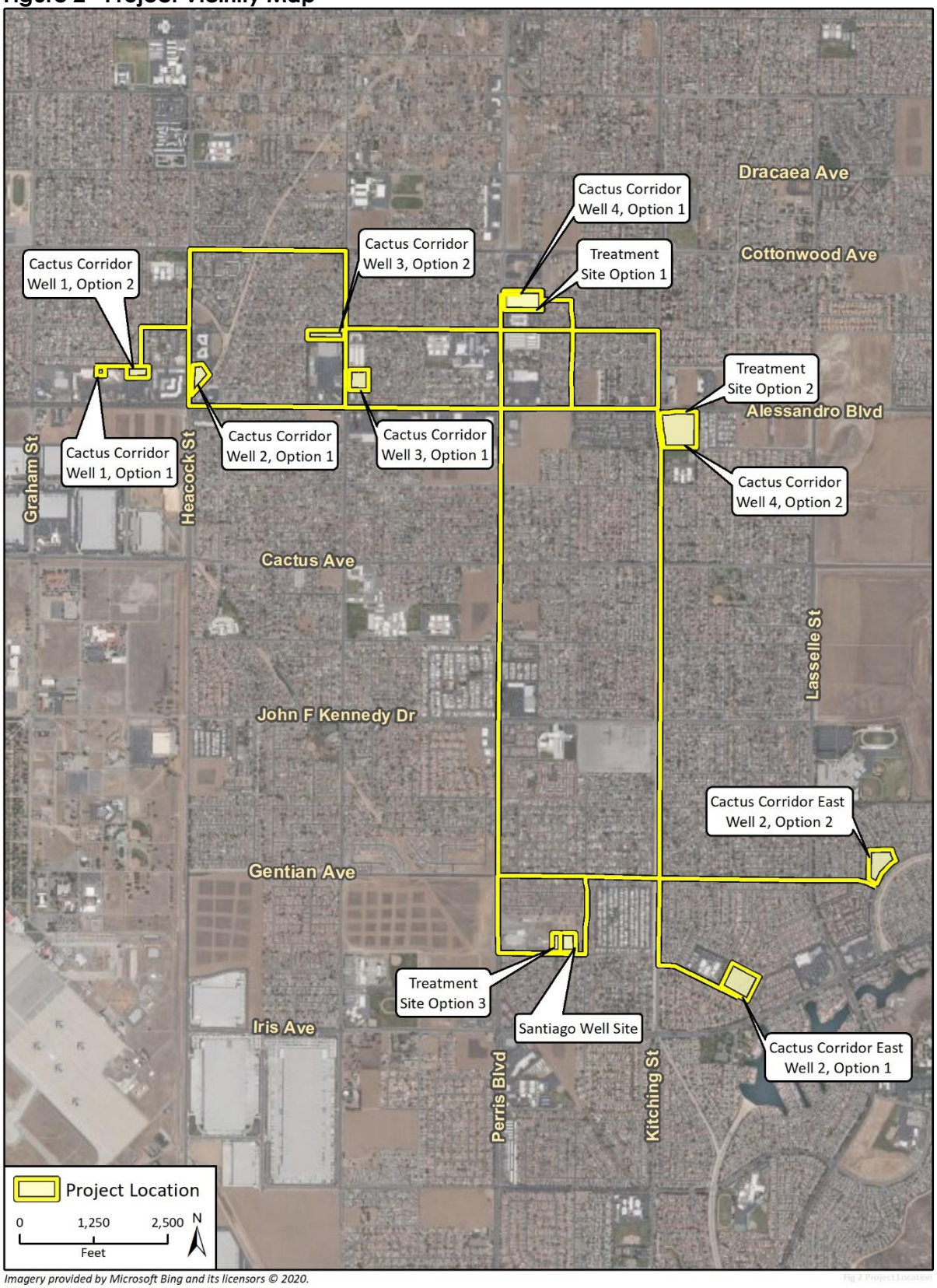

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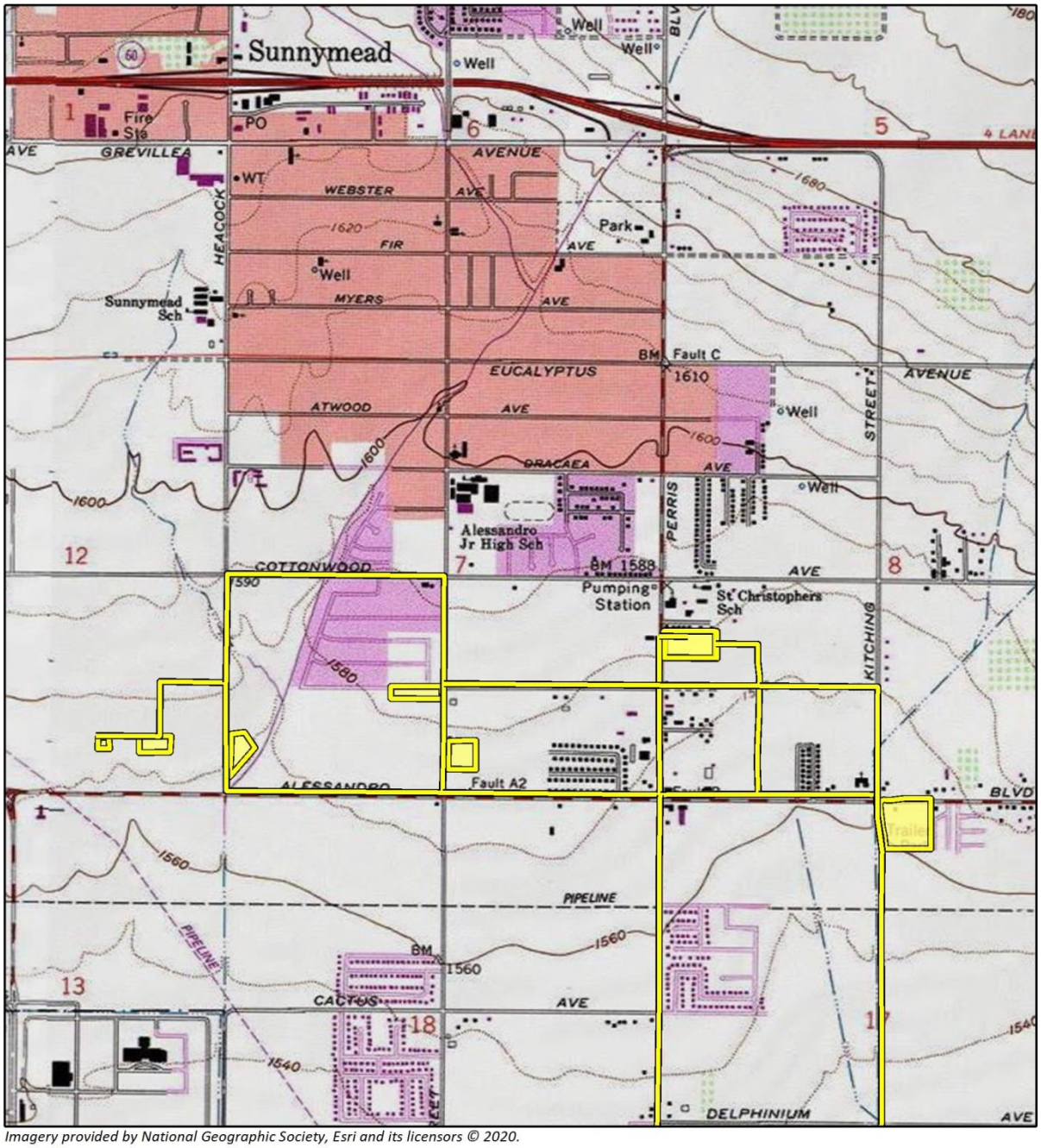
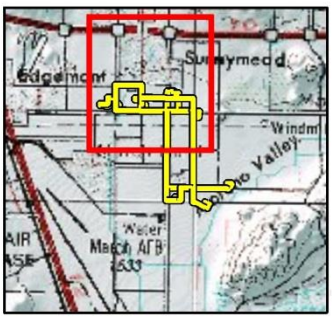
Figure 3a Area of Potential Effects Map

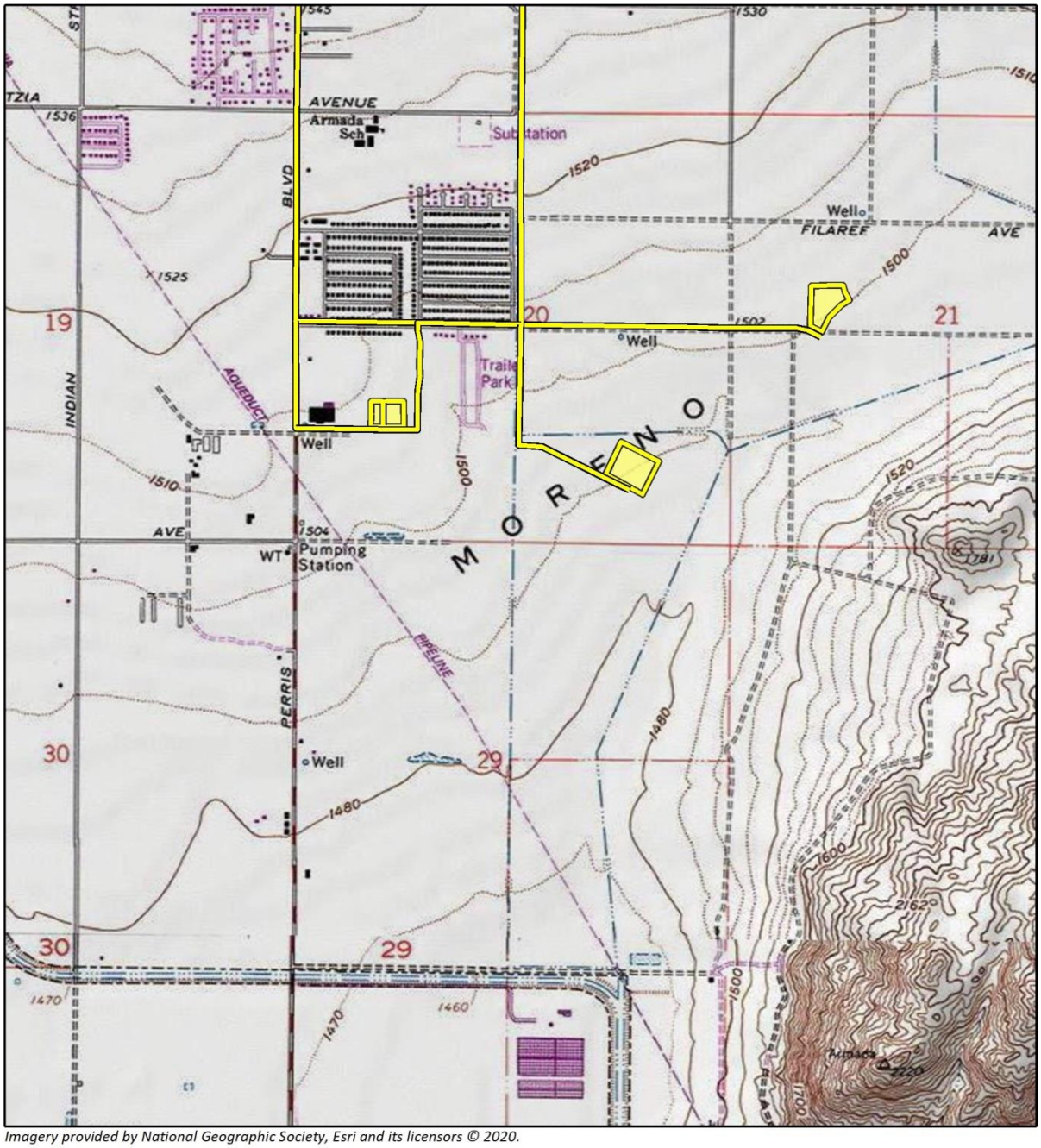


Imagery provided by National Geographic Society, Esri and its licensors © 2020. Sunnymead Quadrangle. T03S R03W S7,8,17-20 & T03S R04W S12. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.



CRFig X Project Locations Topo Map

Figure 3b Area of Potential Effects Map (continued)



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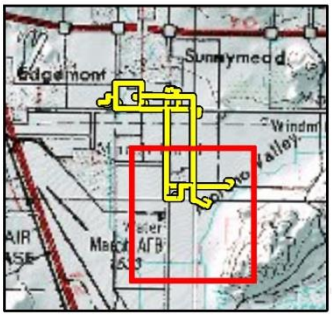

Project Area of Potential Effect

0 1,000 2,000 Feet

0 250 500 Meters

N

CRFig X Project Locations Topo Map

water from the central treatment and blending facility to the distribution system, and up to 30,400 linear feet of pipe to convey raw water from the extraction wells to the treatment and blending facility. The raw water pipeline would vary in diameter from 8-, 12- or 16-inches. There would also be approximately 100 linear feet of 18-inch pipe to discharge brackish water from the central treatment and blending facility to the sanitary sewer system. The future Cactus II Feeder pipelines and turn-outs used for conveyance of Metropolitan Water District of Southern California (Metropolitan) water for blending are not a part of this environmental analysis; they were analyzed under an Initial Study-Mitigated Negative Declaration which was adopted by EMWD in August 2018. However, approximately 100 linear feet of 30-inch pipeline constructed between the Cactus II Feeder pipelines and the proposed treatment and blending plant facilities are included as part of this project.

Pipelines would be installed using open cut trench construction, as well as trenchless boring techniques. Open cut excavation would be used in existing roadways, except at crossings of existing facilities, utilities, and storm channels. Pipelines installed using open cut methods would include a trenching depth of 3 to 4 feet. The estimated trench width would be equal to 2 feet plus the pipeline diameter, for a width of up to 4 feet. When trenchless techniques are required, pipelines would be constructed using “jack and bore” methods. For this construction method, pits would be dug on either side of the surface feature to be avoided (e.g. storm channel or existing utilities). The pits are typically 10 to 15 feet wide and 10 to 20 feet long for the receiving pit and up to 50 feet long for the jacking pit. The depth would depend on the feature to be avoided.

Treatment Plant

The proposed treatment plant would include granular activated carbon contactors, a blending facility, a potable water distribution pump station and a chlorine residual injection system. A nitrate treatment facility would also need to be constructed at the centralized treatment plant site to be used when blend water of sufficient quality is not available. EMWD has identified two potential sites for the treatment plant.

The raw water from the extraction wells will be treated and blended with imported water from Metropolitan to meet drinking water standards. The water would then be delivered to a large diameter transmission pipeline in the potable water system and conveyed to other parts of EMWD’s service area. The water would be disinfected prior to discharging into the potable water system.

1.3 Area of Potential Effects

36 Code of Federal Regulations (CFR) 800.16(d) defines a project APE as the “geographic area or areas within which a project may directly or indirectly cause changes in the character or use of historic properties if any such property exists.” The APE generally depicts all areas expected to be affected by the proposed project, including construction staging areas. For this study, the APE encompasses the project disturbance footprint associated with the installation of the pipeline, along with a 10-foot-wide buffer on either side of the alignment. The APE also includes the proposed well extraction and treatment plant sites. As shown in Figures 3a and 3b, large portions of the horizontal APE lie within existing roadways along Cottonwood Avenue, Indian Street, Alessandro Boulevard, Sweet Grass Drive, Flaming Arrow Drive, Perris Boulevard, Kitching Street, Gentian Avenue, Santiago Avenue, Patricia Street, and Los Cabos Drive. In total, the horizontal APE encompasses approximately 67.60 acres.

The APE must also be considered as a three-dimensional space and includes any ground disturbance associated with the project. Pipelines would be constructed in existing roadways using an open cut method, except at crossings of existing facilities, utilities, and storm channels. Pipelines installed using open cut methods would include a trenching depth of 3 to 4 feet. When trenchless techniques are required, pipelines would be constructed using jack and bore technologies, which may reach depths of up to 40 feet below the ground surface. Finally, the vertical depth of the APE for the proposed well locations is estimated to reach 1,100 feet below ground surface. Because most of the project elements will be subterranean, no indirect effects (i.e., visual, auditory, or atmospheric) are anticipated for the project.

1.4 Project Personnel

Rincon Archaeologist and Principal Investigator Tiffany Clark, PhD, Registered Professional Archaeologist (RPA) provided management oversight for this cultural resources study. Dr. Clark meets the Secretary of the Interior's Professional Qualifications Standards for prehistoric and historic archaeology (National Park Service 1983). Staff archaeologist Lindsay Porras, MA, RPA, completed the records search for the project. Staff Architectural Historian James Williams, MA, assisted with the Native American outreach and local historic group consultation. Archaeologist Gena Granger, MA, RPA performed the field survey and assisted in the preparation of this report. Geographic Information Systems Analyst Allysen Valencia prepared the figures found in this report. Principal Jennifer Haddow, PhD, reviewed this report for quality control.

2 Regulatory Setting

This section includes a discussion of the applicable federal, state, and local laws, ordinances, regulations, and standards governing cultural resources, to which the proposed project should adhere before and during implementation.

2.1 Federal

National Historic Preservation Act

The proposed project is considered a federal undertaking due to the potential for federal funding; it is, therefore, subject to Section 106 of the NHPA, which applies when a project, activity, or program is funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including projects carried out by or on behalf of a federal agency; those carried out with federal financial assistance; and those requiring a federal permit, license, or approval. Cultural resources are considered during federal undertakings chiefly under Section 106 of the NHPA of 1966 (as amended) and through one of its implementing regulations, 36 CFR 800 (Protection of Historic Properties), and the National Environmental Policy Act. Properties of traditional, religious, and cultural importance to Native Americans are considered under Section 101 (d)(6)(A) and Section 106 (36 CFR 800.3-800.10) of the NHPA. Other federal laws governing cultural resources include the Archaeological Data Preservation Act of 1974, the American Indian Religious Freedom Act of 1978, the Archaeological Resources Protection Act of 1979, and the Native American Graves Protection and Repatriation Act of 1989, among others.

Section 106 of the NHPA (16 United States Code 470f) requires federal agencies to take into account the effects of their undertakings on historic properties and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, the significance is assessed of any adversely affected historic property and mitigation measures are proposed to resolve the adverse effects to an acceptable level. Historic properties are those significant cultural resources listed in or are eligible for listing in the National Register of Historic Properties (NRHP). Generally, districts, sites, buildings, structures, and object that possess integrity are eligible for inclusion in the NRHP if they meet the following the criteria (36 CFR 60.4):

a. Are associated with events that have made a significant contribution to the broad patterns of our history
b. Are associated with the lives of persons significant in our past
c. Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
d. Have yielded, or may be likely to yield, information important in prehistory or history

Ordinarily, cemeteries, birthplaces, or graves of historic figures; properties owned by religious institutions or used for religious purposes; structures having been moved from their original locations; reconstructed historic buildings; and properties that are primarily commemorative in nature are not considered eligible for NRHP listing, unless they satisfy certain conditions. In general,

a resource must be 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

2.2 State

California Environmental Quality Act

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1) or tribal cultural resources (PRC Section 21074[a][1][A]-[B]). A historical resource is a resource listed, or determined to be eligible for listing in the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or an object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be *historically significant* (State CEQA Guidelines, Section 15064.5[a][1-3]).

A resource shall be considered *historically significant* if it meets any of the following criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
2) Is associated with the lives of persons important to our past
3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
4) Has yielded, or may be likely to yield, information important in prehistory or history

Generally, a cultural resource must be at least 50 years of age to be considered for listing on the CRHR. Resources that have achieved significance within the past 50 years may also be eligible for inclusion in the CRHR, provided enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource (Office of Historic Preservation n.d.:3).

If it can be demonstrated a project will cause damage to a *unique archaeological resource*, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b]).

PRC Section 21083.2(g) defines a *unique archaeological resource* as an artifact, object, or site about which it can be demonstrated clearly that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

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

Assembly Bill 52

California Assembly Bill 52 (AB 52) was enacted July 1, 2015; it expands CEQA by defining a new resource category called *tribal cultural resources* (TCR). AB 52 establishes "a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a

significant effect on the environment" (PRC Section 21084.2). It further states the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a TCR, when feasible (PRC Section 21084.3).

PRC Section 21074(a)(1)(A) and (B) defines TCRs as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and meets either of the following criteria:

1) Listed or eligible for listing in the CRHR, or in a local register of historical resources, as defined in PRC Section 5020.1(k)
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe

AB 52 also establishes a formal consultation process for California tribes regarding TCRs. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those requesting notice of projects proposed within the jurisdiction of the lead agency. The consultation process for a project must take place prior to the adoption of a negative declaration or mitigation negative declaration or the certification of an environmental impact report.

3 Natural and Cultural Setting

3.1 Natural Setting

The project APE lies within the Moreno Valley which is bounded by the Badlands to the east, Perris Valley to the south, the Box Spring Mountains to the north, and Sycamore Canyon to the west. The nearest major body of water is the Perris Reservoir, which is located approximately five miles to the southeast. The elevation of the project site ranges from 1,500 to 1,580 feet above mean sea level. Most of the project APE is developed and characterized by a mix of residential, commercial, and industrial uses.

3.2 Cultural Setting

During the 20th century, many archaeologists developed chronological sequences to explain prehistoric cultural changes in all or portions of southern California (c.f., Jones and Klar 2007; Moratto 1984). Wallace (1955, 1978) devised a prehistoric chronology for the southern California region based on early studies and focused on data synthesis that included four horizons: Early Man, Milling Stone, Intermediate, and Late Prehistoric. Though initially lacking the chronological precision of absolute dates (Moratto 1984: 159), Wallace's (1955) synthesis has been modified and improved using thousands of radiocarbon dates obtained by southern California researchers over recent decades (Byrd and Raab 2007: 217; Koerper and Drover 1983; Koerper et al. 2002; Mason and Peterson 1994). The composite prehistoric chronological sequence for southern California is based on Wallace (1955), Warren (1968), and later studies including Koerper and Drover (1983).

Early Man Horizon (10,000 – 6000 BCE)

Numerous pre-8000 BCE sites have been identified along the mainland coast and Channel Islands of southern California (c.f., Erlandson 1991; Johnson et al. 2002; Jones and Klar 2007; Moratto 1984; Rick et al. 2001: 609). The Arlington Springs site on Santa Rosa Island produced human femurs dated to approximately 13,000 years ago (Arnold et al. 2004; Johnson et al. 2002). On nearby San Miguel Island, human occupation at Daisy Cave (SMI-261) has been dated to nearly 13,000 years ago and included basketry greater than 12,000 years old, the earliest on the Pacific Coast (Arnold et al. 2004).

Although few Clovis- or Folsom-style fluted points have been found in southern California (e.g., Dillon 2002; Erlandson et al. 1987), Early Man Horizon sites are associated generally with a greater emphasis on hunting than later horizons. Recent data indicate the Early Man economy was a diverse mixture of hunting and gathering, including a significant focus on aquatic resources in coastal areas (e.g., Jones et al. 2002) and on inland Pleistocene lakeshores (Moratto 1984). A warm and dry 3,000-year period called the Altithermal began around 6000 BCE. The conditions of the Altithermal are likely responsible for the change in human subsistence patterns at this time, including a greater emphasis on plant foods and small game.

Milling Stone Horizon (6000 – 3000 BCE)

The Milling Stone Horizon is defined as "marked by extensive use of milling stones and mullers, a general lack of well-made projectile points, and burials with rock cairns" (Wallace 1955: 219). The dominance of such artifact types indicates a subsistence strategy oriented around collecting plant foods and small animals. A broad spectrum of food resources was consumed including small and large terrestrial mammals, sea mammals, birds, shellfish and other littoral and estuarine species, near-shore fishes, yucca, agave, and seeds and other plant products (Kowta 1969; Reinman 1964). Variability in artifact collections over time and from the coast to inland sites indicates that Milling Stone Horizon subsistence strategies adapted to environmental conditions (Byrd and Raab 2007: 220). Locally available tool stone dominates lithic artifacts associated with Milling Stone Horizon sites; ground stone tools, such as manos and metates, and chopping, scraping, and cutting tools, are common. Kowta (1969) attributes the presence of numerous scraper-plane tools in Milling Stone Horizon collections to the processing of agave or yucca for food or fiber. The mortar and pestle, associated with acorns or other foods processed through pounding, were first used during the Milling Stone Horizon and increased dramatically in later periods (Wallace 1955, 1978; Warren 1968).

Two types of artifacts considered diagnostic of the Milling Stone period are the cogged stone and discoidal, most of which have been found on sites dating between 4,000 and 1,000 BCE (Moratto 1984: 149), though possibly as far back as 5,500 BCE (Couch et al. 2009). The cogged stone is a ground stone object with gear-like teeth on the perimeter and is produced from a variety of materials. The function of cogged stones is unknown, but many scholars have postulated ritualistic or ceremonial uses (c.f., Dixon 1968: 64-65; Eberhart 1961: 367) based on the materials used and their location near to burials and other established ceremonial artifacts as compared to typical habitation debris. Similar to cogged stones, discoidals are found in the archaeological record subsequent to the introduction of the cogged stone. Cogged stones and discoidals were often buried purposefully, or "cached." They are most common in sites along the coastal drainages from southern Ventura County southward and are particularly abundant at some Orange County sites, although a few specimens have been found inland as far east as Cajon Pass (Dixon 1968: 63; Moratto 1984: 149). Cogged stones have been collected in Riverside County and their distribution appears to center on the Santa Ana River basin (Eberhart 1961), within which the site lies.

Intermediate Horizon (3000 BCE – CE 500)

Wallace's Intermediate Horizon dates from approximately 3000 BCE - CE 500 and is characterized by a shift toward a hunting and maritime subsistence strategy, as well as greater use of plant foods. During the Intermediate Horizon, a noticeable trend occurred toward greater adaptation to local resources including a broad variety of fish, land mammal, and sea mammal remains along the coast. Tool kits for hunting, fishing, and processing food and materials reflect this increased diversity, with flake scrapers, drills, various projectile points, and shell fishhooks being manufactured.

Mortars and pestles became more common during this transitional period, gradually replacing manos and metates as the dominant milling equipment. Many archaeologists believe this change in milling stones signals a change from the processing and consuming of hard seed resources to the increasing reliance on acorn (c.f., Glassow et al. 1988; True 1993). Mortuary practices during the Intermediate typically included fully flexed burials oriented toward the north or west (Warren 1968: 2-3).

Late Prehistoric Horizon (CE 500 – Historic Contact)

During Wallace's (1955, 1978) Late Prehistoric Horizon the diversity of plant food resources and land and sea mammal hunting increased even further than during the Intermediate Horizon. More classes of artifacts were observed during this period and high quality exotic lithic materials were used for small finely worked projectile points associated with the bow and arrow. Steatite containers were made for cooking and storage and an increased use of asphalt for waterproofing is noted. More artistic artifacts were recovered from Late Prehistoric sites and cremation became a common mortuary custom. Larger, more permanent villages supported an increased population size and social structure (Wallace 1955: 223).

Warren (1968) attributes this dramatic change in material culture, burial practices, and subsistence focus to the westward migration of desert people he called the Takic, or Numic, Tradition in Los Angeles, Orange, and western Riverside counties. This Takic Tradition was formerly referred to as the "Shoshonean wedge" (Warren 1968), but this nomenclature is no longer used to avoid confusion with ethnohistoric and modern Shoshonean groups (Heizer 1978: 5; Shipley 1978: 88, 90). The Takic expansion remains a major question in southern California prehistory and has been a matter of debate in archaeological and linguistic research. Linguistic, biological, and archaeological evidence supports the hypothesis Takic peoples from the Southern San Joaquin Valley and/or western Mojave Desert entered southern California ca. 3,500 years ago to occupy the Los Angeles/Orange County area (Sutton 2009). Modern Gabrieleño/Tongva in western Riverside County are generally considered by archaeologists to be descendants of these prehistoric Uto-Aztecan, Takic-speaking populations who settled along the California coast during the Late Prehistoric Horizon. Sutton argues surrounding Cupan groups (Serrano, Cahuilla, Cupeño, and Luiseño), were biologically Yuman peoples who were in the area prior to the Takic expansion but adopted Takic languages around 1,500 years ago.

3.3 Ethnographic Context

The project site is situated in an area near the boundaries of several Native American groups anthropologists documented in the early 20th century (e.g., Kroeber 1908). The historically identified territories occupied by the Cahuilla, Luiseño, Serrano, and Gabrieleño all exist within a 25-mile range of the project site. While these boundaries are based on interviews with informants and research in archives, such as the records of the Hispanic Catholic Missions in the region, it is likely such boundaries were not static; rather, they were probably fluid and may have changed through time. Below are synopses of ethnographic data for each of the four Native American groups.

Cahuilla

The project site is situated in the vicinity historically occupied by a Native American group known as the Cahuilla, though near the boundary with the Juaneño and Luiseño (Bean 1978; Heizer 1978; Kroeber 1925). The term Cahuilla likely derived from the native word káwiya, meaning "master" or "boss" (Bean 1978: 575). Traditional Cahuilla ethnographic territory extended west to east from the present-day city of Riverside to the central portion of the Salton Sea in the Colorado Desert, and south to north from the San Jacinto Valley to the San Bernardino Mountains.

The Cahuilla, like their neighbors to west, the Luiseño and Juaneño, and the Cupeño to the south, are speakers of a Cupan language. The Cupan languages are part of the Takic linguistic subfamily of the Uto-Aztecan language family. Anthropologists posit the Cahuilla migrated to southern California

approximately 2,000 to 3,000 years ago, most likely from the southern Sierra Nevada mountain ranges of east-central California with other Takic speaking social groups (Moratto 1984: 559).

Cahuilla social organization was hierarchical and contained three primary levels (Bean 1978: 580). The highest level was the cultural nationality, encompassing everyone speaking a common language. The next level included the two patrimoieties of the Wildcats (tuktum) and the Coyotes (‘istam). Every clan of the Cahuilla was in one or the other of these moieties. The lowest level consisted of the numerous political-ritual-corporate units called sibs, or a patrilineal clan (Bean 1978: 580).

Cahuilla villages were usually located in canyons or on alluvial fans near a source of accessible water. Each lineage group maintained their own houses (kish) and granaries, and constructed ramadas for work and cooking. Sweathouses and song houses (for non-religious music) were also often present. Each community also had a separate house for the lineage or clan leader. Ceremonial houses associated with clan leaders were where major religious ceremonies were held. Houses and ancillary structures were often spaced apart, and a “village” could extend over a mile or two. Each lineage had ownership rights to various resource collecting locations, “including food collecting, hunting, and other areas. Individuals also owned specific areas or resources, e.g., plant foods, hunting areas, mineral collecting places, or sacred spots used only by shamans, healers and the like” (Bean 1990:2).

The Cahuilla hunted a variety of game, including mountain sheep, cottontail, jackrabbit, mice, and wood rats, as well as predators such as mountain lion, coyote, wolf, bobcat, and fox. Various birds were consumed, including quail, duck, and dove, plus various types of reptiles, amphibians, and insects. The Cahuilla employed a wide variety of tools and implements to gather and collect food resources. For hunting, these included the bow and arrow, traps, nets, slings and blinds for hunting land mammals and birds, and nets for fishing. Rabbits and hares were commonly brought down by the throwing stick, but when communal hunts were organized, the Cahuilla often utilized clubs and very large nets to capture these animals.

Foodstuffs were processed using a variety of tools, including portable stone mortars, bedrock mortars and pestles, basket hopper mortars, manos and metates, bedrock grinding slicks, hammerstones and anvils, and many others. Food was consumed from a number of woven and carved wood vessels and pottery vessels. The ground meal and unprocessed hard seeds were stored in large finely woven baskets, and the unprocessed mesquite beans were stored in large granaries woven of willow branches and raised off the ground on platforms to keep it from vermin. The Cahuilla made pottery vessels and traded with the Yuman-speaking groups across the Colorado River and to the south.

The Cahuilla had adopted limited agricultural practices by the time Euro-Americans traveled into their territory. Bean has suggested their “proto-agricultural techniques and a marginal agriculture” consisting of beans, squash and corn may have been adopted from the Colorado River groups to the east (Bean 1978: 578). Certainly by the time of the first Romero Expedition in 1823-24, the Cahuilla were observed growing corn, pumpkins, and beans in small gardens around springs near the town of Thermal in the Coachella Valley (Bean and Mason 1962: 104). The introduction of European plants, such as barley and other grain crops, suggest an interaction with the missions or local Mexican rancheros. Despite the increasing use and diversity of crops, no evidence indicates small-scale agriculture was anything more than a supplement to Cahuilla subsistence, and it apparently did not alter social organization.

By 1819, several Spanish mission outposts, known as *asistencias*, were established near Cahuilla territory at San Bernardino and San Jacinto, including the asistencia near Redlands. Cahuilla interaction with Europeans at this time was not as intense as it was for native groups living along the coast, likely due to the local topography and lack of water which made the area less attractive to colonists. By the 1820s, European interaction increased as mission ranchos were established in the region and local Cahuilla were employed to work on them.

The Bradshaw Trail was established in 1862 and was the first major east-west stage and freight route through the Coachella Valley. Traversing the San Gorgonio Pass, the trail connected gold mines on the Colorado River with the coast. Bradshaw based his trail on the Cocomaricopa Trail, with maps and guidance provided by local Native Americans. Journals by early travelers along the Bradshaw Trail told of encountering Cahuilla villages and walk-in wells during their journey through the Coachella Valley. The continued influx of immigrants into the region introduced the Cahuilla to European diseases. The single worst recorded event was a smallpox epidemic which swept through Southern California in 1862-63, significantly reducing the Cahuilla population. By 1891, only 1,160 Cahuilla remained in what was left of their territory, down from an aboriginal population of 6,000–10,000 (Bean 1978: 583-584). By 1974, approximately 900 people claimed Cahuilla descent, most of whom resided on reservations.

Between 1875 and 1891, the United States established ten reservations for the Cahuilla in their traditional territory. These include the Agua Caliente, Augustine, Cabazon, Cahuilla, Los Coyotes, Morongo, Ramona, Santa Rosa, Soboba, and Torres-Martinez reservations (Bean 1978: 585). Other groups share four of the reservations, including the Chemehuevi, Cupeño, and Serrano.

Luiseño

The project site is located at the northern extent of the area traditionally occupied by the Luiseño, who inhabited the north half of San Diego County and western edge of Riverside County (Bean and Shipek 1978; Heizer 1978; Kroeber 1925). The term Luiseño was applied to the Native Americans managed by Mission San Luis Rey and later used for the Payomkawichum nation living in the area where the mission was founded (Mithun 2001: 539-540). Luiseño territory encompassed the drainages of the San Luis Rey River and the Santa Margarita River, covering numerous ecological zones (Bean and Shipek 1978).

Prior to European contact, the Luiseño lived in permanent, politically autonomous villages, ranging in size from 50 to 400 people, and associated seasonal camps. Each village controlled a larger resource territory and maintained ties to other villages through trade and social networks. Trespassing in another village's resource area was cause for war (Bean and Shipek 1978). Villages consisted of dome-shaped dwellings (kish), sweat lodges, and a ceremonial enclosure (vamkech). Leadership in the villages focused on the chief, or Nota, and a council of elders (puuplem). The chief controlled religious, economic, and war-related activities (Bean and Shipek 1978).

The Luiseño religion was focused on Chinigchinich, a mythological hero. Religious rituals took place in a brush enclosure housing a representation of Chinigchinich. Ritual ceremonies included puberty initiation rites, burial and cremation ceremonies, hunting rituals, and peace rituals (Bean and Shipek 1978).

Luiseño subsistence focused on the acorn and was supplemented by gathering other plant resources, and shellfish, fishing, and hunting. Plant foods typically included pine nuts, seeds from various grasses, manzanita, sunflower, sage, chia, lemonade berry, prickly pear, and lamb's-quarter. Acorns were leached and served in various ways. Seeds were ground. Prey included deer, antelope,

rabbit, quail, ducks, and other birds. Fish were caught in rivers and creeks. Fish and sea mammals were taken from the shore or dugout canoes. Shellfish were collected from the shore and included abalone, turbans, mussels, clams, scallops, and other species (Bean and Shipek 1978).

Serrano

The Serrano are another Native American group who occupied territory near the project site. The Serrano occupied an area in and around the San Bernardino Mountains between approximately 450 and 3,350 meters (1,500 to 11,000 feet) above mean sea level. Their territory extended west of the Cajon Pass, east past Twentynine Palms, north of Victorville, and south to Yucaipa Valley. The Serrano language is part of the Serran division of a branch of the Takic family of the Uto-Aztecan linguistic stock (Mithun 2006: 539, 543). The two Serran languages, Kitanemuk and Serrano, are closely related. Kitanemuk lands were northwest of Serrano lands. Serrano was spoken originally by a relatively small group located in the San Bernardino and Sierra Madre mountains, and the term "Serrano" has come to be ethnically defined as the name of the people in the San Bernardino Mountains (Kroeber 1925: 611). The Vanyume, who lived along the Mojave River and associated Mojave Desert areas and are also referred to as the Desert Serrano, spoke either a dialect of Serrano or a closely related language (Mithun 2001: 543). Year-round habitation tended to be located on the desert floor, at the base of the mountains, and up into the foothills, with all habitation areas requiring year-round water sources (Bean and Smith 1978; Kroeber 1908).

Most Serrano lived in small villages located near water sources (Bean and Smith 1978: 571). Houses measured 3.7 to 4.3 meters (12 to 14 feet) in diameter. They were domed and constructed of willow branches and tule thatching; they were occupied by a single, extended family. Many of the villages had a ceremonial house, used both as a religious center and as the residence of the lineage leaders. Additional structures in a village might include granaries and a large circular subterranean sweathouse. The sweathouses were typically built along streams or pools. A village was usually composed of at least two lineages. The Serrano were loosely organized along patrilineal lines and associated themselves with one of two exogamous moieties or "clans"—the Wahiyam (coyote) or the Tukum (wildcat) moiety.

The subsistence economy of the Serrano was one of hunting and collecting plant goods, with occasional fishing (Bean and Smith 1978: 571). They hunted large and small animals, including mountain sheep, deer, antelope, rabbits, small rodents, and various birds, particularly quail. Plant staples consisted of seeds; acorn nuts of the black oak; piñon nuts; bulbs and tubers; and shoots, blooms, and roots of various plants, including yucca, berries, barrel cacti, and mesquite. The Serrano used fire as a management tool to increase yields of specific plants, particularly chía.

Trade and exchange were an important aspect of the Serrano economy. Those living in the lower-elevation, desert floor villages traded foodstuffs with people living in the foothill villages who had access to a different variety of edible resources. In addition to inter-village trade, ritualized communal food procurement events, such as rabbit and deer hunts and piñon, acorn, and mesquite nut-gathering events, integrated the economy and helped distribute resources available in different ecozones.

Contact between Serrano and Europeans was minimal prior to the early 1800s. As early as 1790, however, Serrano began to be drawn into mission life (Bean and Vane 2002). More Serrano were relocated to Mission San Gabriel in 1811 after a failed indigenous attack on the mission. Most of the remaining western Serrano were moved to an asistencia built near Redlands in 1819 (Bean and Smith 1978: 573).

A smallpox epidemic in the 1860s killed many indigenous southern Californians, including many Serrano (Bean and Vane 2002). Oral history accounts of a massacre in the 1860s at Twentynine Palms may have been part of a larger American military campaign lasting 32 days (Bean and Vane 2002: 10). Surviving Serrano sought shelter at Morongo with their Cahuilla neighbors; Morongo later became a reservation (Bean and Vane 2002). Other survivors followed the Serrano leader Santos Manuel down from the mountains and toward the valley floors and eventually settled what later became the San Manuel Band of Mission Indians Reservation, formally established in 1891.

In 2003, most Serrano lived either on the Morongo or San Manuel reservations (California Indian Assistance Program 2003). The Morongo Band of Mission Indians of the Morongo Reservation, established through presidential executive orders in 1877 and 1889, includes both Cahuilla and Serrano members. Established in 1891, the San Manuel Band of Mission Indians Reservation includes Serrano. Both Morongo and San Manuel are federally recognized tribes. People of both reservations participate in cultural programs to revitalize traditional languages, knowledge, and practices.

Gabrieleño

The project site is also located at the eastern edge of an area historically occupied by the Gabrieleño. Archaeological evidence points to the Gabrieleño arriving in the Los Angeles Basin sometime around 500 BCE; however, this has been a subject of debate. Many contemporary Gabrieleño identify themselves as descendants of the indigenous people living across the plains of the Los Angeles Basin and use the native term Tongva (King 1994). This term is used in the remainder of this section to refer to the pre-contact inhabitants of the Los Angeles Basin and their descendants. Surrounding native groups included the Chumash and Tataviam to the northwest, the Serrano and Cahuilla to the northeast, and the Juaneño and Luiseño to the southeast.

Tongva lands encompassed the greater Los Angeles Basin and three Channel Islands, San Clemente, San Nicolas, and Santa Catalina. The Tongva established large, permanent villages in the fertile lowlands along rivers and streams, and in sheltered areas along the coast, stretching from the foothills of the San Gabriel Mountains to the Pacific Ocean. A total tribal population has been estimated of at least 5,000 (Bean and Smith 1978: 540), but recent ethnohistoric work suggests a number approaching 10,000 (O'Neil 2002). Houses constructed by the Tongva were large, circular, domed structures made of willow poles thatched with tule holding up to 50 people (Bean and Smith 1978). Other structures served as sweathouses, menstrual huts, ceremonial enclosures, and probably communal granaries. Cleared fields for races and games, such as lacrosse and pole throwing, were created adjacent to Tongva villages (McCawley 1996: 27). Archaeological sites composed of villages with various sized structures have been identified.

The Tongva subsistence economy was centered on gathering and hunting. The surrounding environment was rich and varied, and the tribe exploited mountains, foothills, valleys, deserts, riparian, estuarine, and open and rocky coastal eco-niches. Like most native Californians, acorns were the staple food (an established industry by the time of the early Intermediate Period). Acorns were supplemented by the roots, leaves, seeds, and fruits of a wide variety of flora (e.g., islay, cactus, yucca, sages, and agave). Fresh water and saltwater fish, shellfish, birds, reptiles, and insects, as well as large and small mammals, were also consumed (Bean and Smith 1978: 546; Kroeber 1925: 631–632; McCawley 1996: 119–123, 128–131).

A wide variety of tools and implements were used by the Tongva to gather and collect food resources. These included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Groups residing near the ocean used oceangoing plank canoes and tule balsa

canoes for fishing, travel, and trade between the mainland and the Channel Islands (McCawley 1996: 7). Tongva people processed food with a variety of tools, including hammerstones and anvils, mortars and pestles, manos and metates, strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks. Food was consumed from a variety of vessels. Catalina Island steatite was used to make ollas and cooking vessels (Blackburn 1963; Kroeber 1925: 629; McCawley 1996: 129–138).

At the time of Spanish contact, the basis of Tongva religious life was the Chinigchinich cult, centered on the last of a series of heroic mythological figures. Chinigchinich gave instruction on laws and institutions, and taught the people how to dance, the primary religious act for this society. He later withdrew into heaven, where he rewarded the faithful and punished those who disobeyed his laws (Kroeber 1925: 637–638). The Chinigchinich religion seems to have been relatively new when the Spanish arrived. It was spreading south into the Southern Takic groups even as Christian missions were being built and may represent a mixture of native and Christian belief and practices (McCawley 1996: 143–144).

Deceased Tongva were either buried or cremated, with inhumation more common on the Channel Islands and the neighboring mainland coast and cremation predominating on the remainder of the coast and in the interior (Harrington 1942; McCawley 1996: 157). At the behest of the Spanish missionaries, cremation essentially ceased during the post-Contact period (McCawley 1996: 157).

3.4 History

The post-contact history of California is generally divided into three epochs: the Spanish period (1769–1822), the Mexican period (1822–1848), and the American period (1848–present). Each of these periods is described briefly below.

Spanish Period (1769–1822)

Spanish exploration of what was then known as Alta (upper) California began when Juan Rodríguez Cabrillo led the first European expedition into the region in 1542. For more than 200 years after his initial expedition, Spanish, Portuguese, British, and Russian explorers sailed the Alta California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968, Rolle 2003). Spanish entry into what was to become Riverside County did not occur until 1774 when Juan Bautista de Anza led an expedition from Sonora, Mexico to Monterey in northern California (Lech 1998).

In 1769, Gaspar de Portolá and Franciscan Father Junípero Serra established the first Spanish settlement at Mission San Diego de Alcalá. This was the first of 21 missions erected by the Spanish between 1769 and 1823. The establishment of the missions marks the first sustained occupation of Alta California by the Spanish. In addition to the missions, four presidios and three pueblos (towns) were established throughout the state (State Lands Commission 1982). In 1819, an asistencia was established near present-day Redlands to serve as an outpost for cattle grazing activities carried out by Mission San Gabriel's Rancho San Bernardino (San Bernardino County 2017). Around the same time, Native Americans living at the asistencia were directed to dig a zanja (irrigation ditch) to serve the asistencia and surrounding area.

During this period, Spain also deeded ranchos to prominent citizens and soldiers, though very few in comparison to the subsequent Mexican Period. To manage and expand their herds of cattle on these large ranchos, colonists enlisted the labor of the surrounding Native American population

(Engelhardt 1927a). The missions were responsible for administrating to the local Indians as well as converting the population to Christianity (Engelhardt 1927b). The influx of European settlers brought the local Native American population in contact with European diseases which they had no immunity against, resulting in catastrophic reduction in native populations throughout the state (McCawley 1996).

Mexican Period (1822–1848)

The Mexican Period commenced when news of the success of the Mexican War of Independence (1810-1821) reached California in 1822. This period saw the federalization of mission lands in California with the passage of the Secularization Act of 1833. This Act enabled Mexican governors in California to distribute former mission lands to individuals in the form land grants. Successive Mexican governors made more than 700 land grants between 1822 and 1846, putting most of the state's lands into private ownership for the first time. About 15 land grants (ranchos) were located in Riverside County. The project area is situated in what was once Rancho San Jacinto, which included much of the San Jacinto Plains stretching from Box Springs to the San Jacinto Mountains and between the Badlands and Temecula (Shumway 2007).

American Period (1848–Present)

The American Period officially began with the signing of the Treaty of Guadalupe Hidalgo in 1848, in which the United States agreed to pay Mexico $15 million for ceded territory, including California, Nevada, Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming, and pay an additional $3.25 million to settle American citizens claims against Mexico. Settlement of southern California increased dramatically in the early American Period. Many ranchos in the county were sold or otherwise acquired by Americans, and most were subdivided into agricultural parcels or towns.

The discovery of gold in northern California in 1848 led to the California Gold Rush, despite the first California gold being previously discovered in southern California at Placerita Canyon in 1842 (Guinn 1977; Workman 1935: 26). Southern California remained dominated by cattle ranches in the early American period, though droughts and increasing population resulted in farming and more urban professions supplanting ranching through the late nineteenth century. In 1850, California was admitted into the United States and by 1853, the population of California exceeded 300,000.

Local History

Throughout the second half of the 19th century, migration throughout the state increased, in particular following completion of the transcontinental railroad in 1869. In 1893, Riverside County was created from portions of San Bernardino and San Diego Counties. Early settlers to the Moreno Valley area were engaged in dry farming, as a reliable water source had not yet been secured.

Following his success in the establishment of and provision of reliable water to the community of Redlands, Frank E. Brown progressed to similar successes in Alessandro, Perris, and Moreno. In 1890, he founded the Bear Valley and Alessandro Development Company and recorded the first subdivision of the area. "Map No. 1" divided roughly 21,440-acres into ten-acre farm plots, with the 280-acre townsite of Moreno located at the intersection of Redlands and Alessandro Boulevard. This initial subdivision included the project site (Block No. 54; Lot/Parcel No. 1-8). In the same year and also with heavy involvement from Brown, the Alessandro Irrigation District was established, and construction began on an intricate series of pipelines to bring water to the valley (Lech 2004).

The arrival of water, via the Moreno Tunnel, in Moreno in 1891 led to increased investment in the area's agricultural economy. Following this development, large-scale fruit and citrus farms were established in the area. This development provided only a temporary boom, as lawsuits over water rights led to a loss of water delivery in the Moreno Valley in 1899. As a result, the valley's population greatly decreased. Some moved their homes to the city of Riverside; those who remained engaged in the dry farming of hay, grain, and grapes. Public and private wells were eventually produced and by 1912 the Moreno Mutual Water Company had identified a reliable source of water. As a result, the area's population again increased, and the area resumed citrus production along with much of Riverside County (Holmes 1912).

Originally established as Alessandro Flying Training Field in 1918, March Field was constructed in the Moreno Valley as the country anticipated entry into World War I. While March Field closed briefly in the 1920, it reopened in 1927 and eventually expanded to encompass 7,000-acres. March Field has played a key role in providing skilled crews for many international conflicts and remains in operation as a reserve base today (*Riverside Magazine* 2019*)*. The founding and lasting presence of March Field has contributed to the expansion of the Moreno Valley, as amenities for those stationed there have remained a necessity since its founding.

The Moreno Valley experienced steady growth throughout the 1970s. As residential development increased, so too did recreational amenities. The Riverside International Raceway and the Lake Perris Recreation Area were established in 1953 and 1973 respectively. The valley experienced a boom in the 1980s; the decade saw the population increase two-fold (from roughly 19,000 to almost 50,000). While votes for incorporation failed in 1968 and 1983, in 1984 the City of Moreno Valley was officially incorporated. The city has continued to expand in recent decades and today it is largely occupied by suburban development. In 2010, its population was estimated at 193,365 (U.S. Census Bureau 2010).

4 Background and Methods

4.1 Cultural Resources Records Search

California Historical Resources Information Center

On January 6, 2020, Rincon conducted a search of the California Historical Resources Information System at the Eastern Information Center at the University of California, Riverside. The search was conducted to identify any previously recorded cultural resources and cultural resources studies within the APE and a 0.5-mile radius surrounding it. Rincon also reviewed the NRHP, the CRHR, the Archaeological Determination of Eligibility, and the California State Historic Resources Inventory list. These results are summarized below with additional information provided in Appendix A (Confidential).

The records search found 60 previously identified cultural resource studies completed within 0.5 mile of the project APE between 1953 and 2019 (Table 1). Five of these previous studies (RI-0182, RI-1665, RI-1843, RI-7127, and RI-10273) intersect the project corridor. The previous studies cover less than 10 percent of the current project APE.

Table 1 Previously Conducted Cultural Resources Studies within a 0.5-mile Radius of the APE

Report Number	Author(s)	Year	Title	Relationship to APE[1]
RI-00002	Rogers, Malcom J.	1953	*Miscellaneous Field Notes – Riverside County, San Diego Museum of Man*	Outside
RI-00026	Akin, Margie	1971	*A Survey of the Archaeological Resources of the Santa Ana and San Jacinto River Basins*	Outside
RI-00130	Clough, Helen	1974	*Filed Notes for the Archaeological Survey of PL984 Water Systems Additions*	Outside
RI-00133	King, Thomas F., Marry Brown, Gerrit Fenenge and Claudia Nissley	1974	*Archaeological Impact Evaluation: Southern California Edison Company's Devers-Vista 220 kV Transmission Line, Riverside County, California*	Outside
RI-00137	O'Conell, James F., Philip J. Wilke, Thomas F. King, and Carol L. Mix	1974	*Perris Reservoir Archaeology, Late Prehistoric Demographic Change in Southeastern California*	Outside
RI-00161	Greenwood, Roberta S.	1975	*Paleontological, Archaeological, Historical, and Cultural Resources, West Coast-Midwest Pipeline Project, Long Beach to Colorado River*	Outside
RI-00182	Weaver, Richard A.	1975	*Environmental Impact Evaluation: Archaeology of Brodiaea Avenue, Pl 984, Water Systems Addition, Riverside County, California*	Inside

Report Number	Author(s)	Year	Title	Relationship to APE[1]
RI-00535	Bean, Lowell J., Sylvia Brakke Vane, Matthew C. Hall, Harry Lawton, Richard Logan, Lee Gooding Massey, John Oxendine, Charles Rozaire, and David P. Whistler	1979	*Cultural Resources and the Devers-Mira 500 kV Transmission Line Route (Valley to Mira Loma Section)*	Outside
RI-00742	Wilke, Philip J.	1979	*Environmental Impact Evaluation: An Archaeological Assessment of 17.64 Acres Considered for Change of Zone (CZ 2707), Southeast of Sunnymead, Riverside County, California*	Outside
RI-01312	Meighan, Clement W.	1975	*Historical Resources in Three Southern California Counties*	Outside
RI-01665	Wirth Associates	1983	*Devers-Serrano-Villa Park Transmission System Supplement to the Cultural Resources Technical Report - Public Review Document and Confidential Appendices*	Inside and Adjacent
RI-01843	Scientific Resource Surveys	1984	*Cultural Resource Survey Report on Wolfskill Ranch*	Inside
RI-01955	Heller, Rod, Tim Tetherow, and C. White	1977	*An Overview of the Sundesert Nuclear Project Transmission System Cultural Resource Investigation*	Outside
RI-01978	Brock, James	1985	*Letter Report: Archaeological Field Reconnaissance of Proposed Post Office Site in Sunnymead, California*	Outside
RI-02050	Perault, Gordon	1985	*Preliminary Historic Inventory - March Air Force Base, California*	Outside
RI-02171	McCarthy, Daniel F.	1987	*Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California*	Outside
RI-03490	McIntosh, Beverly C.	1991	*The Juan Bautista De Anza Trail Past, Present and Future, Baja to Riverside, California*	Outside
RI-03604	Jones, Carleton S.	1992	*The Development of Cultural Complexity Among the Luiseno: A Thesis Presented to the Department of Anthropology, California State University, Long Beach in Partial Fulfillment of the Requirements for the Degree, Master of Arts*	Outside
RI-03693	Foster, John M., James J. Schmidt, Carmen A. Weber, Gwendolyn R. Romani, and Roberta S. Greenwood	1991	*Cultural Resource Investigation: Inland Feeder Project, Metropolitan Water District of Southern California*	Outside and Adjacent

Report Number	Author(s)	Year	Title	Relationship to APE[1]
RI-03921	Moffit, S.A. and M. C. Hall	1995	*Cultural Resources Survey of Proposed Arco Pipeline Company Rectifier and Block Valve Sites, Located In Riverside and San Bernardino Counties, California*	Outside
RI-04762	Barker, Leo R. and Ann E Huston, Editors	1990	*Death Valley to Deadwood; Kennecott To Cripple Creek. Proceedings of the Historic Mining Conference, January 23-27, 1989, Death Valley National Monument*	Outside
RI-04813	National Park Service	1993	*California Citrus Heritage Recording Project: Photographs, Written Historical and Descriptive Data, Reduced Copies of Measured Drawings For: Arlington Height Citrus Landscape, Gage Irrigation Canal, National Orange Company Packing House, Victoria Bridge, and Union Pacific Railroad Bridge*	Outside
RI-04992	McKenna et al.	2004	*An Architectural Evaluation of Structures Located Within Assessor Parcel Numbers 482-090009-0, -010-0, and 033-0, Within the City of Moreno Valley, Riverside County, California*	Outside
RI-05035	McKenna et al.	2005	*Letter Report: Monitoring at the Site of the Proposed Indian Middle School in the City Of Perris, Riverside County, California*	Outside
RI-05088	Cultural Systems Research, Inc.	2005	*Ethnographic Overview Inland Feeder Pipeline Project*	Outside
RI-05286	Jackson, Adrianna	2000	*Letter Report: Records Search Results for Sprint PCS Facility RV54XC486A (Boxing Club Site), Moreno Valley, Riverside County, California*	Outside
RI-05294	White, Laurie	2000	*Letter Report: Records Search Results for Sprint PCS Facility RV37XC917C (SCE Alessandro Substation), City of Moreno Valley, Riverside County, California*	Adjacent
RI-05795	Kyle, Carolyn E.	2004	*Cultural Resource Assessment for AT&T Wireless Facility 950-031029A located at 24899 Alessandro Boulevard, City of Moreno Valley, Riverside County, California*	Adjacent
RI-06081	Billat, Lorna	2004	*Letter Report: Proposed Cellular Tower Project in Riverside County, California, Site Name/Number: CA-8868A/ Lasselle*	Adjacent
RI-06269	Alexandrowicz, John S.	2006	*An Historical Resources Identification of Alessandro Pointe Project, Tract 34681, 25817 Alessandro Boulevard, City of Moreno Valley, Riverside County, California*	Outside
RI-06278	Ahmet, Koral and Evelyn N. Chandler	2005	*Cultural Resources Survey for a Proposed Bikeway in Moreno Valley, Riverside County, California*	Outside
RI-07127	Jordan, Stacey C.	2007	*Archaeological Survey Report for Southern California Edison Company: Conversion of Overhead to Underground Project on the Rule 20C, Riverside County, California (WO#65777281, AL#6-7227)*	Inside

Report Number	Author(s)	Year	Title	Relationship to APE[1]
RI-07499	Bonner, Wayne H. and Marnie Aislin-Kay	2007	*Letter Report: Cultural Resource Records Search Results and Site Visit for Royal Street Communications, LLC Candidate LA2360B (Motel 7), 23581 Alessandro Boulevard, Moreno Valley, Riverside County, California*	Outside
RI-07573	Sanka, Jennifer M.	2008	*Phase I Cultural Resources Assessment and Paleontological Records Review, APN 486-070-007, Moreno Valley, Riverside County, California*	Adjacent
RI-07645	Rosenberg, Seth A. and Brian F. Smith	2005	*An Archaeological Survey for the Alessandro Plaza Project, City of Moreno Valley, County of Riverside, California*	Outside
RI-08235	Workman, James E.	2001	*Cupules, A Type of Petroglyphic Rock Art. A Study of the Pitted Boulders in the San Jacinto Wildlife Area and the Lake Perris State Recreational Area*	Outside
RI-08244	McKenna, Jeanette A.	2009	*A Phase I Cultural Resources Investigation of the Proposed Moreno Valley Unified School District K-12 School Site at Indian Street and Cactus Avenue, City of Moreno Valley, Riverside County, California.*	Outside
RI-08554	Hogan, Michael, Bai "Tom" Tang, John Goodman, and Daniel Ballester	2011	*California Living Moreno Valley Project*	Outside
RI-08654	Bonner, Wayne H., Sarah A. Williams, and Kathleen A. Crawford	2011	*Cultural Resources Search and Site Visit Results for T-Mobile USA Candidate IE24173B*	Outside
RI-08688	Bonner, Wayne H.	2011	*Letter Report: Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate IE24226-A*	Outside
RI-08802	Tang, Bai "Tom", Michael Hogan, Deirdre Encarnacion, and Daniel Ballester	2012	*Phase I Archaeological Assessment: Moreno Master Drainage Plan Revision*	Outside
RI-08944	Tang, Bai "Tom" and Michael Hogan	2013	*Historical/Archeological Resources Survey Report, Assessor's Parcel No. 486-280-043, City of Moreno Valley, Riverside County, California*	Outside
RI-08945	Tang, Bai "Tom" and Michael Hogan	2013	*Historical/Archaeological Resources Survey Report, Desilting Basin Site, Boulder Ridge Family Apartments Project, City of Moreno Valley, Riverside County, California*	Outside
RI-09077	McKenna, Jeanette A.	2014	*A Phase I Cultural Resources Survey for the Proposed Walmart Supercenter on Approximately 22.28 Acres of Land in the City of Moreno Valley, Riverside County, California*	Adjacent

Report Number	Author(s)	Year	Title	Relationship to APE[1]
RI-09311	Wills, Carrie D.	2014	*Cultural Resource Records Search and Site Visit Results for Verizon Wireless Candidate 'Gentian', 16015 North Perris Boulevard, Moreno Valley, Riverside County, California*	Outside
RI-09345	McKenna, Jeanette	2015	*Results of an Archaeological/Paleontological Monitoring Program at the Moreno Valley Unified School District's Bayside Charter Campus in the City of Moreno Valley, Riverside County, California*	Outside
RI-09510	Tang, Bai "Tom"	2016	*Update to Historical/Archaeological Resources Survey Assessor's Parcel No. 486-280-043 (Rocas Grandes Project), City of Moreno Valley, Riverside County, California CRM TECH Contract No. 2980*	Outside
RI-09681	Wills, Carrie D. and Sarah A. Williams	2016	*Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate IE95361A (Alessandro Substation), 15901 Kitching Street, Moreno Valley, Riverside County, California*	Adjacent
RI-09718	Brunzell, David	2016	*Cultural Resources Assessment of the Toby (MCE Design) Project, City of Moreno Valley, Riverside County, California (BCR Consulting Project No. TRF 1608)*	Adjacent
RI-09828	Wilk, Elizabeth	2015	*Addendum to FCC Form 620: Gogh/Ensite #25674 (284941), 15091 Kitching Street, Moreno Valley, Riverside County, California 92551, EBI Project #6115003214/ E-106 File Number 0006967049, FCC_2015_1005_009*	Adjacent
RI-10018	Belcourt, Tria	2016	*Re: Letter Report for Cultural and Paleontological Records Searches for the Brodiaea Site, located in the City of Moreno Valley, Riverside County, California*	Outside
RI-10095	Dooley, Colleen	2002	*Cingular Wireless Cultural Resource Assessment*	Adjacent
RI-10150	Brunzell, David	2016	*Cultural Resources Assessment the Alessandro Apartments Project, City of Moreno Valley, Riverside County, California*	Adjacent
RI-10273	Garrison, Andrew J. and Brian F. Smith	2014	*Phase I Cultural Resources Survey for the Brodiaea Commerce Center Project, City of Moreno Valley, County of Riverside*	Inside
RI-10445	Clark, Fatima and Kyle Garcia	2014	*Cultural Resources Assessment for the Proposed Isla Verde Residential Project, City of Moreno Valley, County of Riverside, California*	Adjacent
RI-10498	Brunzell, David	2018	*Cultural Resources Assessment Moreno Valley Storage Project, City of Moreno Valley, Riverside County, California*	Outside
RI-10691	Curl, Alan	1979	*Phase I Survey of the City of Riverside Final Report*	Outside
RI-10700	Perez, Don	2015	*Cultural Resources Survey Gogh / Ensite #25674 (284941)*	Adjacent

Report Number	Author(s)	Year	Title	Relationship to APE[1]
RI-10827	Williams, Sarah A. and Carrie D. Wills	2019	*Cultural Resource Records Search and Site Visit Results for AT&T Mobility Candidate CSL02876 (Iris Plaza), 16110 Perris Boulevard, Moreno Valley, Riverside County, California (EBI Project Number 6119000825)*	Outside

[1]Adjacent reports are located within 500 feet of the project APE.

Source: Eastern Information Center January 2020

Sixteen cultural resources have been documented within 0.5 mile of the APE (Table 2). These include five prehistoric archaeological sites, two prehistoric isolated artifacts or features, three historic-period archaeological sites, and six historic-period built-environment (buildings and structures) resources. Although none of these known cultural resources are in the project APE, two historic period buildings (P-33-007279 and P-33-007290) and an historic period loading dock (P-33-023936) are located adjacent to the APE (i.e., less than 500 feet). The prehistoric sites, most of which represent bedrock milling features, cluster at the base of a set of unnamed hills lying east of the project APE.

Table 2 Previously Identified Cultural Resources within a 0.5-mile Radius of the APE

Resource Number	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status[1]	Relationship to APE[2]
P-33-000857 (CA-RIV-857)	Prehistoric Site	Seven bedrock milling features	2013 (D. Ballester and D. Perez), 1975 (R. Weaver): 1987 (C. Prior, M. Conroy, B. Neiditch)	Not evaluated for CRHR or NRHP	Outside
P-33-002994 (CA-RIV-2994)	Prehistoric Site	Ten bedrock milling features with an associated hand stone	1984 (Roger Mason)	Not evaluated for CRHR or NRHP	Outside
P-33-003159 (CA-RIV-3159)	Prehistoric Site	Three bedrock milling features	2015 (D. Ballester), 2013 (D. Ballester and D. Perez), 1987 (C. Prior, M. Conroy, B. Neiditch)	Not evaluated for CRHR or NRHP	Outside
P-33-003341 (CA-RIV-3341)	Prehistoric Site	Three bedrock milling features	2013 (D. Ballester and D. Perez), 1987 (C. Prior, M. Conroy, B. Neiditch)	Not evaluated for CRHR or NRHP	Outside
P-33-003342 (CA-RIV-3342)	Prehistoric Site	One bedrock milling feature (no longer extant)	2013 (D. Ballester and D. Perez), 1987 (Barry R. Neiditch)	Not evaluated for CRHR or NRHP	Outside

Resource Number	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status[1]	Relationship to APE[2]
P-33-007276	Historic Building	25780 Alessandro Blvd (single-family residence)	1983 (J. Warner)	Appears eligible for the CRHR and/or NRHP	Outside
P-33-007279	Historic Building	24771 Bay Avenue, (single-family residence with associated outbuildings)	1983 (J. Warner)	Appears eligible for the CRHR and/or NRHP	Adjacent
P-33-007280	Historic Building	24685 Cottonwood Avenue (single family residence)	1983 (J. Warner)	Recommended ineligible for the CRHR and NRHP	Outside
P-33-007290	Historic Building	15168 Perris Boulevard (single-family residence with associated outbuildings)	1983 (J. Warner)	Property recognized as historically significant by local government	Adjacent
P-33-015301	Prehistoric Isolate (artifact)	Pestle fragment	2005 (Evelyn Chandler)	Not evaluated for CRHR or NRHP	Outside
P-33-015454 (CA-RIV-8149)	Historic Site	Building foundations, septic tank, and refuse scatter	2006 (John Alexandrowicz)	Not evaluated for CRHR or NRHP	Outside
P-33-016788	Prehistoric Isolate (feature)	Four prehistoric milling features (out of context)	2007 (J. Sanka)	Not evaluated for CRHR or NRHP	Outside
P-33-023936	Historic Structure	Barron/Lanz Holdings (Ranch/Farm, Loading Dock)	2014 (Jeanette McKenna)	Recommended ineligible for the CRHR and NRHP	Adjacent
P-33-024195 (CA-RIV-11896)	Historic Site	Multi-family property	2015 (Jeanette McKenna)	Not evaluated for CRHR or NRHP	Outside
P-33-028200	Historic Structure	Canal/Aqueduct	2018 (Salvadore Z. Boites)	Recommended ineligible for the CRHR and NRHP	Outside
P-33-028824 (CA-RIV-12934)	Historic Site	Building foundation, power pole, and isolated glass	2019 (Riordan Goodwin)	Not evaluated for CRHR or NRHP	Outside

[1]NRHP = National Register of Historic Places; CRHR = California Register of Historical Resources

[2] Adjacent resources are located within 500 feet of the project APE (Area of Potential Effects).

Source: Eastern Information Center, January 2020

4.2 Native American Consultation

Rincon contacted the Native American Heritage Commission (NAHC) on December 26, 2019 to request a Sacred Lands File search of the APE and a 0.5-mile radius surrounding it. As part of this request, Rincon asked the NAHC to provide a list of Native American groups and/or individuals culturally affiliated with the area who may have knowledge of cultural resources in the APE. The NAHC responded on January 7, 2020, stating the results of the Sacred Lands File search were negative (see Appendix B). The NAHC provided a list of 32 Native American contacts who may have knowledge of cultural resources of Native American origin at the project site. Rincon prepared and mailed letters to each of these groups on January 15, 2020. Appendix B provides an example of the letter sent to the Native American contacts.

On January 17, 2020, Rincon received an email from Alexandra McCleary, Tribal Archaeologist for the San Manuel Band of Mission Indians (SBMI), noting the proposed project is located outside of the Serrano ancestral territory. Ms. McCleary stated SBMI will not be requesting consulting party status with the lead agency or requesting to participate in the scoping, development, and/or review of documents created pursuant to legal and regulatory mandates.

On January 23, 2020, Rincon received an email from Dorothy Willis of the Los Coyotes Band of Indians Environmental Department. She stated the tribal group had received the notice of the proposed project and is currently reviewing the information. Additionally, Ms. Willis noted Mr. Ray Chapparosa is the current Chairman and not Shane Chapparosa. No further response was received from Ms. Willis.

On January 28, 2020, Rincon received a letter from BobbyRay Esparza, Cultural Coordinator for the Cahuilla Band of Indians, stating the Cahuilla Band of Indians do not have knowledge of any cultural resources near or within the project area. Although this project is outside the Cahuilla reservation boundary, it is within the Cahuilla traditional land use area. Therefore, Mr. Esparza stated the Cahuilla Band of Indians have an interest in the project and would like to consult in the Section 106 process. Additionally, Mr. Esparza requests a tribal monitor be present during all ground disturbing activities. Finally, the tribe asked they be notified of all updates with the project moving forward. Mr. Esparza's request for consultation was forwarded to EMWD.

On January 28, 2020 and February 3, 2020, Rincon conducted follow-up phone calls with the Native American contacts who had not responded to the initiation letter. Ten additional responses were received as a result of the follow-up efforts. A summary of each response is provided below.

On January 28, 2020, Rebecca Mejia of the Agua Caliente Band of Cahuilla Indians noted she could not find the notification letter. She stated she would reach out to Patricia Garcia, the Director of Historic Preservation, to see if the letter was under her review. No further response was received from Ms. Mejia or Ms. Garcia.

On January 28, 2020, Kimberly Pedroza of the Agua Caliente Band of Cahuilla Indians stated she would review the notification letter herself. She requested that the letter be sent to her via email. Rincon staff emailed the letter to Ms. Pedroza on January 28, 2020. No response was received from Ms. Pedroza.

On January 28, 2020, Rincon staff discussed the project with Robert Dorame of the Gabrielino/Tongva Indians of California Tribal Council. He requested a copy of the notification letter be emailed to him. Rincon emailed the letter to Mr. Dorame on January 28, 2020. On February 3, 2020, Rincon spoke to Mr. Dorame who stated he would review the copy of the notification letter.

On February 5, 2020, Rincon received a phone call from Mr. Dorame who stated that in the event that cultural resources and/or artifacts pertaining to the Tongva people are impacted or unearthed, that he would like to be notified. Additionally, he noted that if human remains are unearthed and identified by the Coroner as indigenous people, the Gabrielino Tongva Indians of California Tribal Council would like to be contacted regardless of the MLD designation from the NAHC. Mr. Dorame's request was forwarded to EMWD.

On January 28, 2020, Rincon called Chairman Joseph Hamilton of the Ramona Band of Cahuilla Indians and was told to email a copy of the initiation letter to John Gomez, the Tribal Environmental Project Manager. Rincon staff emailed the letter to Mr. Gomez on January 28, 2020. No response has been received from Mr. Gomez.

On January 28, 2020, Rincon called Chairman Steven Estrada of the Santa Rosa Band of Cahuilla Indians. Mercedes Estrada in the tribal administration office stated that the tribe does not have any comments regarding the project at this time.

On January 28, 2020, Rincon called Co-Chairman Mark Cochrane of the Serrano Nation of Mission Indians. He stated that the Tribe does not have any comments regarding the project at this time.

On January 28, 2020, Rincon called and left a message for Chairman John Christman of the Viejas Band of Kumeyaay Indians. Ray Turan returned the call and stated the project is outside of the Tribe's area of cultural interest.

On January 30, 2020, Rincon received an email from Travis Armstrong, Tribal Historic Preservation Officer (THPO) for the Morongo Band of Mission Indians. Mr. Armstrong stated that the THPO acknowledges the letter sent on behalf of the project. Mr. Armstrong stated the proposed project is within a particularly sensitive area of the ancestral territory of the Cahuilla and Serrano people of the Morongo Band of Mission Indians. Mr. Armstrong noted the 0.5-mile search radius was inadequate to evaluate resource patterning and potential for buried deposits. He requested a search radius of at least 1 mile. Mr. Armstrong asked that Rincon furnish the THPO with copies of the site records for all prehistoric archaeological resources within the 1-mile radius. Additionally, Mr. Armstrong requested Rincon also provide a listing of all cultural studies or surveys previously conducted within the 1-mile radius. Mr. Armstrong's request was forwarded to EMWD.

On February 3, 2020, Rincon called and spoke with Chairwoman Donna Yocum of the San Fernando Band of Mission Indians. Chairwoman Yocum stated that the Tribe would like to defer to the local tribes regarding this project and does not have further comments.

On February 11, 2020, Rincon received an email from Arysa Gonzalez Romero, the Historic Preservation Technician for the Agua Caliente Band of Cahuilla Indians. Ms. Gonzalez Romero stated that the project area is not located within the boundaries of the Agua Caliente Band of Cahuilla Indians Reservation, however, it is within the Tribe's Traditional Use Area. The Agua Caliente Band of Cahuilla Indians requests a copy of the records search with associated reports and site records from the information center and copies of any cultural resource documentation (report and site records) generated in connection with the project.

Appendix B provides copies of all non-confidential Native American outreach correspondence, including a summary table.

4.3 Local Historic Group Consultation

Rincon contacted the Moreno Valley Historical Society, City of Moreno Valley Environmental and Historical Preservation Board, Riverside African American Historical Society, and March Field Air Museum, to request information regarding historical resources in the proposed project APE. Rincon prepared and mailed letters to each of these groups on January 15, 2020; follow-up phone calls were conducted on January 28, 2020 and February 3, 2020 (Appendix C).

Two responses were received from the historical society consultation. In a phone call on January 28, 2020, the museum receptionist for the March Field Air Museum noted they had no personnel tasked with handling Section 106 consultation. During the follow-up phone calls on February 3, 2020, Claudia Moreno, the secretary for the City of Moreno Valley Environmental and Historical Preservation Board, stated the Board had no concerns regarding historic properties in or near the project area. Appendix C provides a summary of the historical group consultation efforts.

4.4 Historical Imagery Review

An aerial photograph of the project APE shows that in 1966 much of the area is characterized by agricultural fields with sparse areas of residential development (NETRonline 2020). At that time, the runway and buildings associated with March Field are present southwest of the project APE. In addition, a southwest-northeast running natural drainage is shown between Cottonwood Avenue and Alessandro Boulevard. In later aerial images, the same drainage appears to be channelized sometime between 1978 and 1980. The aerial imagery also indicates much of the APE transitioned from agricultural land to residential, commercial, and light industrial development in the 1980s and 1990 (NETRonline 2020).

5 Field Survey

5.1 Methods

On January 20 and 21, 2020, Rincon Archaeologist Gena Granger performed a cultural resources field survey of the APE. Ms. Granger was accompanied by Talitha Arceo, a tribal representative from the Soboba Band of Luiseño Indians. Developed portions of the pipeline alignment along Cottonwood Avenue, Indian Street, Alessandro Boulevard, Sweet Grass Drive, Flaming Arrow Drive, Perris Boulevard, Kitching Street, Gentian Avenue, Santiago Avenue, Patricia Street, and Los Cabos Drive were surveyed via a windshield survey.

A pedestrian survey was conducted for the proposed well locations and treatment sites on vacant or partially developed land. All exposed ground surfaces were carefully examined by the archaeologist who walked a series of 10-meter (33 foot) spaced transects across each survey area.

Ms. Granger examined the APE for evidence of artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and bone), soil discolorations indicative of cultural midden deposits, soil depressions, and features indicative of the former presence of structures of buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows and road cuts were also visually inspected. Field notes of survey conditions and observations were recorded using Rincon field forms and a digital camera. Copies of the original field notes and photographs are maintained at the Rincon Los Angeles office.

5.2 Results

Results of the field survey indicate large portions of the APE are developed with pavement covering much of the proposed pipeline alignment (Photograph 1). Additionally, some of Kitching Street's west easement has been treated with gravel or decomposed granite along the edge of a concrete storm drain culvert. Ground visibility within these areas was less than 5 percent.

Ground visibility varied greatly (5 to 90 percent) within the portions of the APE encompassing the proposed well and treatment site locations (Photographs 2 and 3). In these areas, the ground surfaces were obstructed by landscaping, playground equipment, homeless encampments, a retention pond, and modern refuse. An examination of areas of exposed ground indicates native sediments consist of loosely consolidated reddish tan sandy silt with small gravel inclusions. Surficial sediments throughout the APE have been extensively disturbed by road construction and maintenance activities, vegetation clearing, imported fill deposition, and rodent activity.

The field survey identified a semi-subterranean vault and a cinder block structure on Cactus Corridor Well Site 2, Option 1 and Cactus Corridor Well Site 4, Option 2/Treatment Site Option 2, respectively (Figure 2; Photographs 4 and 5). Neither structure displays characteristics to indicate they are historic in age. Subsequent review of historical aerial images of the two areas also found no evidence to indicate the structures are more than 45 years of age. No other historic-age built-environment or archaeological resources were identified within the APE. Appendix D provides a detailed summary of the pedestrian survey findings.

Photograph 1 Intersection of Alessandro Boulevard and Perris Boulevard, Facing East

Photograph 2 Cactus Corridor East Well 2, Option 1, Facing Southeast

Photograph 3 Treatment Site Option 3, Facing Northwest

Photograph 4 Vault on Cactus Corridor Well Site 2, Option 1, Facing North

Photograph 5 Cinder Block Structure on Cactus Corridor Well Site 4, Option 2/Treatment Site Option 2, Facing North

6 Findings and Recommendations

The results of the cultural resources records search, Native American and historical society consultation, historical map and imagery review, and field survey identified no cultural resources within the APE. Although the lack of surface evidence of archaeological remains does not preclude their subsurface existence, no archaeological resources have been previously recorded within or immediately adjacent to the project APE. In addition, the majority of archaeological sites documented within the record search area are prehistoric bedrock milling features which are located at the base of some low-lying hills almost 0.5 mile from the APE. These findings suggest that there is a relatively low potential for encountering substantial prehistoric archaeological remains during construction activities.

Rincon recommends a finding of ***no impact to historical and archaeological resources*** under CEQA and ***no historic properties affected*** under Section 106 of NHPA. The following recommendations are offered in the case of the unanticipated discovery of cultural resources during project development. The project is also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

6.1 Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the discovery proves to be significant under Section 106 of the NHPA and/or CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts.

6.2 Human Remains

If human remains are found, regulations outlined in the State of California Health and Safety Code Section 7050.5 state no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of being granted access and provide recommendations as to the treatment of the remains to the landowner.

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State Lands Commission

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Appendix A

Record Search Results (Confidential)

Appendix B

Native American Consultation

STATE OF CALIFORNIA Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
Marshall McKay
Wintun

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Joseph Myers
Pomo

COMMISSIONER
Julie Tumamait-Stenslie
Chumash

COMMISSIONER
[**Vacant**]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

January 7, 2020

Tiffany Clark
Rincon Consultants, Inc.

Via Email to: tclark@rinconconsultants.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Cactus Avenue Corridor Project, Riverside County

Dear Ms. Clark:

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

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

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

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated

within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

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

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

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

- Any report that may contain site forms, site significance, and suggested mitigation measures.

  All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

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

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

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

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

Sincerely,

Andrew Green

Andrew Green
Staff Services Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
Riverside County
1/7/2020

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

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

Ewiiaapaayp Band of Kumeyaay Indians
Michael Garcia, Vice Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Ewiiaapaayp Band of Kumeyaay Indians
Robert Pinto, Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
wmicklin@leaningrock.net

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393 — Gabrieleno
Covina, CA, 91723
Phone: (626) 926 - 4131
admin@gabrielenoindians.org

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 — Gabrieleno
San Gabriel, CA, 91778
Phone: (626) 483 - 3564
Fax: (626) 286-1262
GTTribalcouncil@aol.com

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 — Gabrielino
Los Angeles, CA, 90012
Phone: (951) 807 - 0479
sgoad@gabrielino-tongva.com

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490 — Gabrielino
Bellflower, CA, 90707
Phone: (562) 761 - 6417
Fax: (562) 761-6417
gtongva@gmail.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Cactus Avenue Corridor Project, Riverside County.

Native American Heritage Commission
Tribal Consultation List
Riverside County
1/7/2020

Gabrielino-Tongva Tribe
Charles Alvarez,
23454 Vanowen Street — Gabrielino
West Hills, CA, 91307
Phone: (310) 403 - 6048
roadkingcharles@aol.com

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

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

La Posta Band of Diegueno Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

La Posta Band of Diegueno Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

Los Coyotes Band of Cahuilla and Cupeño Indians
Shane Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712

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

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

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

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

Ramona Band of Cahuilla
Joseph Hamilton, Chairperson
P.O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramona-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Cactus Avenue Corridor Project, Riverside County.

Native American Heritage Commission
Tribal Consultation List
Riverside County
1/7/2020

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838 Kitanemuk
Newhall, CA, 91322 Vanyume
Phone: (503) 539 - 0933 Tataviam
Fax: (503) 574-3308
ddyocum@comcast.net

San Manuel Band of Mission Indians
Lee Clauss, Director of Cultural Resources
26569 Community Center Drive Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
Fax: (909) 864-3370
lclauss@sanmanuel-nsn.gov

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

Santa Rosa Band of Cahuilla Indians
Steven Estrada, Chairperson
P.O. Box 391820 Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
mflaxbeard@santarosacahuilla-nsn.gov

Serrano Nation of Mission Indians
Mark Cochrane, Co-Chairperson
P. O. Box 343 Serrano
Patton, CA, 92369
Phone: (909) 528 - 9032
serranonation1@gmail.com

Serrano Nation of Mission Indians
Wayne Walker, Co-Chairperson
P. O. Box 343 Serrano
Patton, CA, 92369
Phone: (253) 370 - 0167
serranonation1@gmail.com

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

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

Torres-Martinez Desert Cahuilla Indians
Thomas Tortez, Chairperson
P.O. Box 1160 Cahuilla
Thermal, CA, 92274
Phone: (760) 397 - 0300
Fax: (760) 397-8146
tmchair@torresmartinez.org

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

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This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Cactus Avenue Corridor Project, Riverside County.

19-08223 Cactus Avenue Corridor Project Section 106 Correspondence Tracking

Contact List Received from NAHC on 1/7/2020	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Agua Caliente Band of Cahuilla Indians **Jeff Grubbe, Chairperson** 5401 Dinah Shore Drive Palm Springs, CA, 92264 Phone: (760) 699 - 6800 Fax: (760) 699-6919	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Spoke with Rebecca Mejia who looked for the notification letter and couldn't find. Was going to reach out to Patricia Garcia, the Director of Historic Preservation to see if the letter was under her review. 2/3/2020: Called Patricia Garcia and left voicemail and contact info 2/11/2020: Rincon received an email from Arysa Gonzalez Romero, the Historic Preservation Technician for the Agua Caliente Band of Cahuilla Indians. Ms. Gonzalez Romero stated that the project area is not located within the boundaries of the Agua Caliente Band of Cahuilla Indians Reservation, however, it is within the Tribe's Traditional Use Area. The Agua Caliente Band of Cahuilla Indians requests a copy of the records search with associated reports and site records from the information center and copies of any cultural resource documentation (report and site records) generated in connection with the project.
Augustine Band of Cahuilla Mission Indians **Amanda Vance, Chairperson** P.O. Box 846 Coachella, CA, 92236 Phone: (760) 398 - 4722 Fax: (760) 369-7161 hhaines@augustinetribe.com	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Spoke with Kimberly Pedroza and she stated that Chairperson Amanda Vance does not work out of the office that the number is for but that she would review the notification letter herself if it is sent to her via email. Email sent to Kimberly kpedroza@augustinetribe.com on 1/28 2/3/2020: Called for Kimberley Pedroza and she was not in the office; left a message and contact info with reception
Cabazon Band of Mission Indians **Doug Welmas, Chairperson** 84-245 Indio Springs Parkway Indio, CA, 92203 Phone: (760) 342 - 2593 Fax: (760) 347-7880 jstapp@cabazonindians-nsn.gov	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Directed to Jackie Barnum. Left message and contact number 2/3/2020: Called and unable to be directed to Jackie Barnum or find in directory to leave a voicemail. No answer at admin offices either.

Contact List Received from NAHC on 1/7/2020	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Cahuilla Band of Indians **Daniel Salgado, Chairperson** 52701 U.S. Highway 371 Anza, CA, 92539 Phone: (951) 763 - 5549 Fax: (951) 763-2808 Chairman@cahuilla.net	1/15/2020	1/28/2020		On January 28, 2020, Rincon received a letter from BobbyRay Esparza, Cultural Coordinator for the Cahuilla Band of Indians, stating the Cahuilla Band of Indians do not have knowledge of any cultural resources near or within the project area and although this project is outside the Cahuilla reservation boundary, it is within the Cahuilla traditional land use area. Therefore, the Cahuilla Band of Indians do have an interest in this project and would like to consult in the Section 106 process. Additionally, Mr. Esparza requests that a tribal monitor be present during all ground disturbing activities and to be notified of all updates with the project moving forward.
Campo Band of Diegueno Mission Indians **Ralph Goff, Chairperson** 36190 Church Road, Suite 1 Campo, CA, 91906 Phone: (619) 478 - 9046 Fax: (619) 478-5818 rgoff@campo-nsn.gov	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Ralph Goff retired a year ago…was redirected to Harry Quero the new Chairperson. Left message and contact info. 2/3/2020: Directory for Harry Quero still leads you to Mr. Goff's voicemail. Left a voicemail with contact info for Mr. Quero assuming this voicemail is set up to direct messages to current Chairman Quero.
Ewiiaapaayp Band of Kumeyaay Indians **Michael Garcia, Vice Chairperson** 4054 Willows Road Alpine, CA, 91901 Phone: (619) 445 - 6315 Fax: (619) 445-9126 michaelg@leaningrock.net	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left a voicemail and contact info
Ewiiaapaayp Band of Kumeyaay Indians **Robert Pinto, Chairperson** 4054 Willows Road Alpine, CA, 91901 Phone: (619) 445 - 6315 Fax: (619) 445-9126 wmicklin@leaningrock.net	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left a voicemail and contact info

Contact List Received from NAHC on 1/7/2020	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Gabrieleno Band of Mission Indians – Kizh Nation **Andrew Salas, Chairperson** P.O. Box 393 Covina, CA, 91723 Phone: (626) 926 – 4131 admin@gabrielenoindians.org	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and voicemail box is full and will not allow to leave a message 2/3/2020: Called and left a voicemail and contact info
Gabrieleno/Tongva San Gabriel Band of Mission Indians **Anthony Morales, Chairperson** P.O. Box 693 San Gabriel, CA, 91778 Phone: (626) 483 - 3564 Fax: (626) 286-1262 GTTribalcouncil@aol.com	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left a voicemail and contact info
Gabrielino /Tongva Nation **Sandonne Goad, Chairperson** 106 1/2 Judge John Aiso St., #231 Los Angeles, CA, 90012 Phone: (951) 807 - 0479 sgoad@gabrielino-tongva.com	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left a voicemail and contact info

Contact List Received from NAHC on 1/7/2020	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Gabrielino Tongva Indians of California Tribal Council **Robert Dorame, Chairperson** P.O. Box 490 Bellflower, CA, 90707 Phone: (562) 761 - 6417 Fax: (562) 761-6417 gtongva@gmail.com	1/15/2020	1/28/2020		1/28/2020: Called and spoke with Mr. Dorame. He asked to be emailed a copy of the notification letter that was mailed. Email sent to gtongva@gmail.com 2/3/2020: Called and spoke with Mr. Dorame. He will call back later this afternoon after he reviews the email sent last week 1/28 2/5/2020: Mr. Dorame called and stated that in the event that cultural resources and/or artifacts pertaining to the Tongva people are impacted or unearthed, the Gabrielino Tongva Indians of California Tribal Council would like to be notified. Additionally, Mr. Dorame stated that if human remains are unearthed and identified by the Coroner as indigenous people, the Gabrielino Tongva Indians of California Tribal Council would like to be contacted regardless of the MLD designation from the NAHC.
Gabrielino-Tongva Tribe **Charles Alvarez,** 23454 Vanowen Street West Hills, CA, 91307 Phone: (310) 403 – 6048 roadkingcharles@aol.com	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left a voicemail and contact info
Jamul Indian Village **Lisa Cumper, Tribal Historic Preservation Officer** P.O. Box 612 Jamul, CA, 91935 Phone: (619) 669 - 4855 lcumper@jiv-nsn.gov	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left a voicemail and contact info

Contact List Received from NAHC on 1/7/2020	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Jamul Indian Village **Erica Pinto, Chairperson** P.O. Box 612 Jamul, CA, 91935 Phone: (619) 669 - 4785 Fax: (619) 669-4817 epinto@jiv-nsn.gov	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and voicemail box is full and will not allow to leave a message 2/3/2020: Called and voicemail box is full and will not allow to leave a message
La Posta Band of Diegueno Mission Indians **Gwendolyn Parada, Chairperson** 8 Crestwood Road Boulevard, CA, 91905 Phone: (619) 478 - 2113 Fax: (619) 478-2125 LP13boots@aol.com	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left message with contact info with reception
La Posta Band of Diegueno Mission Indians **Javaughn Miller, Tribal Administrator** 8 Crestwood Road Boulevard, CA, 91905 Phone: (619) 478 - 2113 Fax: (619) 478-2125 jmiller@LPtribe.net	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left message with contact info with reception; was notified that Ms. Miller is no longer the Tribal Administrator and that James Hill is. Asked to give message to Mr. Hill
Los Coyotes Band of Cahuilla and Cupeño Indians **Shane Chapparosa, Chairperson** P.O. Box 189 Warner Springs, CA, 92086-0189 Phone: (760) 782 - 0711 Fax: (760) 782-0712	1/15/2020			On January 23, 2020, Rincon received an email from Dorothy Willis, of the Los Coyotes Band of Indians Environmental Department, stating that the tribal group had received the notice of the proposed project and that it is currently being reviewed. Additionally, Ms. Willis noted that Mr. Ray Chapparosa is the current Chairman and not Shane Chapparosa.

Contact List Received from NAHC on 1/7/2020	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Manzanita Band of Kumeyaay Nation **Angela Elliott Santos, Chairperson** P.O. Box 1302 Boulevard, CA, 91905 Phone: (619) 766 - 4930 Fax: (619) 766-4957	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left message with contact info with reception
Mesa Grande Band of Diegueno Mission Indians **Michael Linton, Chairperson** P.O Box 270 Santa Ysabel, CA, 92070 Phone: (760) 782 - 3818 Fax: (760) 782-9092 mesagrandeband@msn.com	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left message with contact info with reception

Contact List Received from NAHC on 1/7/2020	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Morongo Band of Mission Indians **Robert Martin, Chairperson** 12700 Pumarra Rroad Banning, CA, 92220 Phone: (951) 849 – 8807 Fax: (951) 922-8146 dtorres@morongo-nsn.gov	1/15/2020	1/28/2020		1/28/2020: Robert Martin has been retired for years was redirected to Jerry Begone; Mr. Begone did not answer, left a message and contact info On January 30, 2020, Rincon received an email from Travis Armstrong, Tribal Historic Preservation Officer to the Morongo Band of Mission Indians. Mr. Armstrong stated that the Tribal Historic Preservation Office of the Morongo Band of Mission Indians acknowledges the letter sent on behalf of the project. The Tribe appreciates the efforts to safeguard tribal cultural resources through decisions informed by tradition, custom and knowledge of federally recognized tribal governments that are the subject-matter experts involving the significance and integrity of these resources. Mr. Armstrong further states that the proposed project is within a particularly sensitive area of the ancestral territory of the Cahuilla and Serrano people of the Morongo Band of Mission Indians. Mr. Armstrong also comments that the 0.5-mile search radius noted in the January 15, 2020 letter is inadequate to evaluate resource patterning and potential for buried deposits. Mr. Armstrong requests that Rincon perform a search radius of at least 1 mile. Mr. Armstrong asks that Rincon furnish their office with copies of the site records for all prehistoric resources within the 0.5-mile radius, and within the 1-mile radius when that record search is completed. Additionally, Mr. Armstrong requests Rincon also provide a listing of all cultural studies or surveys previously conducted within the 1-mile radius.
Pechanga Band of Luiseno Indians **Mark Macarro, Chairperson** P.O. Box 1477 Temecula, CA, 92593 Phone: (951) 770 - 6000 Fax: (951) 695-1778 epreston@pechanga-nsn.gov	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info with Kimmie Vazquez at Tribal Office front desk 2/3/2020: Called and left voicemail with contact info with Chairman's assistant, Emily Preston.

Contact List Received from NAHC on 1/7/2020	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Ramona Band of Cahuilla **Joseph Hamilton, Chairperson** P.O. Box 391670 Anza, CA, 92539 Phone: (951) 763 - 4105 Fax: (951) 763-4325 admin@ramona-nsn.gov	1/15/2020	1/28/2020		1/28/2020: Called and was directed by Michelle Gutierrez to email John Gomez, the Environmental Project Manager a copy of the project notification letter. Email sent to jgomez@ramona-nsn.gov 2/3/2020: Called and left message with contact info with reception
San Fernando Band of Mission Indians **Donna Yocum, Chairperson** P.O. Box 221838 Newhall, CA, 91322 Phone: (503) 539 - 0933 Fax: (503) 574-3308 ddyocum@comcast.net	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and spoke with Chairwoman Yocum and she prefers to defer to the local tribes for this project.
San Manuel Band of Mission Indians **Lee Clauss, Director of Cultural Resources** 26569 Community Center Drive Highland, CA, 92346 Phone: (909) 864 - 8933 Fax: (909) 864-3370 lclauss@sanmanuel-nsn.gov	1/15/2020			On January 17, 2020, Rincon received an email from Alexandra McCleary, Tribal Archaeologist for the San Manuel Band of Mission Indians (SBMI), stating that the proposed project is located outside of the Serrano ancestral territory and, as such, SBMI will not be requesting consulting party status with the lead agency or requesting to participate in the scoping, development, and/or review of documents created pursuant to legal and regulatory mandates.
San Pasqual Band of Diegueno Mission Indians **Allen Lawson, Chairperson** P.O. Box 365 Valley Center, CA, 92082 Phone: (760) 749 - 3200 Fax: (760) 749-3876 allenl@sanpasqualtribe.org	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and Allen Lawson is no longer Chairperson as of 1/2020, new Chairperson is Steve Cope. His contact info is 760-651-5178, email: stevenc@sanpasqualtribe.org Called Chairperson Steve Cope and voicemail box will not allow to leave a message 2/3/2020: Called and left a voicemail with contact info for Chairman Cope

Contact List Received from NAHC on 1/7/2020	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Santa Rosa Band of Cahuilla Indians **Steven Estrada, Chairperson** P.O. Box 391820 Anza, CA, 92539 Phone: (951) 659 - 2700 Fax: (951) 659-2228 mflaxbeard@santarosacahuillansn.gov	1/15/2020	1/28/2020		1/28/2020: Reached the Tribal Office and Mercedes Estrada stated that the Tribe does not have any comments regarding the project at this time.
Serrano Nation of Mission Indians **Mark Cochrane, Co-Chairperson** P. O. Box 343 Patton, CA, 92369 Phone: (909) 528 – 9032 serranonation1@gmail.com	1/15/2020	1/28/2020		1/28/2020: Reached Chairperson Mark Cochrane and he stated the Tribe does not have any comments regarding the project at this time.
Serrano Nation of Mission Indians **Wayne Walker, Co-Chairperson** P. O. Box 343 Patton, CA, 92369 Phone: (253) 370 – 0167 serranonation1@gmail.com	1/15/2020	1/28/2020		1/28/2020: Called and left message and contact info; also mentioned that Mr. Cochrane had made the statement that the Tribe did not have any comments regarding the project at this time/
Soboba Band of Luiseno Indians **Scott Cozart, Chairperson** P. O. Box 487 San Jacinto, CA, 92583 Phone: (951) 654 - 2765 Fax: (951) 654-4198 jontiveros@soboba-nsn.gov	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left voicemail with contact info with Chairman's assistant

Contact List Received from NAHC on 1/7/2020	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Sycuan Band of the Kumeyaay Nation **Cody Martinez, Chairperson** 1 Kwaaypaay Court El Cajon, CA, 92019 Phone: (619) 445 - 2613 Fax: (619) 445-1927 ssilva@sycuan-nsn.gov	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left voicemail and contact info
Torres-Martinez Desert Cahuilla Indians **Thomas Tortez, Chairperson** P.O. Box 1160 Thermal, CA, 92274 Phone: (760) 397 - 0300 Fax: (760) 397-8146 tmchair@torresmartinez.org	1/15/2020	1/28/2020	2/3/2020	1/28/2020: Called and left message and contact info 2/3/2020: Called and left voicemail and contact info
Viejas Band of Kumeyaay Indians **John Christman, Chairperson** 1 Viejas Grade Road Alpine, CA, 91901 Phone: (619) 445 - 3810 Fax: (619) 445-5337	1/15/2020	1/28/2020		1/28/2020: Called and left message and contact info. Ray Turan (619-659-2312) called back and commented that the Project is outside of the Tribe's area of cultural interest

Example Letter

Rincon Consultants, Inc.
3600 Lime Street, Suite 226
Riverside, California 92501

951 782 0061 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

January 15, 2020

Charles Alvarez
Gabrielino-Tongva Tribe
23454 Vanowen Street
West Hills, CA, 91307
Phone: (310) 403 – 6048
roadkingcharles@aol.com

Subject: **Cultural Resources Assessment for Eastern Municipal Water District Cactus Avenue Corridor Project, City of Moreno Valley, Riverside County, California**

Dear Mr. Alvarez,

Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Eastern Municipal Water District's (EMWD) Cactus Avenue Corridor Project (project). The proposed project consists of the development and operation of groundwater extraction, treatment, and distribution facilities within the EMWD's Perris North Groundwater Management Zone in the city of Moreno Valley, Riverside County, California. Maps showing the location of the project site are included.

The purpose of this letter is to inquire about your knowledge of potential cultural resources within the vicinity that may be impacted by project development. Rincon contacted the Native American Heritage Commission to request a Sacred Lands File (SLF) search of the project area that was returned with negative results. A records search performed of the California Historical Resources Information System identified a total of 16 prehistoric and historic-period cultural resources within a 0.5-mile radius. None of the known resources are located within the project's Area of Potential Effect (APE). Although no known archaeological resources have been recorded within the APE, we are aware that the results of the record search are not exhaustive and that additional cultural resources may exist within the area.

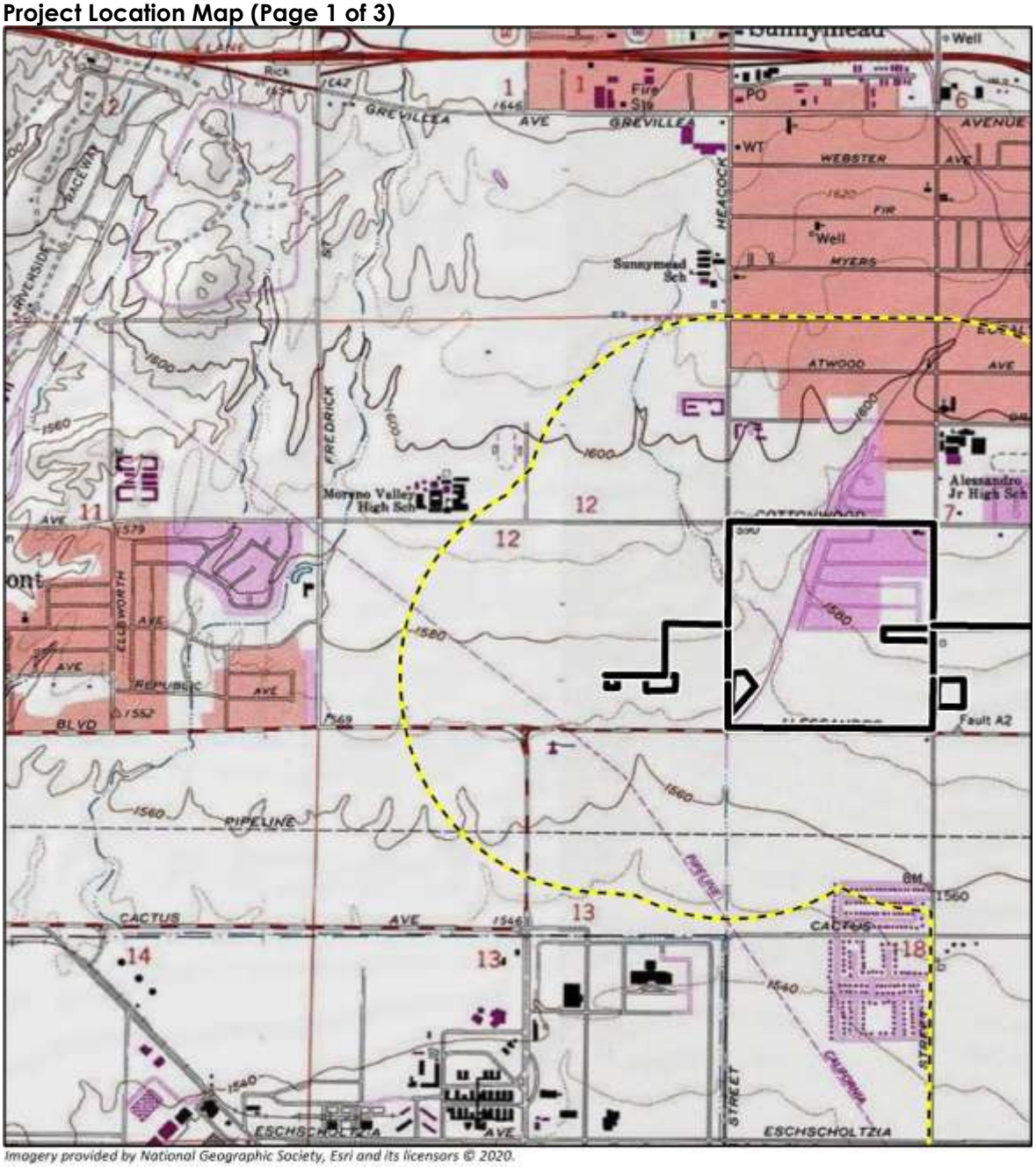
This project may involve federal funding; thus, the cultural resources study is being prepared in conformance with Section 106 of the National Historic Preservation Act (NHPA). Rincon is assisting in the Section 106 consultation effort and we are writing to provide you with an opportunity to be involved in the Section 106 consultation process. If you or your organization has any knowledge or specific concerns regarding cultural resources in the project area, please respond by telephone at (213) 788-4842 extension 149, or by email at tclark@rinconconsultants.com. Please respond within 30 days of receipt of this letter if you are interested in consultation.

Sincerely,
Rincon Consultants, Inc.

Tiffany Clark, PhD, RPA
Senior Archaeologist

Attached: Project Location Maps

Project Location Map (Page 1 of 3)



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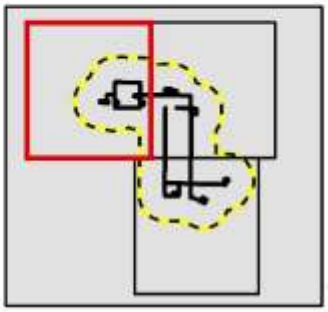
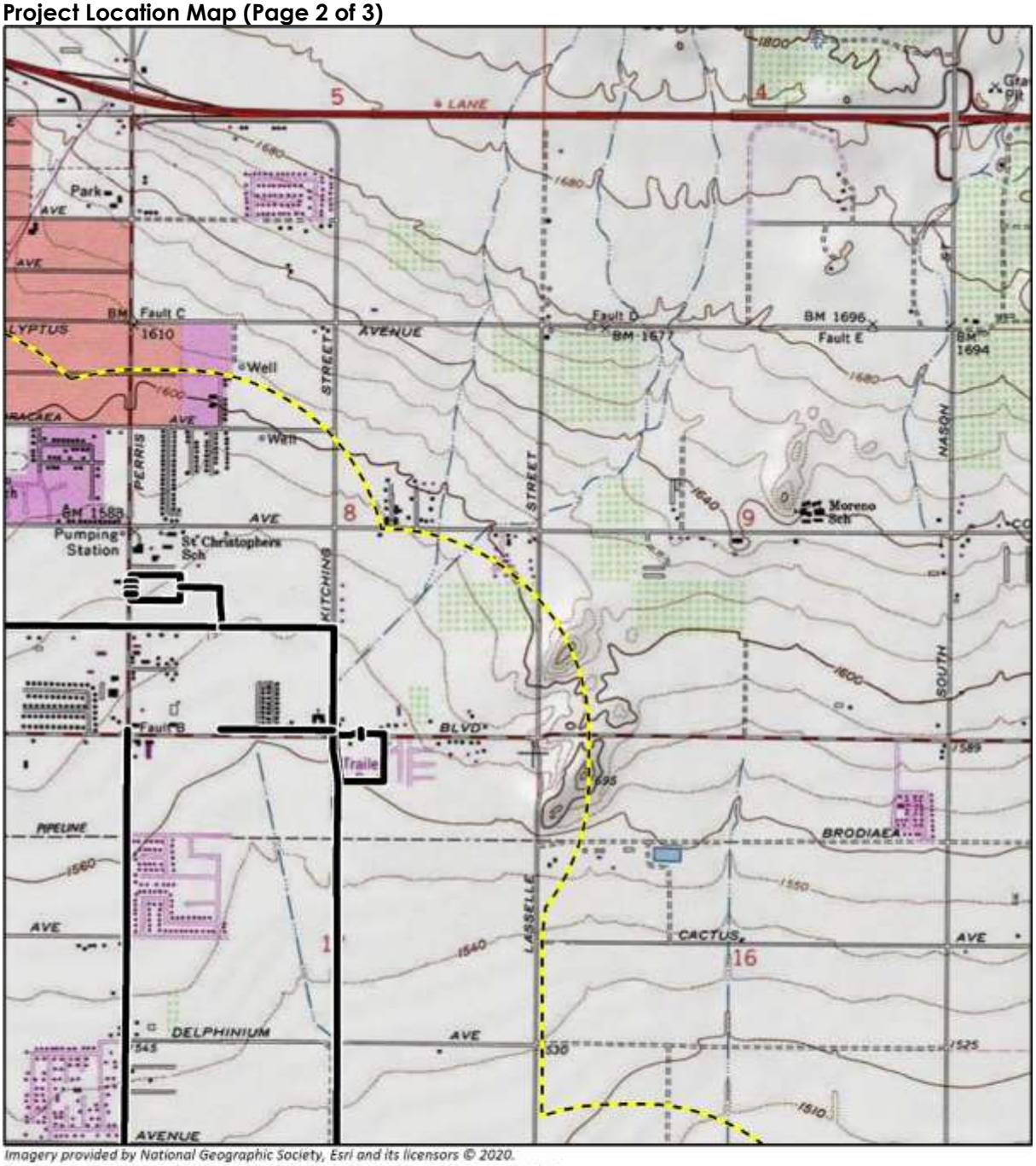
Half-Mile Buffer
Area of Potential Effects

0 1,000 2,000 Feet
0 250 500 Meters

N



Project Location Map (Page 2 of 3)



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Half-Mile Buffer

Area of Potential Effects

0 1,000 2,000 Feet

0 250 500 Meters

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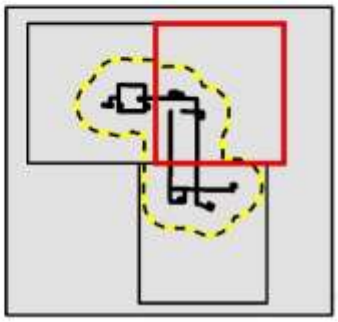
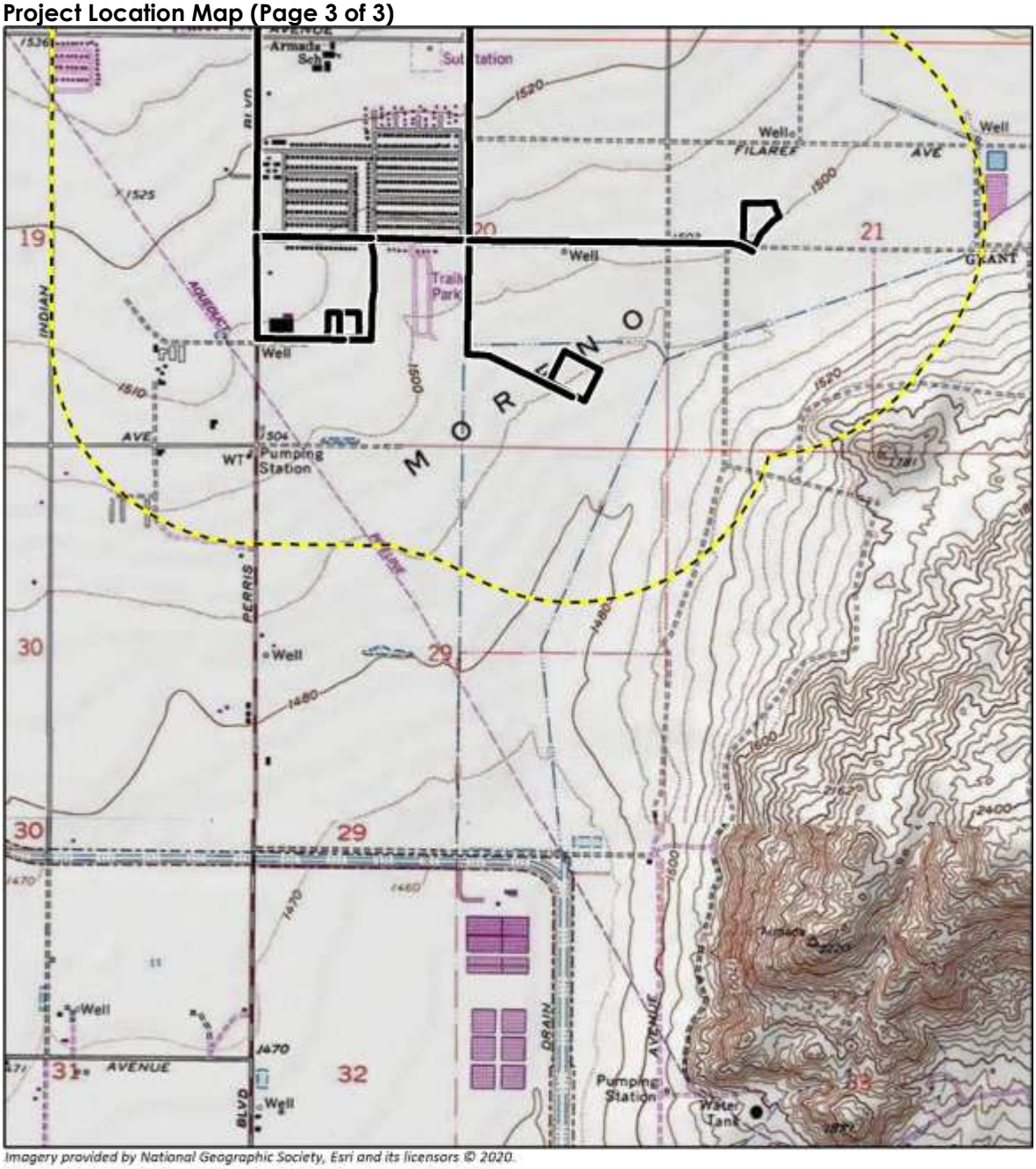


Project Location Map (Page 3 of 3)



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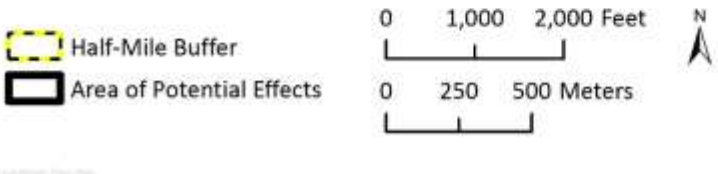
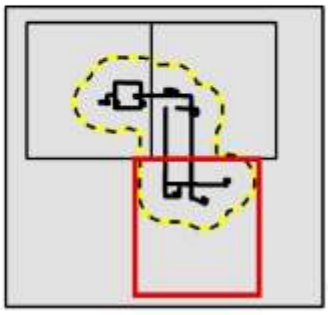




Cahuilla Band of Indians
Cultural Department
52701 CA-Highway 371 Anza, California 92539

January 27, 2020

Tiffany Clark, phD, RPA
Senior Archaeologist
Rincon Consultants, INC.
3600 Lime Street, Suite 226
Riverside, CA 92501

RE: Cultural Resources Assessment for Eastern Municipal Water District Cactus Avenue Corrido Project, City of Moreno Valley, Riverside County, CA

Dear Ms. Clark,

The Cahuilla Band of Indians has received your letter regarding the above project located in the City of Moreno Valley, Riverside County, Ca. We do not have knowledge of any cultural resources near or within the project area. Although this project is outside the Cahuilla reservation boundary, it is within the Cahuilla traditional land use area. Therefore, we do have an interest in this project and would like to consult in the section 106 process. We request that a tribal monitor be present during all ground disturbing activities and to be notified of all updates with the project moving forward. The Cahuilla Band appreciates your assistance in preserving Tribal Cultural Resources in your project.

Sincerely,

BobbyRay Esparza
Cultural Coordinator
Cahuilla Band of Indians

Phone (951) 763-5549 Fax (951) 763-2808
Email: besparza@cahuilla.net

Tiffany Clark

From: Dorothy Willis <dwillisloscoyotesepa@gmail.com>
Sent: Thursday, January 23, 2020 11:08 AM
To: Tiffany Clark
Subject: Notification: Corridor Project, Moreno Valley, Riverside County

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside of Rincon Consultants. Be cautious before clicking on any links, or opening any attachments, until you are confident that the content is safe .

Good Day,
We have received a notice from your office, that is currently being reviewed, please be advised that Mr. Ray Chapparosa is the current Chairman.

Thank you in advance for your time,
Dorothy Willis

Los Coyotes Band of Indians
Environmental Department

760-782-0712

AGUA CALIENTE BAND OF CAHUILLA INDIANS
TRIBAL HISTORIC PRESERVATION

03-058-2019-003

February 11, 2020

[VIA EMAIL TO:tclark@rinconconsultants.com]
Rincon Consultants, Inc.
Ms. Tiffany Clark
250 East 1st Street, Suite 201
Los Angeles, CA 90012

Re: Cultural resources Assessment for Eastern Municipal Water District Cactus Avenue Corridor Project

Dear Ms. Tiffany Clark,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the Cactus Avenue Corridor Groundwater Wells project. The project area is not located within the boundaries of the ACBCI Reservation. However, it is within the Tribe's Traditional Use Area. For this reason, the ACBCI THPO requests the following:

*A copy of the records search with associated survey reports and site records from the information center.

*Copies of any cultural resource documentation (report and site records) generated in connection with this project.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)883-1327. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Arysa Gonzalez Romero
Historic Preservation Technician
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

Appendix C

Historical Group Consultation

Historic Groups Consulted

Local Group/Government Contact	Rincon Coordination Efforts	Response to Coordination Efforts
Moreno Valley Historical Society P.O. Box 66 Moreno Valley, CA 92556 morenovalleyhistoricalsociety@gmail.com	January 15, 2020: Consultation letter mailed via USPS. January 28, 2020: followed up via email (no phone number available) and am awaiting a response. February 3, 2020: followed up via email (no phone number available) and am awaiting a response.	
Riverside African American Historical Society P.O. Box 209 Riverside, CA 92502 Phone: (951) 384-1866 Website: https://raahsinc.org/about/civil-rights-institute/	January 15, 2020: Consultation letter mailed via USPS. January 28, 2020: left voicemail on general telephone line. February 3, 2020: left voicemail on general telephone line.	
City of Moreno Valley Environmental and Historical Preservation Board **c/o Claudia Manrique** Moreno Valley Community Development Department 14177 Frederick Street Moreno Valley, CA 92553 Main line: (951)413-3206	January 15, 2020: Consultation letter mailed via USPS. January 28, 2020: Left voicemail for Claudia Enrique. February 3, 2020: Spoke with Claudia Moreno, EHPB secretary, who said the board had no concerns re: historic properties in or near the project area.	

Local Group/Government Contact	Rincon Coordination Efforts	Response to Coordination Efforts
March Field Air Museum 22550 Van Buren Boulevard Riverside, CA 92518 Main line: (951) 902-5949	January 15, 2020: Consultation letter mailed via USPS. January 28, 2020: Was informed by front desk receptionist that the museum had no personnel tasked with handling Section 106 consultation. February 3, 2020: No follow-up call was made since the organization issued a negative response during Rincon's January 28 call.	

EXAMPLE LETTER

Rincon Consultants, Inc.

3600 Lime Street, Suite 226
Riverside, California 92501

951 782 0061 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

January 8, 2020

City of Moreno Valley Environmental and Historical Preservation Board
c/o Claudia Manrique
Moreno Valley Community Development Department
14177 Frederick Street
Moreno Valley, CA 92553
(951)413-3206

Subject: Cultural Resources Assessment for Eastern Municipal Water District Cactus Avenue Corridor Project, City of Moreno Valley, Riverside County, California

Ms. Manrique,

Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Eastern Municipal Water District's (EMWD) Cactus Avenue Corridor Project (project). The proposed project consists of the development and operation of groundwater extraction, treatment, and distribution facilities within the EMWD's Perris North Groundwater Management Zone in the city of Moreno Valley, Riverside County, California. Maps showing the location of the project site are included.

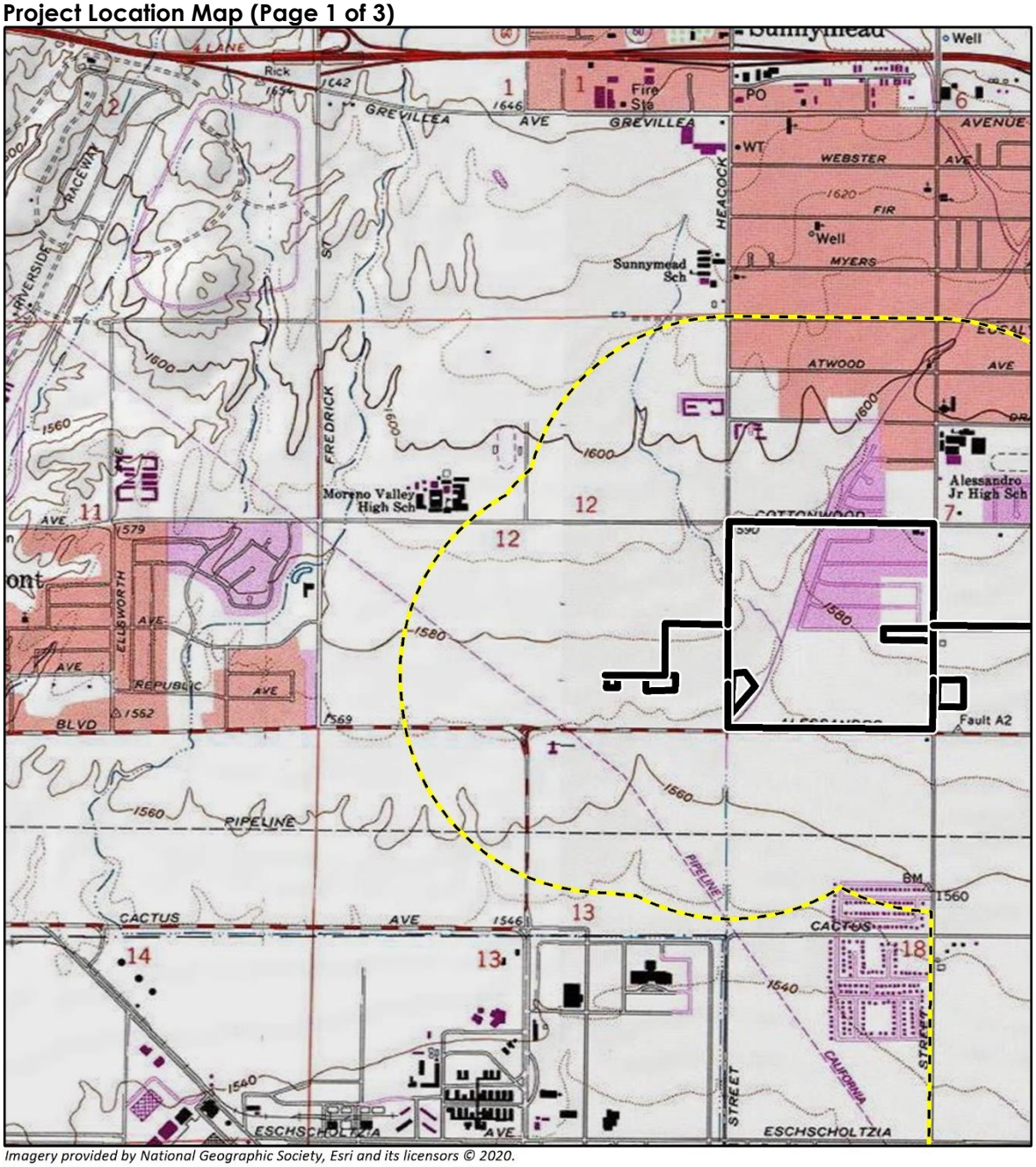
The purpose of this letter is to inquire about your knowledge of potential historic-period resources within the vicinity that may be impacted by Project development. This Project may involve federal funding; thus, this cultural resources study is being prepared in conformance with the National Environmental Policy Act and Section 106 of the National Historic Preservation Act (NHPA). Rincon is assisting the EMWD with their Section 106 consultation effort, and we are writing to provide you with an opportunity to be involved in the Section 106 consultation process. If you or your organization has any knowledge or specific concerns regarding historic-period resources in the Project area, please respond by telephone at (213) 788-4842 extension 194, or by email at tclarkl@rinconconsultants.com. Please respond within 30 days of receipt of this letter if you are interested in consultation. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.

Tiffany Clark, PhD, RPA
Senior Archaeologist

Attached: Project Location Maps

Project Location Map (Page 1 of 3)



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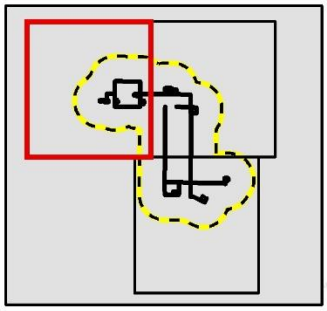
Half-Mile Buffer
Area of Potential Effects

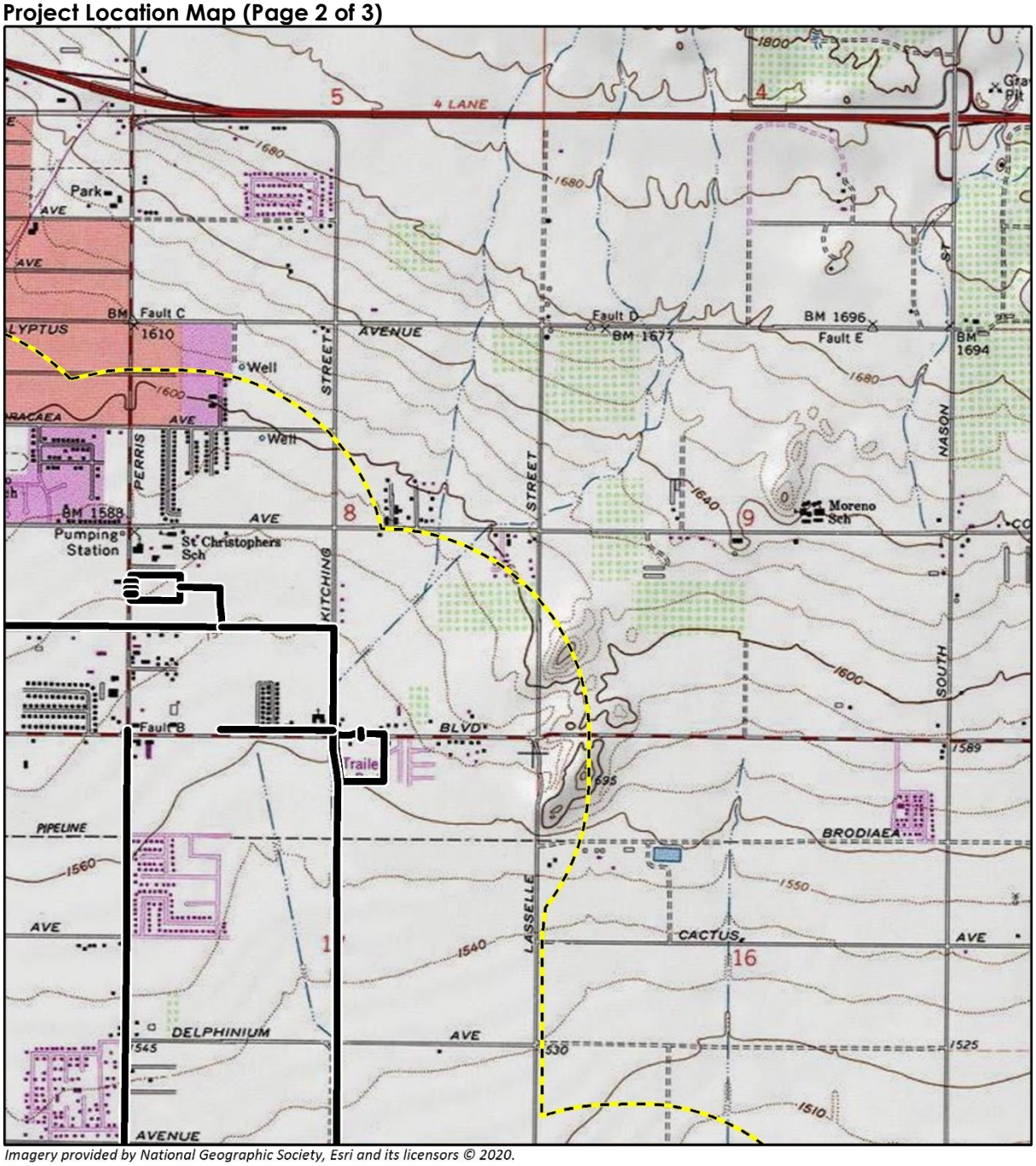
0 1,000 2,000 Feet
0 250 500 Meters

N



CRFig X Project Locations Topo Map

Project Location Map (Page 2 of 3)



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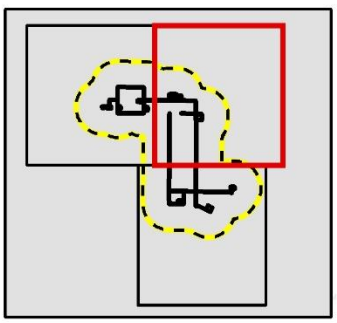
Half-Mile Buffer
Area of Potential Effects

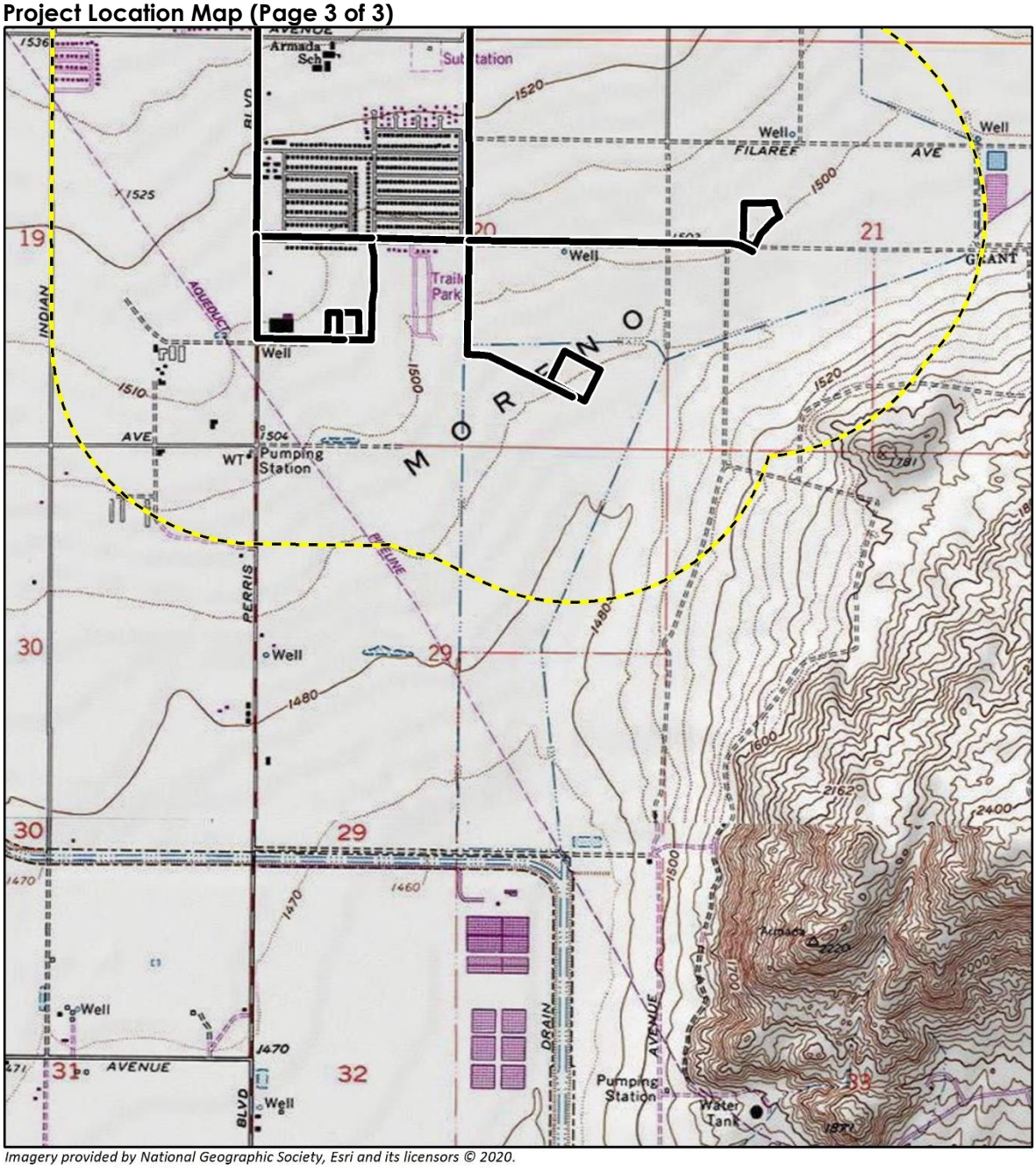
0 1,000 2,000 Feet
0 250 500 Meters

N



CRFig X Project Locations Topo Map

Project Location Map (Page 3 of 3)

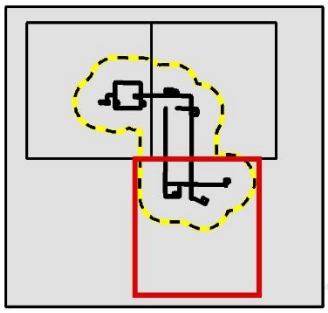


Imagery provided by National Geographic Society, Esri and its licensors © 2020. Sunnymead Quadrangle(s). T03S R03W S16,17,19-21,29,30. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

Half-Mile Buffer
Area of Potential Effects

0 1,000 2,000 Feet
0 250 500 Meters

N



CRFig X Project Locations Topo Map

Appendix D

Survey Notes

Survey Observations for Proposed Well Sites and Treatment Facility Locations

Location Name	Description
Cactus Corridor Well 1, Option 1	Open undeveloped lot; mostly flat with small mound of soil accumulated in north/northwest portion of the site. Soil appears to be reddish tan sandy silts, heavily disturbed with asphalt and concrete fragments dumped on site. A sewer manhole is present and modern refuse scattered throughout. Grasses present 3-6" tall and ground visibility is ~10%
Cactus Corridor Well 1, Option 2	Open undeveloped lot, mostly flat and appears to have been tilled/disked. Modern refuse and homeless encampment present. Grasses are 3-6" tall and ground visibility is ~10%. Multiple fragments of cinderblock are placed through out the lot with a cross constructed in the middle of the lot with two solar lights facing up at the cross. It is likely that the cinderblocks and cross have been placed there by the homeless living in the area. Additionally, rip-rap is present in the north end of the site leading into the concrete curbed drainage and Edison facilities are present in the south end of the site.
Cactus Corridor Well 2, Option 1	Open undeveloped lot, uneven with drainage in the south end and potential vault in the middle of the lot. The vault is metal measuring 5.5ft L x 3.5ft W x 3ft D and has "GTE" welded onto the door and "PB 1092" painted on the interior wall. Vault is modern and not significant after checking historic maps and aerials. Grasses are 3-12" tall and ground visibility is ~30%. Modern refuse and krotovina are present and the lot appears to have been used to dump concrete and asphalt rubble in the middle of the parcel. Soils are more sandy silt and reddish tan in color.
Cactus Corridor Well 3, Option 1	Open undeveloped lot with grasses 3-12" tall. Ground visibility is ~30% and modern refuse including saw-cut bone and krotovina are present. The lot appears to have been tilled/disked and homeless encampments are present in the east side of the parcel. It appears that two areas along the east edge of the lot measuring ~8ft x 6ft have been excavated by the homeless in the area and depth is unknown as it is possible the homeless have created two pits and covered it with debris to hide down inside.
Cactus Corridor Well 3, Option 3	Currently Bayside Park. Developed with manicured lawn and concrete pads for playground/park facilities (west side of property). Ground visibility is less than 5% and the soil appears to be dark brown fill.
Cactus Corridor Well 4, Option 1/ Treatment Site, Option 1	Gated undeveloped lot. Grasses 3-12" tall, modern refuse, and krotovina present. Ground visibility ~10%. Silty sandy soils, disturbed from possible tilling/disking activities.
Cactus Corridor East Well 2, Option 1	Currently Victoriano Park. Developed with manicured lawn and concrete pads for playground/park facilities (eastside of property). Ground visibility is less than 5% and the soil appears to be dark brown fill.
Cactus Corridor East Well 2, Option 2	Currently Parque Amistad. Developed with manicured lawn and concrete pads for playground/park facilities (northern end of property). Ground visibility is less than 5% and the soil appears to be dark brown fill.
Santiago Well Site	Current use as a yard for City of Moreno Valley; locked facility. Uneven ground surface at site; retention pond for drainage present in east and southeast corner of site. Soils are reddish/tan silty sands with modern refuse present. Ground visibility 75-80%.
Cactus Corridor Well 4, Option 2/ Treatment Site, Option 2	Locked undeveloped lot with grasses 3-12" tall and ground visibility of ~40-50%. Modern refuse including saw cut bone are present as well as krotovina. The area appears to have been tilled/disked. A partially buried vault or cistern made of cinderblock measuring 4.5ft L x 3.5ft W x 4ft D is present in northeast corner of the site. A review of historic aerials found no evidence to suggest the structure is historic in age; additionally there are no diagnostic markings to help date the structure.

Location Name	Description
Treatment Site, Option 3	Current use as a yard for City of Moreno Valley; locked facility. Uneven ground surface at site; drainage channel present in south end of site. Soils are reddish/tan sandy silt with modern refuse present. Two possible geotechnical auger holes present in south corner of site and are approximately 5ft+ in depth. Ground visibility 75-80%.

APPENDIX D: PALEONTOLOGICAL RESOURCE ASSESSMENT

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January 31, 2020
Project No: 19-08223

Rosalyn Prickett
Senior Water Resources Planner
Woodard & Curran
9665 Chesapeake Drive, Suite 320
San Diego, California 92123

Subject: Paleontological Resource Assessment for the Cactus Avenue Corridor Project, City of Moreno Valley, Riverside County, California

Dear Ms. Prickett,

Rincon Consultants, Inc. conducted a paleontological resource assessment for the proposed Cactus Avenue Corridor Project (project); a groundwater extraction, treatment, and distribution development; located in the city of Moreno Valley, Riverside County, California. This study was prepared under contract to Woodard & Curran for use by the Eastern Municipal Water District (EMWD) in support of the draft Initial Study and Mitigated Negative Declaration being prepared pursuant to the California Environmental Quality Act (CEQA). The goals of this assessment are to identify the geologic units that may be impacted by development of the project, determine the paleontological sensitivity of geologic units underlying the project site, assess the potential for impacts to paleontological resources from development of the project, and recommend mitigation measures to reduce impacts to scientifically significant paleontological resources, pursuant to CEQA.

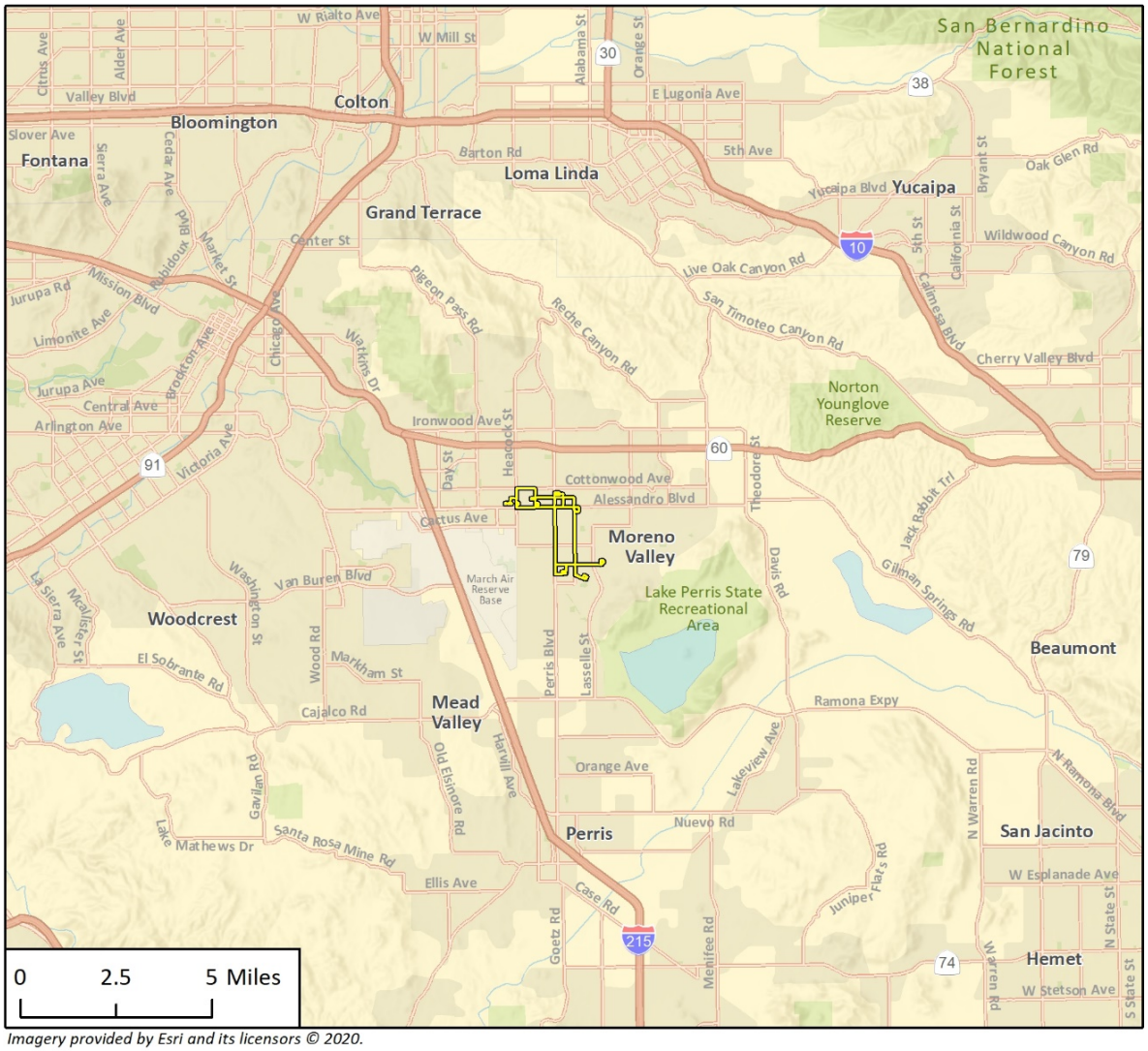
This paleontological resource assessment consisted of a fossil locality record search at the Natural History Museum of Los Angeles County (NHMLAC), a review of existing geologic maps and paleontological locality data, and a review of primary literature regarding fossiliferous geologic units within the project site and vicinity. Following the literature review and records search, this report assessed the paleontological sensitivity of the geologic units underlying the project site, determined the potential for impacts to significant paleontological resources, and proposed mitigation measures to reduce impacts to less than significant.

Project Location and Description

The project site is within the city of Moreno Valley in western Riverside County, California (Figure 1 and Figure 2). More specifically, it is in Township 3 South, Range 3 West, Sections 7, 8, and 17-21 of the United States Geological Survey (USGS) *Riverside East* and *Sunnymead,* California 7.5-minute topographic quadrangles. The project site is in a developed area characterized by a mix of residential, commercial, and light industrial uses.

The project involves the development and operation of groundwater extraction, treatment, and distribution facilities in the Perris North Groundwater Management Zone. The project includes construction and operation of extraction wells, raw water and treated water pipelines, and a water treatment and blending plant. Descriptions of the various project elements are provided below.

Figure 1 Regional Vicinity



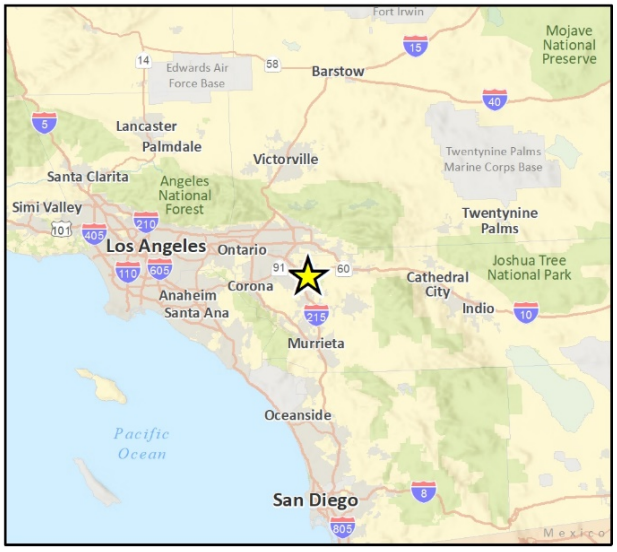
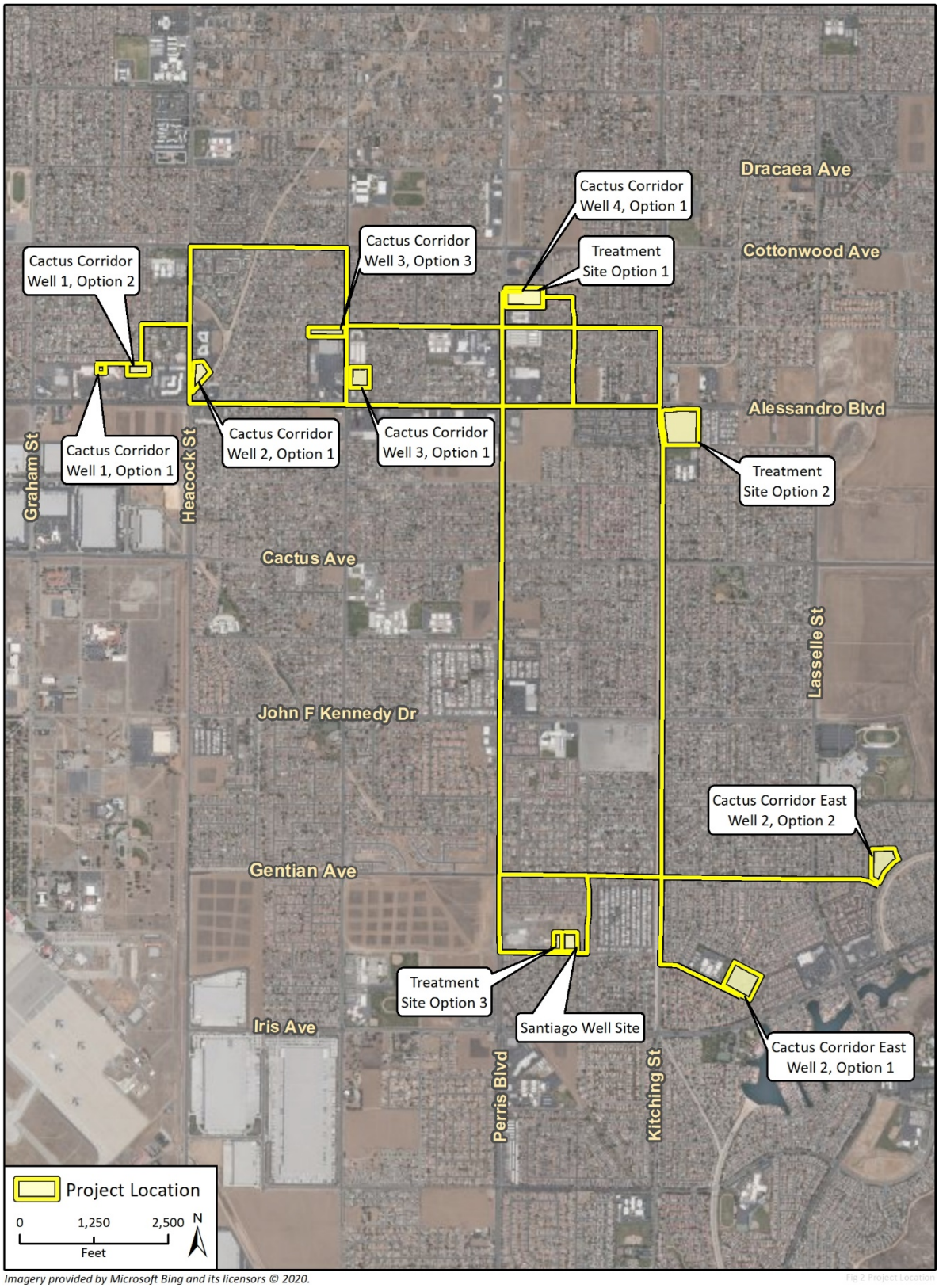


Figure 2 Project Site Vicinity



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Extraction Wells

The project involves the construction of up to six extraction wells. EMWD has identified nine potential locations for the well sites. The extraction wells would be constructed in two phases: a well drilling phase, and a well equipping phase. Construction of the extraction wells is assumed to temporarily disturb 100 percent of each of the parcel sites and would reach up to depths of 1,100 feet below ground surface. Each well site would be designed to utilize the existing grade of the parcel where applicable. Each well would be constructed with an accompanying overflow (i.e., blow-off) pond. Portable, steel liquid container tanks (i.e., Baker Tanks) would be used for on-site dewatering clarification.

Pipelines

Approximately 30,000 linear feet of pipeline would be constructed to convey raw water from the extraction wells to the proposed treatment plant and to convey treated water to the distribution system. These pipelines would be located primarily within easements, roadway rights-of-way, and EMWD-owned land. There would be up to 2,650 linear feet of 30-inch pipeline to convey treated water from the central treatment and blending facility to the distribution system, and up to 30,400 linear feet of pipe to convey raw water from the extraction wells to the treatment and blending facility. The raw water pipeline would vary in diameter from 8-, 12- or 16-inches. There would also be approximately 100 linear feet of 18-inch pipe to discharge brackish water from the central treatment and blending facility to the sanitary sewer system. The future Cactus II Feeder pipelines and turn-outs that would be used for conveyance of Metropolitan Water District of Southern California water for blending are not a part of this environmental analysis; they were analyzed under an Initial Study and Mitigated Negative Declaration, which was adopted by EMWD in August 2018. However, the project also involves approximately 100 linear feet of 30-inch pipeline; which would be constructed between the Cactus II Feeder pipelines, the proposed treatment, and the blending plant facilities.

Pipelines would be installed using open cut trench construction, as well as trenchless boring techniques. Open cut excavation would be used in existing roadways, except at crossings of existing facilities, utilities, and storm channels. Pipelines installed using open cut trenching would reach depths of approximately 3 to 4 feet. The estimated trench width would be equal to two feet plus the pipeline diameter, for a width of up to four feet. When trenchless techniques are required, pipelines would be constructed using “bore and jack” methods. For this construction technique, pits would be excavated on either side of the surface feature to be avoided (e. g., stormwater channel or existing utilities). The pits are typically 10 to 15 feet wide and 10 to20 feet long for the receiving pit and up to 50 feet long for the jacking pit. The depth would depend on the feature to be avoided, but likely would not exceed 40 feet below ground surface.

Treatment Plant

The proposed treatment plant would include granular activated carbon contactors, a blending facility, a potable water distribution pump station and a chlorine residual injection system. A nitrate treatment facility would also need to be constructed at the centralized treatment plant site to be used when blend water of sufficient quality is not available. EMWD has identified two potential sites for the treatment plant.

The raw water from the extraction wells would be treated, and blended with imported water from the Metropolitan Water District of Southern California to meet drinking water standards, and then delivered to a large diameter transmission pipeline in the potable water system that would convey the water to

other parts of EMWD's service area. The water would be disinfected prior to discharging into the potable water system.

Regulatory Setting

Fossils are remains of ancient, commonly extinct organisms, and as such are nonrenewable resources. The fossil record is a document of the evolutionary history of life on earth, and fossils can be used to understand evolutionary pattern and process, rates of evolutionary change, past environmental conditions, and the relationships among modern species (i.e., systematics). The fossil record is a valuable scientific and educational resource, and individual fossils are afforded protection under federal, state, and local environmental laws, where applicable.

This study has been completed in accordance with the requirements of CEQA and also includes compliance with federal and state regulations in the case a federal nexus is established during the course of project execution. Compliance with both federal and state regulations allows the lead agency (e.g., EMWD) to apply the results of this technical study should a federal nexus be established at a later time. Federal and state regulations applicable to potential paleontological resources in the project site are summarized below.

Federal Regulations

A variety of federal statutes address paleontological resources specifically. They are applicable to all projects occurring on federal lands and may be applicable to specific projects if the project involves a federal agency license, permit, approval, or funding.

The National Environmental Policy Act (United States Code, Section 4321 et seq.; 40 Code of Federal Regulations, Section 1502.25), as amended, directs federal agencies to "preserve important historic, cultural, and natural aspects of our national heritage (Section 101(b) (4))." The current interpretation of this language includes scientifically important paleontological resources among those resources potentially requiring preservation.

The Paleontological Resources Preservation Act (PRPA) is part of the Omnibus Public Land Management Act of 2009 (Public Law 111-011 Subtitle D). The PRPA directs the Secretary of the Interior or the Secretary of Agriculture to manage and protect paleontological resources on federal land, and develop plans for inventorying, monitoring, and deriving the scientific and educational use of such resources. The PRPA prohibits the removal of paleontological resources from federal land without a permit, establishes penalties for violations, and establishes a program to increase public awareness about such resources. While specific to activity occurring on federal lands, some federal agencies may require adherence to the directives outlined in the PRPA for projects on non-federal lands if federal funding is involved, or the project includes federal oversight.

State Regulations

California Environmental Quality Act

Paleontological resources are protected under CEQA, which states in part a project will "normally" have a significant effect on the environment if it, among other things, will disrupt or adversely affect a paleontological site except as part of a scientific study. Specifically, in Section VII(f) of Appendix G of the

State CEQA Guidelines, the Environmental Checklist Form, the question is posed thus: "Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature." To determine the uniqueness of a given paleontological resource, it must first be identified or recovered (i.e., salvaged). Therefore, CEQA mandates mitigation of adverse impacts, to the extent practicable, to paleontological resources.

CEQA does not define "a unique paleontological resource or site." However, the Society of Vertebrate Paleontology (SVP) has defined a "significant paleontological resource" in the context of environmental review as follows:

> Fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are typically to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years) (SVP 2010).

The loss of paleontological resources meeting the criteria outlined above (i.e., a significant paleontological resource) would be a significant impact under CEQA, and the CEQA lead agency is responsible for ensuring that impacts to paleontological resources are mitigated, where practicable, in compliance with CEQA and other applicable statutes.

California Public Resources Code

Section 5097.5 of the Public Resources Code states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Here "public lands" means those owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, public agencies are required to comply with Public Resources Code Section 5097.5 for their own activities, including construction and maintenance, and for permit actions (e.g., encroachment permits) undertaken by others.

City of Moreno Valley

The City of Moreno Valley General Plan Goals, Objectives, Policies, and Programs Chapter (City of Moreno Valley 2006) contains one policy pertaining to paleontological resources. The policy is as follows:

- Policy 7-6: In areas where archaeological or paleontological resources are known or reasonably expected to exist, based upon the citywide survey conducted by the University of California, Riverside Archaeological Research Unit, incorporate the recommendations and determinations of that report to reduce potential impacts to levels of insignificance.

Methods

Rincon evaluated the paleontological sensitivity of the geologic units which underlie the project site using the results of the paleontological locality search and review of existing information in the scientific literature concerning known fossils in those geologic units. Rincon submitted a request to the NHMLAC for a list of known fossil localities from the project site and immediate vicinity (i.e., localities recorded on the USGS *Riverside East* and *Sunnymead*, California 7.5-minute topographic quadrangles), reviewed geologic maps, and reviewed primary literature.

Rincon assigned paleontological sensitivities to the geologic units in the project site. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units. The SVP (2010) has defined paleontological sensitivity and developed a system for assessing paleontological sensitivity, as discussed below.

Paleontological Sensitivity

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiometric dating is possible. As such, common fossils (especially vertebrates) may be scientifically important, and therefore considered highly significant.

The SVP (2010) describes sedimentary rock units as having high, low, undetermined, or no potential for containing significant nonrenewable paleontological resources. This criterion is based on rock units in which significant fossils have been determined by previous studies to be present or likely to be present. While these standards were written specifically to protect vertebrate paleontological resources, all fields of paleontology have adopted these guidelines, which are given here verbatim:

I. **High Potential (Sensitivity).** Rock units from which significant vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered have a high potential for containing significant non-renewable fossiliferous resources. These units include but are not limited to, sedimentary formations and some volcanic formations which contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas which contain potentially datable organic remains older than Recent, including deposits associated with nests or middens, and areas which may contain new vertebrate deposits, traces, or trackways are also classified as significant.

II. **Low Potential (Sensitivity).** Sedimentary rock units that are potentially fossiliferous, but have not yielded fossils in the past or contain common and/or widespread invertebrate fossils of well documented and understood taphonomic, phylogenetic species and habitat ecology. Reports in the

paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils prior to the start of construction. Generally, these units will be poorly represented by specimens in institutional collections and will not require protection or salvage operations. However, as excavation for construction gets underway it is possible that significant and unanticipated paleontological resources might be encountered and require a change of classification from Low to High Potential and, thus, require monitoring and mitigation if the resources are found to be significant.

III. **Undetermined Potential (Sensitivity).** Specific areas underlain by sedimentary rock units for which little information is available have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.

IV. **No Potential.** Rock units of metamorphic or igneous origin are commonly classified as having no potential for containing significant paleontological resources.

Geologic Setting

The project site is located within the central Perris Block within the northern portion of the Peninsular Ranges Province, one of eleven major geomorphic provinces in California (California Geological Survey 2002). A geomorphic province is a region of unique topography and geology that is readily distinguished from other regions based on its landforms and diastrophic history (Norris and Webb 1990). The Perris Block is a roughly rectangular area of relatively low relief that has remained relatively stable and undeformed during the Neogene (Norris and Webb 1990; Morton and Miller 2006). It is bound by the Cucamonga Fault Zone to the north, the San Jacinto Mountains to the east, the Elsinore Fault Zone to the southwest, and the Chino Basin to the west. According to Morton and Miller (2006) the Perris Block is underlain by lithologically diverse prebatholithic metasedimentary rocks intruded by Cretaceous plutons of the Peninsular Ranges Batholith, which are subsequently overlain by thin to relatively thick, discontinuous sections of nonmarine Quaternary sediments. Quaternary deposits within the Perris Block consist of Pleistocene and Holocene alluvial fan deposits emanating from the nearby San Gabriel Mountains to the north and fluvial deposits from the Santa Ana River, which bisects the Perris Block and flows southward (Norris and Webb 1990; Morton and Miller 2006).

According to published geologic mapping by Dibblee and Minch (2003), the project site is entirely underlain by younger Quaternary (Holocene) alluvium (Qa). Holocene alluvium consists of unconsolidated and undissected alluvial sand, gravel, and clay of valley areas, which are covered with thick soil (Dibblee and Minch 2003). Holocene alluvial deposits in the project site are too young to preserve paleontological resources; however, at shallow or unknown depths, the Holocene sediments may grade downward into deposits of older Quaternary (Pleistocene) alluvium (Qoa) that could preserve fossil remains. Mapped northeast and southeast of the project site, Pleistocene alluvium consists of weakly indurated alluvial fan deposits, composed of tan to light reddish-brown sand and minor gravel derived from local terrains of plutonic rocks, and is dissected by modern stream channels (Dibblee and Minch 2003). Additionally, Dibblee and Minch (2003) map Cretaceous plutonic rocks of the Peninsular Ranges (qdx) east of the project site, and these plutonic deposits may underlie the Quaternary (i.e., Holocene and Pleistocene) sediments within the project site at shallow or unknown depths. Cretaceous plutonic rocks of the Peninsular Ranges consist of medium-grained holocrystalline plutonic rocks, composed mostly of quartz diorite to granodiorite, formed either from the cooling of molten rock deep below the surface under high heat and high pressure or from cooling magma injected into older rocks.

Pleistocene alluvial deposits have a well-documented record of abundant and diverse vertebrate fauna recorded throughout California. Vertebrate fossil taxa recorded in Riverside County include horse, tapir, bison, camelid, deer, mastodon, mammoth, ground sloth, canine, rabbit, and rodent; and Pleistocene fossil localities recorded throughout southern California in general yielded fossil whale, sea lion, horse, tapir, ground sloth, bison, peccary, camel, deer, pronghorn, mammoth, short-faced bear, saber-toothed cat, mountain lion, wolf, fox, skunk, rabbit, bat, shrew, mole, pocket gopher, deer mouse, kangaroo rat, pack rat, bird, tortoise, turtle, snake, frog, toad, salamander, bony fish, shark, and ray, as well as invertebrates, such as insect and snail (Agenbroad 2003; Bell et al. 2004; Jefferson 1985, 1989, 1991; Maguire and Holroyd 2016; Merriam 1911; Paleobiology Database 2020; Reynolds et al. 1991; Savage 1951; Savage et al. 1954; Scott and Cox 2008; Springer et al. 2009; Tomiya et al. 2011; Wilkerson et al. 2011; Winters 1954; University of California Museum of Paleontology 2020). Figure 3, Geologic Units and Paleontological Sensitivity of the Project Site, depicts the surficial geologic units in the project site and its immediate vicinity, as well as the paleontological sensitivity within the bounds of the project site.

Results

Locality Search

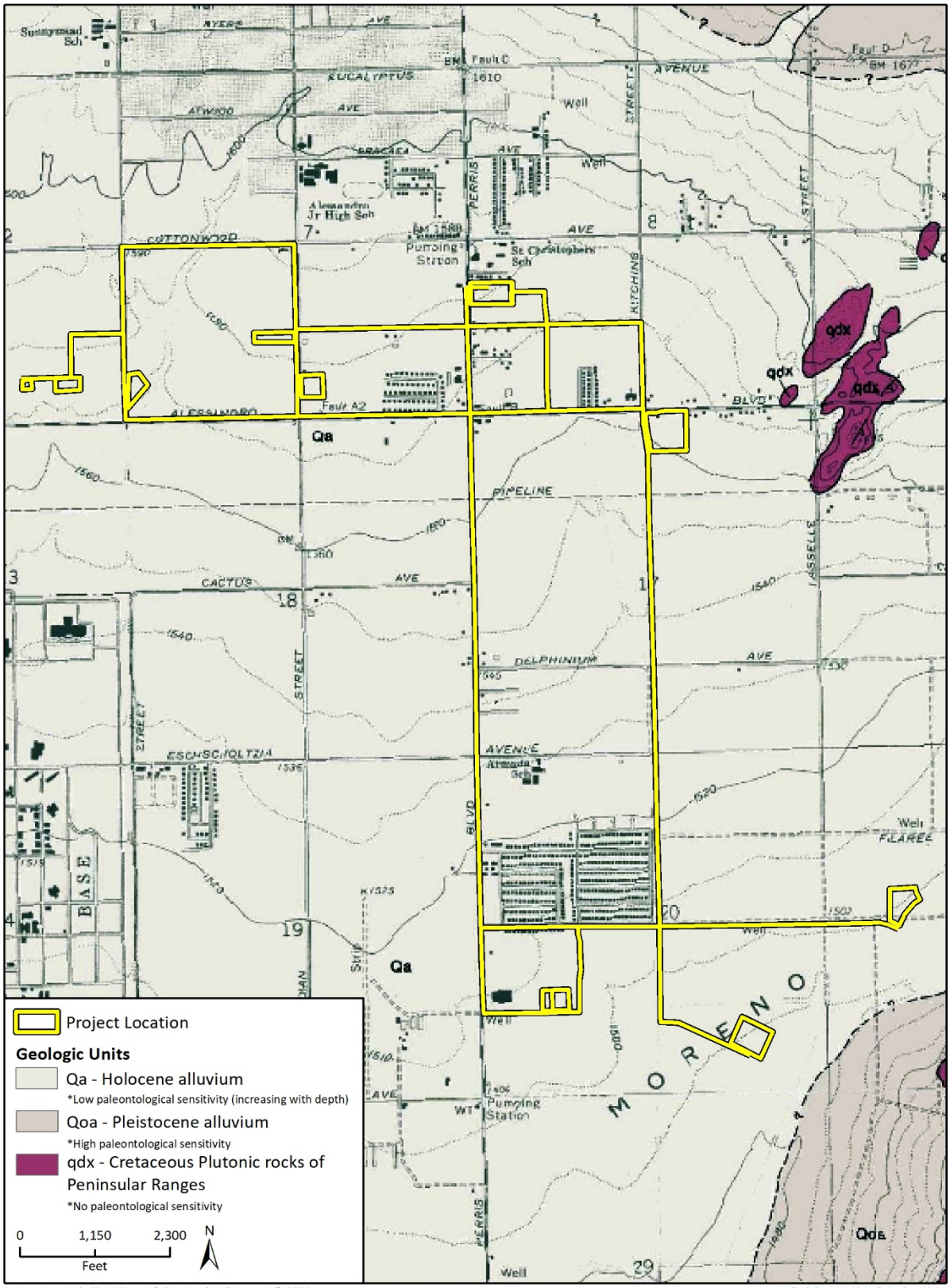
A search of the paleontological locality records at the NHMLAC resulted in no previously recorded fossil localities in the project site; however, one vertebrate locality, LACM 4540, which yielded a horse (*Equus* sp.) from Pleistocene alluvial deposits, was documented east of the project site within gravel pits in the San Jacinto Valley (McLeod 2020). Depth of recovery was unreported.

Records maintained by the Western Science Center (WSC) indicate several fossil localities nearby the project site. WSC localities 192, 193, and 194 rendered fossil ground sloth (*Megalonyx jeffersonii*), lamine camel (*Hemiauchenia* sp.), and horse (*Equus* sp.) approximately four miles northeast of the project site (LSA 2014; Radford 2019). Fossils from these localities were recovered from 11 to 13 feet below ground surface within Pleistocene alluvial fan deposits (LSA 2014; Radford 2019).

Paleontological Sensitivity

In accordance with SVP (2010) guidelines, Rincon determined the paleontological sensitivity of the project site based on a geologic map review, literature review, and museum locality search. Holocene alluvium mapped at the surface of the project site has a low paleontological sensitivity because Holocene sedimentary deposits, particularly those younger than 5,000 years old, are generally too young to contain fossilized material. Cretaceous plutonic rocks of the Peninsular Ranges, which are mapped east of the project site, have no paleontological sensitivity since the physical parameters of their formation are not conducive to fossil preservation. However, Holocene sediments are underlain by Pleistocene alluvium at a depth as shallow as 11 feet below ground surface based on the presence of Pleistocene vertebrate fossils recovered at depths of 11 to 13 feet within the vicinity of the project site (LSA 2014; Radford 2019). Pleistocene alluvium has a high paleontological sensitivity based on the potential to yield scientifically significant paleontological resources.

Figure 3 Geologic Units and Paleontological Sensitivity of the Project Site



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Geological basemap provided by Dibblee (2003), Geologic Map of the Sunnymead/South 1/2 of Redlands Quadrangle

Fig 3 Geologic Units Paleo Sensitivity

Findings and Recommendations

Ground-disturbing activities in previously undisturbed portions of the project site underlain by geologic units with a high paleontological sensitivity (i.e., Pleistocene alluvial deposits) may result in significant impacts to paleontological resources under Appendix G of State CEQA Guidelines. Impacts would be significant if construction activities result in the destruction, damage, or loss of scientifically important paleontological resources and associated stratigraphic and paleontological data. The activities may include grading, excavation, or other activities that disturb substantial quantities of the subsurface geologic units with a high paleontological sensitivity.

As currently proposed, project ground disturbance would reach a maximum depth of four feet during open cut trenching, approximately 40 feet during "bore and jack" horizontal drilling, and 1,100 feet during well drilling. Disturbance to intact Pleistocene sediments from well drilling would be limited due the small diameter (i.e., less than three feet) of the auger and impacts to paleontological resources due to well drilling would be negligible. Impacts to paleontological resources associated with "bore and jack" horizontal drilling would also be negligible as this type of ground disturbance does not generally result in the removal of observable geologic sediments.

In the project site, the Holocene deposits overlie the paleontologically sensitive Pleistocene sediments at a moderate depth of approximately 11 feet below ground surface (LSA 2014; Radford 2019). Given that the fossiliferous deposits may occur at greater depths than anticipated project disturbance associated with trenching activities, the potential for encountering fossil resources during project-related ground disturbance is low and impacts to paleontological resources are not anticipated.

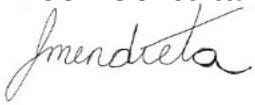
Further paleontological resources work is not recommended at this time; however, the following measure is recommended in the case of unanticipated fossil discoveries. This measure would apply to all phases of project construction and would provide that any unanticipated fossils present on site are preserved and that potential impacts to paleontological resources would be less than significant by providing for the recovery, identification and curation of previously unrecovered fossils.

- In the event an unanticipated fossil discovery is made during the course of project development, then in accordance with SVP (2010) guidelines, it is the responsibility of any worker who observes fossils within the project site to stop work in the immediate vicinity of the find and notify a qualified professional paleontologist who shall be retained to evaluate the discovery, determine its significance and if additional mitigation or treatment is warranted. Work in the area of the discovery will resume once the find is properly documented and authorization is given to resume construction work. Any significant paleontological resources found during construction monitoring will be prepared, identified, analyzed, and permanently curated in an approved regional museum repository.

If you have any questions regarding this Paleontological Resource Assessment, please contact us.

Sincerely,

Rincon Consultants, Inc.



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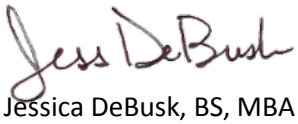
Associate Paleontologist



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Principal Investigator/Program Manager

Jennifer Haddow, PhD
Principal Environmental Scientist

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APPENDIX E: NOISE MEASUREMENTS

- Freq Weight : A
- Time Weight : SLOW
- Level Range : 40-100
- Max dB : 101.8 - 2020/01/28 23:09:22
- Level Range : 40-100
- SEL : 119.3
- Leq : 70.0
-

No.s	Date Time	(dB)
1	2020/01/28 13:26:51	62.4
2	2020/01/28 13:29:51	74.5
3	2020/01/28 13:32:51	82.8
4	2020/01/28 13:35:51	65.3
5	2020/01/28 13:38:51	75.6
6	2020/01/28 13:41:51	66.6
7	2020/01/28 13:44:51	67.6
8	2020/01/28 13:47:51	75.4
9	2020/01/28 13:50:51	66.2
10	2020/01/28 13:53:51	72.8
11	2020/01/28 13:56:51	71.9
12	2020/01/28 13:59:51	63.4
13	2020/01/28 14:02:51	73.9
14	2020/01/28 14:05:51	63.6
15	2020/01/28 14:08:51	66.9
16	2020/01/28 14:11:51	90.0
17	2020/01/28 14:14:51	61.6
18	2020/01/28 14:17:51	68.4
19	2020/01/28 14:20:51	73.5
20	2020/01/28 14:23:51	63.7
21	2020/01/28 14:26:51	72.1
22	2020/01/28 14:29:51	71.6
23	2020/01/28 14:32:51	54.9
24	2020/01/28 14:35:51	66.8
25	2020/01/28 14:38:51	69.3
26	2020/01/28 14:41:51	56.6
27	2020/01/28 14:44:51	73.2
28	2020/01/28 14:47:51	52.3
29	2020/01/28 14:50:51	68.0
30	2020/01/28 14:53:51	69.5
31	2020/01/28 14:56:51	68.2
32	2020/01/28 14:59:51	66.5
33	2020/01/28 15:02:51	50.7
34	2020/01/28 15:05:51	65.2
35	2020/01/28 15:08:51	76.5
36	2020/01/28 15:11:51	74.2
37	2020/01/28 15:14:51	51.9
38	2020/01/28 15:17:51	73.0
39	2020/01/28 15:20:51	56.7
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46	2020/01/28 15:41:51	71.1
47	2020/01/28 15:44:51	61.0
48	2020/01/28 15:47:51	64.2
49	2020/01/28 15:50:51	74.7
50	2020/01/28 15:53:51	51.4
51	2020/01/28 15:56:51	68.5
52	2020/01/28 15:59:51	54.3
53	2020/01/28 16:02:51	51.0
54	2020/01/28 16:05:51	67.0
55	2020/01/28 16:08:51	69.0
56	2020/01/28 16:11:51	53.9
57	2020/01/28 16:14:51	76.6
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84	2020/01/28 17:35:51	72.8
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Freq Weight : A
Time Weight : SLOW
Level Range : 40-100
Max dB : 76.6 - 2020/01/29 21:41:01
Level Range : 40-100
SEL : 97.2
Leq : 47.9

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314	2020/01/30 09:05:33	41.0
315	2020/01/30 09:08:33	40.2
316	2020/01/30 09:11:33	39.4
317	2020/01/30 09:14:33	39.7
318	2020/01/30 09:17:33	46.0
319	2020/01/30 09:20:33	49.7
320	2020/01/30 09:23:33	45.2
321	2020/01/30 09:26:33	40.9
322	2020/01/30 09:29:33	45.8
323	2020/01/30 09:32:33	41.1
324	2020/01/30 09:35:33	40.6
325	2020/01/30 09:38:33	44.7
326	2020/01/30 09:41:33	43.7
327	2020/01/30 09:44:33	41.6
328	2020/01/30 09:47:33	46.4
329	2020/01/30 09:50:33	42.3
330	2020/01/30 09:53:33	38.9
331	2020/01/30 09:56:33	41.3
332	2020/01/30 09:59:33	39.6
333	2020/01/30 10:02:33	37.2
334	2020/01/30 10:05:33	40.8
335	2020/01/30 10:08:33	39.4
336	2020/01/30 10:11:33	39.7
337	2020/01/30 10:14:33	50.6
338	2020/01/30 10:17:33	45.6
339	2020/01/30 10:20:33	37.1
340	2020/01/30 10:23:33	50.5
341	2020/01/30 10:26:33	38.3
342	2020/01/30 10:29:33	40.1
343	2020/01/30 10:32:33	42.5
344	2020/01/30 10:35:33	42.3
345	2020/01/30 10:38:33	43.3
346	2020/01/30 10:41:33	40.5
347	2020/01/30 10:44:33	59.2
348	2020/01/30 10:47:33	36.5
349	2020/01/30 10:50:33	44.6
350	2020/01/30 10:53:33	37.3
351	2020/01/30 10:56:33	39.0
352	2020/01/30 10:59:33	42.0
353	2020/01/30 11:02:33	42.9
354	2020/01/30 11:05:33	38.6
355	2020/01/30 11:08:33	42.3
356	2020/01/30 11:11:33	42.7
357	2020/01/30 11:14:33	40.8
358	2020/01/30 11:17:33	43.9
359	2020/01/30 11:20:33	41.4
360	2020/01/30 11:23:33	38.5
361	2020/01/30 11:26:33	49.4
362	2020/01/30 11:29:33	56.5
363	2020/01/30 11:32:33	43.0
364	2020/01/30 11:35:33	38.9
365	2020/01/30 11:38:33	42.5
366	2020/01/30 11:41:33	39.8
367	2020/01/30 11:44:33	38.3
368	2020/01/30 11:47:33	36.8
369	2020/01/30 11:50:33	38.1
370	2020/01/30 11:53:33	40.1
371	2020/01/30 11:56:33	39.5
372	2020/01/30 11:59:33	37.9
373	2020/01/30 12:02:33	45.2
374	2020/01/30 12:05:33	39.0
375	2020/01/30 12:08:33	35.2
376	2020/01/30 12:11:33	43.9
377	2020/01/30 12:14:33	39.8
378	2020/01/30 12:17:33	44.2
379	2020/01/30 12:20:33	37.8
380	2020/01/30 12:23:33	35.3
381	2020/01/30 12:26:33	37.1
382	2020/01/30 12:29:33	36.1

383	2020/01/30 12:32:33	36.4
384	2020/01/30 12:35:33	39.3
385	2020/01/30 12:38:33	38.6
386	2020/01/30 12:41:33	37.1
387	2020/01/30 12:44:33	36.9
388	2020/01/30 12:47:33	41.0
389	2020/01/30 12:50:33	36.3
390	2020/01/30 12:53:33	40.0
391	2020/01/30 12:56:33	38.3
392	2020/01/30 12:59:33	37.1
393	2020/01/30 13:02:33	36.3
394	2020/01/30 13:05:33	35.7
395	2020/01/30 13:08:33	42.5
396	2020/01/30 13:11:33	43.8
397	2020/01/30 13:14:33	36.3
398	2020/01/30 13:17:33	50.0
399	2020/01/30 13:20:33	49.9
400	2020/01/30 13:23:33	42.6
401	2020/01/30 13:26:33	44.2
402	2020/01/30 13:29:33	40.3
403	2020/01/30 13:32:33	38.4
404	2020/01/30 13:35:33	43.6
405	2020/01/30 13:38:33	36.0
406	2020/01/30 13:41:33	38.9
407	2020/01/30 13:44:33	39.3
408	2020/01/30 13:47:33	37.7
409	2020/01/30 13:50:33	37.5
410	2020/01/30 13:53:33	37.9
411	2020/01/30 13:56:33	37.7
412	2020/01/30 13:59:33	40.3
413	2020/01/30 14:02:33	43.9
414	2020/01/30 14:05:33	40.4
415	2020/01/30 14:08:33	48.8
416	2020/01/30 14:11:33	47.5
417	2020/01/30 14:14:33	45.9
418	2020/01/30 14:17:33	40.2
419	2020/01/30 14:20:33	36.5
420	2020/01/30 14:23:33	39.9
421	2020/01/30 14:26:33	36.8
422	2020/01/30 14:29:33	39.1
423	2020/01/30 14:32:33	37.9
424	2020/01/30 14:35:33	40.3
425	2020/01/30 14:38:33	37.9
426	2020/01/30 14:41:33	38.9
427	2020/01/30 14:44:33	35.1
428	2020/01/30 14:47:33	37.9
429	2020/01/30 14:50:33	34.4
430	2020/01/30 14:53:33	34.9
431	2020/01/30 14:56:33	37.9
432	2020/01/30 14:59:33	35.6
433	2020/01/30 15:02:33	38.0
434	2020/01/30 15:05:33	37.2
435	2020/01/30 15:08:33	37.7
436	2020/01/30 15:11:33	45.3
437	2020/01/30 15:14:33	40.6
438	2020/01/30 15:17:33	37.7
439	2020/01/30 15:20:33	42.7
440	2020/01/30 15:23:33	36.9
441	2020/01/30 15:26:33	46.1
442	2020/01/30 15:29:33	41.8
443	2020/01/30 15:32:33	47.4
444	2020/01/30 15:35:33	38.5
445	2020/01/30 15:38:33	32.4
446	2020/01/30 15:41:33	44.5
447	2020/01/30 15:44:33	34.6
448	2020/01/30 15:47:33	42.9
449	2020/01/30 15:50:33	43.3
450	2020/01/30 15:53:33	44.6
451	2020/01/30 15:56:33	45.0
452	2020/01/30 15:59:33	33.3
453	2020/01/30 16:02:33	34.5
454	2020/01/30 16:05:33	41.7
455	2020/01/30 16:08:33	35.3
456	2020/01/30 16:11:33	38.3
457	2020/01/30 16:14:33	36.7
458	2020/01/30 16:17:33	39.3
459	2020/01/30 16:20:33	37.5
460	2020/01/30 16:23:33	37.3
461	2020/01/30 16:26:33	47.6
462	2020/01/30 16:29:33	42.7
463	2020/01/30 16:32:33	42.7
464	2020/01/30 16:35:33	41.3
465	2020/01/30 16:38:33	42.3
466	2020/01/30 16:41:33	41.2
467	2020/01/30 16:44:33	41.3
468	2020/01/30 16:47:33	42.9
469	2020/01/30 16:50:33	46.0
470	2020/01/30 16:53:33	43.7
471	2020/01/30 16:56:33	43.4
472	2020/01/30 16:59:33	42.0
473	2020/01/30 17:02:33	46.3
474	2020/01/30 17:05:33	51.0
475	2020/01/30 17:08:33	43.4
476	2020/01/30 17:11:33	39.6
477	2020/01/30 17:14:33	56.9
478	2020/01/30 17:17:33	45.9
479	2020/01/30 17:20:33	43.9
480	2020/01/30 17:23:33	43.0

Project	Cactus Avenue Corridor CEQA
Project Number	0011292.01
Agency	Eastern Municipal Water District
By	Jennifer Kidson
Date	November 21, 2019
Audited by	Haley Johnson
Date	November 22, 2019
Task Description	Model noise from well drilling activities at night using RCNM.

Summary of Results
Calculated Noise Level (dBA) at
Various Distances to Receptor, with
Various Levels of Shielding, and with
Various Construction Equipment Fleets

		Distances between Extraction Well Construction Site and Receptor			
		25 feet	50 feet	100 feet	200 feet
Well Drill Rig Operating Alone	0 dBA Shielding	96	90	84	78
	5 dBA Shielding	91	85	79	73
	10 dBA Shielding	86	80	74	68
	15 dBA Shielding	81	75	69	63
	25 dBA Shielding	71	65	59	53
Well Drill Rig Operating Simultaneously with Pickup and Backhoe	0 dBA Shielding	96.2	90.2	84.1	78.1
	5 dBA Shielding	91.2	85.2	79.1	73.1
	10 dBA Shielding	86.2	80.2	74.1	68.1
	15 dBA Shielding	81.2	75.2	69.1	63.1
	25 dBA Shielding	71.2	65.2	59.1	53.1

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/22/2019
Case Description: Cactus-WellBackhoeTruck-0shield

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-25 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	25	0
Backhoe	No	40		77.6	25	0
Pickup Truck	No	40		75	25	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig	96	96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	81	77	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	96	96.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-50 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	50	0
Backhoe	No	40		77.6	50	0
Pickup Truck	No	40		75	50	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		90	90	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		75	71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	90	90.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Receptor-100 feet	Residential	65	55	45

			Equipment			
		Impact	Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Well Drill Rig		No	100	90	100	0
Backhoe		No	40	77.6	100	0
Pickup Truck		No	40	75	100	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		84	84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		71.5	67.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		69	65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	84	84.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Receptor-200 feet	Residential	65	55	45

			Equipment			
		Impact	Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Well Drill Rig		No	100	90	200	0

Backhoe	No	40	77.6	200	0
Pickup Truck	No	40	75	200	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig	78	78	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.5	61.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	63	59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	78	78.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/22/2019
Case Description: Cactus-WellBackhoeTruck-5shield

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-25 feet	Residential	65	55	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	25	5
Backhoe	No	40		77.6	25	5
Pickup Truck	No	40		75	25	5

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig	91	91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	78.6	74.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	76	72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	91	91.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-50 feet	Residential	65	55	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	50	5
Backhoe	No	40		77.6	50	5
Pickup Truck	No	40		75	50	5

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		85	85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		72.6	68.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		70	66	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	85	85.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Receptor-100 feet	Residential	65	55	45

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Well Drill Rig	No	100		90	100	5
Backhoe	No	40		77.6	100	5
Pickup Truck	No	40		75	100	5

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		79	79	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		66.5	62.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		64	60	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	79	79.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Receptor-200 feet	Residential	65	55	45

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Well Drill Rig	No	100		90	200	5

Backhoe	No	40	77.6	200	5
Pickup Truck	No	40	75	200	5

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig	73	73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	60.5	56.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	58	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	73	73.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/22/2019
Case Description: Cactus-WellBackhoeTruck-10shield

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-25 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	25	10
Backhoe	No	40		77.6	25	10
Pickup Truck	No	40		75	25	10

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig	86	86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	73.6	69.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	71	67	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	86	86.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-50 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	50	10
Backhoe	No	40		77.6	50	10
Pickup Truck	No	40		75	50	10

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq

Equipment		*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Well Drill Rig		80	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		67.6	63.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		65	61	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	80	80.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-100 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	100	10
Backhoe	No	40		77.6	100	10
Pickup Truck	No	40		75	100	10

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
Equipment	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Well Drill Rig	74	74	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	61.5	57.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	74	74.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-200 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	200	10
Backhoe	No	40		77.6	200	10
Pickup Truck	No	40		75	200	10

Results

Equipment	Calculated (dBA) *Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Noise Limits (dBA) Day Leq	Noise Limits (dBA) Evening Lmax	Noise Limits (dBA) Evening Leq	Noise Limits (dBA) Night Lmax	Noise Limits (dBA) Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Noise Limit Exceedance (dBA) Day Leq	Noise Limit Exceedance (dBA) Evening Lmax	Noise Limit Exceedance (dBA) Evening Leq	Noise Limit Exceedance (dBA) Night Lmax	Noise Limit Exceedance (dBA) Night Leq
Well Drill Rig	68	68	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	55.5	51.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	53	49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	68	68.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/22/2019
Case Description: Cactus-WellBackhoeTruck-15shield

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Receptor-25 feet	Residential	65	55	45

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Well Drill Rig	No	100		90	25	15
Backhoe	No	40		77.6	25	15
Pickup Truck	No	40		75	25	15

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig	81	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	68.6	64.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	66	62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	81	81.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Receptor-50 feet	Residential	65	55	45

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Well Drill Rig	No	100		90	50	15
Backhoe	No	40		77.6	50	15
Pickup Truck	No	40		75	50	15

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		75	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		62.6	58.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		60	56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	75	75.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Receptor-100 feet	Residential	65	55	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	100	15
Backhoe	No	40		77.6	100	15
Pickup Truck	No	40		75	100	15

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		69	69	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		56.5	52.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		54	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	69	69.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Receptor-200 feet	Residential	65	55	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	200	15

Backhoe	No	40	77.6	200	15
Pickup Truck	No	40	75	200	15

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig	63	63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	50.5	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	48	44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/22/2019
Case Description: Cactus-WellBackhoeTruck-25shield

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-25 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	25	25
Backhoe	No	40		77.6	25	25
Pickup Truck	No	40		75	25	25

Results

Equipment	Calculated (dBA) *Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Well Drill Rig	71	71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.6	54.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	56	52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	71	71.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-50 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	50	25
Backhoe	No	40		77.6	50	25
Pickup Truck	No	40		75	50	25

Results

Calculated (dBA)	Noise Limits (dBA)	Noise Limit Exceedance (dBA)

Equipment		*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Well Drill Rig		65	65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		50	46	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	65	65.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-100 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	100	25
Backhoe	No	40		77.6	100	25
Pickup Truck	No	40		75	100	25

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Well Drill Rig		59	59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		46.5	42.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	59	59.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-200 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	200	25
Backhoe	No	40		77.6	200	25
Pickup Truck	No	40		75	200	25

	Results													
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig	53	53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	40.5	36.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	38	34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	53	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/22/2019
Case Description: Cactus-Well-0shield

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Receptor-25 feet	Residential	65	55	45

			Equipment			
			Spec	Actual	Receptor	Estimated
		Impact	Lmax	Lmax	Distance	Shielding
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Well Drill Rig		No	100	90	25	0

				Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)							
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		96	96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	96	96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Receptor-50 feet	Residential	65	55	45

			Equipment			
			Spec	Actual	Receptor	Estimated
		Impact	Lmax	Lmax	Distance	Shielding
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Well Drill Rig		No	100	90	50	0

				Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)							
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		90	90	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	90	90	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-100 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100	90		100	0

		Results Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		84	84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	84	84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-200 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100	90		200	0

		Results Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		78	78	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	78	78	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/22/2019
Case Description: Cactus-Well-5shield

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-25 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	25	5

		Results Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		91	91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	91	91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-50 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	50	5

		Results Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		85	85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	85	85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-100 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	100	5

Results

		Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		79	79	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	79	79	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-200 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	200	5

Results

		Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		73	73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	73	73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/22/2019
Case Description: Cactus-Well-10shield

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-25 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	25	10

		Calculated (dBA)		Results Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		86	86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	86	86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-50 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	50	10

		Calculated (dBA)		Results Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		80	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	80	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-100 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	100	10

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		74	74	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	74	74	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-200 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	200	10

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		68	68	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	68	68	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/22/2019
Case Description: Cactus-Well-15shield

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-25 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	25	15

		Results Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		81	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	81	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-50 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	50	15

		Results Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		75	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	75	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-100 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	100	15

		Results Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		69	69	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	69	69	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor-200 feet	Residential	65	55	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Well Drill Rig	No	100		90	200	15

		Results Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Well Drill Rig		63	63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	63	63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☒ County Clerk
County of: Riverside
Address: 4080 Lemon Street
Riverside, CA 92501

From:

Public Agency: Eastern Municipal Water District
Address: 2270 Trumble Road
Perris, CA 92572-8300
Contact: Joseph Broadhead
Phone: (951) 928-3777 ext 4545

Lead Agency (if different from above):

Address:

Contact:
Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2020030267

Project Title: Addendum No. 1 to Mitigated Negative Declaration to the Cactus Avenue Corridor Groundv

Project Applicant: Eastern Municipal Water District

Project Location (include county): City of Moreno Valley, generally bounded on the west by I-215 and to t

Project Description:

The original project evaluated in the MND consisted of development and operation of six groundwater extraction wells, associated raw water pipelines, a water treatment and blending facility, and treated water pipelines in the Perris North Groundwater Management Zone. The Addendum to the MND evaluated one additional extraction well at the originally evaluated treatment facility site; two new optional locations for one of the originally evaluated extraction wells; and a modified raw water pipeline

This is to advise that the Eastern Municipal Water District has approved the above
(☒ Lead Agency or ☐ Responsible Agency)

described project on 2/17/21 (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☐ were ☒ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
Eastern Municipal Water District website: https://www.emwd.org/public-notices

Signature (Public Agency): _____ Title: Director ERC

Date: 02/22/2021 Date Received for filing at OPR: _____

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2011

Addendum No. 1 to Mitigated Negative Declaration

Cactus Avenue Corridor Groundwater Wells Project

State Clearinghouse #2020030267

Prepared by:

Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92572-8300

With Assistance From:

9665 Chesapeake Drive, Suite 320
San Diego, CA 92123
858.875.7400
September 2020

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APPENDICES

Acronyms

Acronym	Definition
Basin Plan	Santa Ana Basin Water Quality Control Plan
BMPs	Best Management Practices
CCE	Cactus Corridor East
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	a-weighted decibel
EIR	Environmental Impact Report
EMWD	Eastern Municipal Water District
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GSP	Groundwater Sustainability Plan
IEBL	Inland Empire Brine Line
IS/MND	Initial Study/Mitigated Negative Declaration
L_{eq}	Equivalent average sound level
LOS	level of service
MARB	March Air Reserve Base
MLD	Most Likely Descendant
MSHCP	Multiple Species Habitat Conservation Plan
MT	metric tons
MVU	Moreno Valley Electric Utility
NPDES	National Pollutant Discharge Elimination System
O&M	operations and maintenance
PM	particulate matter
PPV	peak particle velocity
PRC	Public Resources Code
RWQCB	Regional Water Quality Control Board

SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SWPPP	Storm Water Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
VdB	vibration decibels
VMT	vehicle miles traveled
VOC	volatile organic compound

1. INTRODUCTION

This document is Addendum No. 1 to the Cactus Avenue Corridor Groundwater Wells Project Mitigated Negative Declaration (State Clearinghouse [SCH] No. 2020030267) (referred to hereafter as the "MND"). The Addendum to the MND has been prepared pursuant to the California Environmental Quality Act (CEQA), Public Resources Code (PRC) Section 15164.

1.1 Project Background

On May 20, 2020 Eastern Municipal Water District (EMWD) adopted the MND and Mitigation Monitoring and Reporting Program for the Cactus Avenue Corridor Groundwater Wells Project (Approved Project). In June 2020, EMWD determined the need to include additional facilities/options in the Approved Project. An Addendum to the MND has been identified as the appropriate CEQA documentation to address these proposed changes (see *Section 1.3*, below).

1.1.1 Original Approved Project

The MND analyzed the environmental impacts of construction and operation of groundwater extraction wells, raw water pipelines, a water treatment and blending facility, and treated water pipelines in the Perris North Groundwater Basin, shown in **Figure 1-1**. A total of up to six extraction wells were included in the Approved Project. Up to four of these wells would be constructed generally north of March Air Reserve Base (MARB) (North Sub-Area), each of which would be approximately 250 gallons per minute (gpm). Up to two wells would be constructed generally east of MARB (East Sub-Area), each with a capacity of 650 gpm. The MND evaluated various sites (optional sites) for the proposed wells.

The Approved Project's treatment and blending facility would be constructed and operated at one of three evaluated sites (see **Figure 1-1**). The treatment/blending facility would treat, blend, and disinfect raw water from the extraction wells before delivering it into a large diameter transmission pipeline in the potable water system for conveyance to other parts of EMWD's service area. The treated water from the extraction wells would be blended with imported water from Metropolitan Water District of Southern California to drinking water standards, disinfected, and then delivered to a transmission pipeline in the potable water system that would convey the water to other parts of EMWD's service area. Brine generated by the treatment facility would be disposed of either through the sanitary sewer system or hauled to a collection facility for disposal into the Inland Empire Brine Line (IEBL).

Approximately 32,600 linear feet of pipeline would be constructed to convey raw water from the extraction wells to the proposed treatment facility, and to convey treated water from the treatment facility to the distribution system. These pipelines would be located primarily within easements, roadway rights of way, and EMWD owned land. The MND evaluated multiple alignment options that may be implemented depending on the final selection of sites for the extraction wells and treatment facilities (see **Figure 1-1**).

1.1.2 Proposed Modified Project

The following are summaries of new project elements that modify the original Approved Project. These modified elements, together with the Approved Project, constitute the "Modified Project." A detailed listing of the new elements can be found in *Section 2 Project Description*.

Additional Extraction Well

The Modified Project would result in the construction of an additional well on an EMWD owned site located on the east side of Perris Boulevard north of Bay Avenue. Construction of this well would raise the overall number of Project wells to seven. This site is also the proposed site for Treatment Plant Option 1 and Cactus Corridor Well 4, Option 1. The additional well, "Cactus Corridor Well 5, Option 1" would be similar in size and depth to Cactus Corridor Well 4, Option 1 and would be constructed in a manner consistent with the other extraction wells in the North Sub-Area. **Figure 1-2** and **Figure 1-3** show the proposed location for this new well.

New Optional Locations for Cactus Corridor East Well 2

EMWD has identified two additional optional well sites for Cactus Corridor East (CCE) Well 2: (1) Pedrorena Park (herein referred to as "CCE Well 2, Option 3"), and (2) a vacant triangular parcel south of the Iris Avenue/Wedow Drive intersection (herein referred to as "CCE Well 2, Option 4"). **Figure 1-2** and **Figure 1-3** show the locations for both wells. These wells would have similar size and depths as described for CCE Well 2, Options 1 and 2. Additionally, both options assume in-street pipeline alignments to connect to existing EMWD pipeline infrastructure. It should be noted that these are optional sites for Well 2. When implemented, only one well would be constructed from CCE Well 2, Options 1-4.

Modified Pipeline Alignments

A revised pipeline alignment for the Victoriano Park well option (CCE Well 2, Option 1) is also proposed in the Modified Project. Instead of the approved in-street pipeline alignment from Victoriano Park northeast within Los Cabos Drive to Kitching Street (where it would tie into existing water infrastructure), the Modified Project's alignment would redirect the pipeline southeast within Los Cabos Drive to Iris Avenue, and then west within Iris Avenue to Kitching Street, and then north within Kitching Street to tie into existing water infrastructure near the Kitching Street/Los Cabos Drive intersection.

In total, the revised pipeline alignment represents an overall increase in pipeline length of 2,219 linear feet if Victoriano Park (CCE Well 2, Option 1) is selected, an increase in 962 linear feet if Pedorena Park (CCE Well 2, Option 3) is selected, or an increase in 1,045 linear feet if the Iris Avenue/Wedow Drive site (CCE Well 2, Option 4) is selected. No changes would occur if Parque Armistad (CCE Well 2, Option 2) is selected.

Figure 1-2 shows the proposed Modified Project together with the Approved Project, while **Figure 1-3** shows only components of the Modified Project that differ from the Approved Project.

1.2 Purpose of Addendum

Addendum No.1 addresses potential environmental effects of the construction and operation of the Modified Project as shown in **Figure 1-2** (and discussed in greater detail in Section 2). The MND and Addendum No.1, together with the other documents incorporated by reference herein, serve as the environmental review of the Cactus Avenue Corridor Groundwater Wells Project (Modified Project), as required pursuant to the provisions of CEQA, the CEQA Guidelines, 14 California Code of Regulations (CCR) Section 15164 et seq. The environmental analysis in this Addendum and all feasible mitigation measures identified in the MND would be incorporated into the resolutions approving the Modified Project.

Figure 1-1: Original Approved Project Evaluated in MND

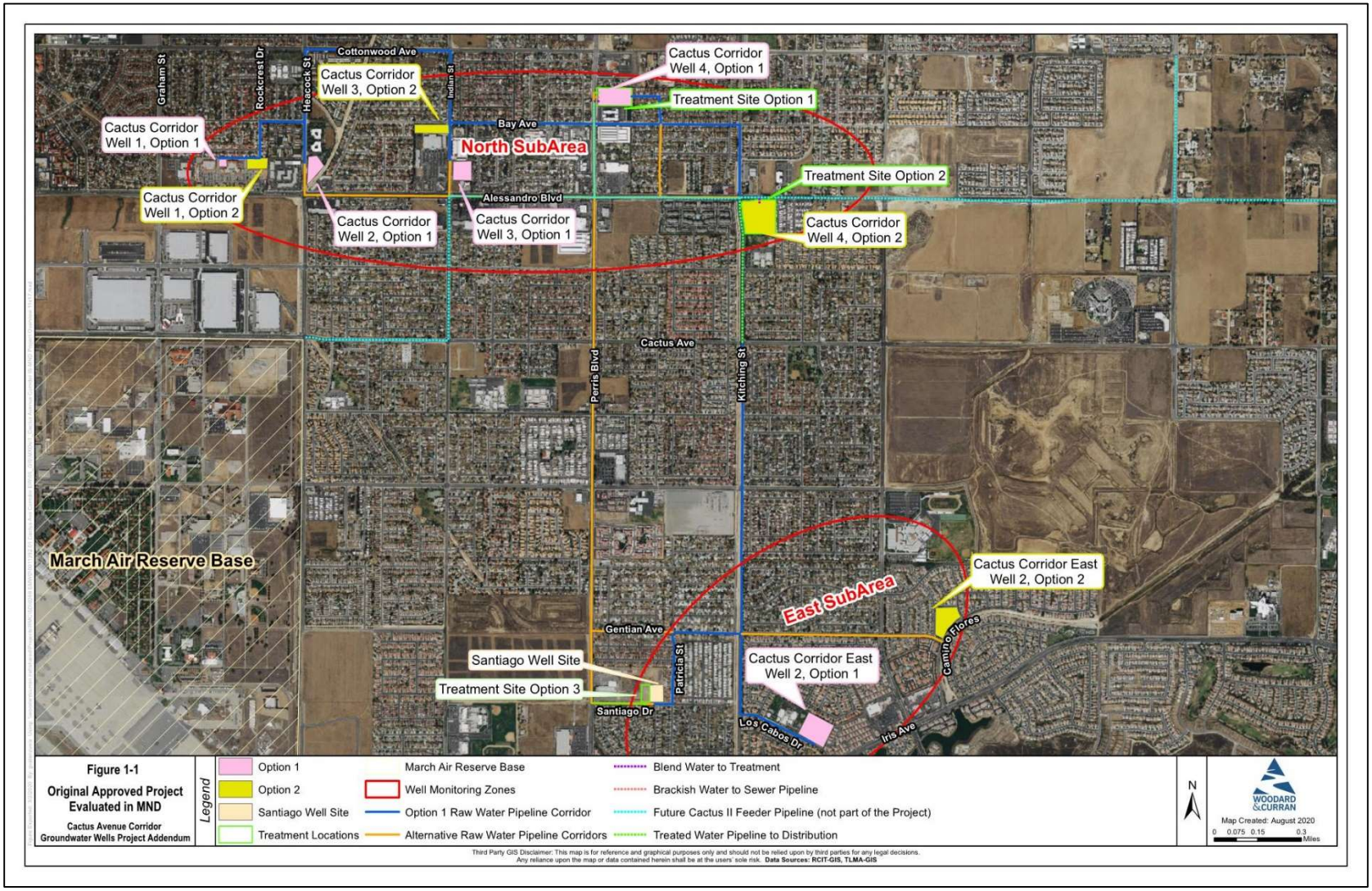


Figure 1-2: Modified Project (Approved Project and Modified Elements)

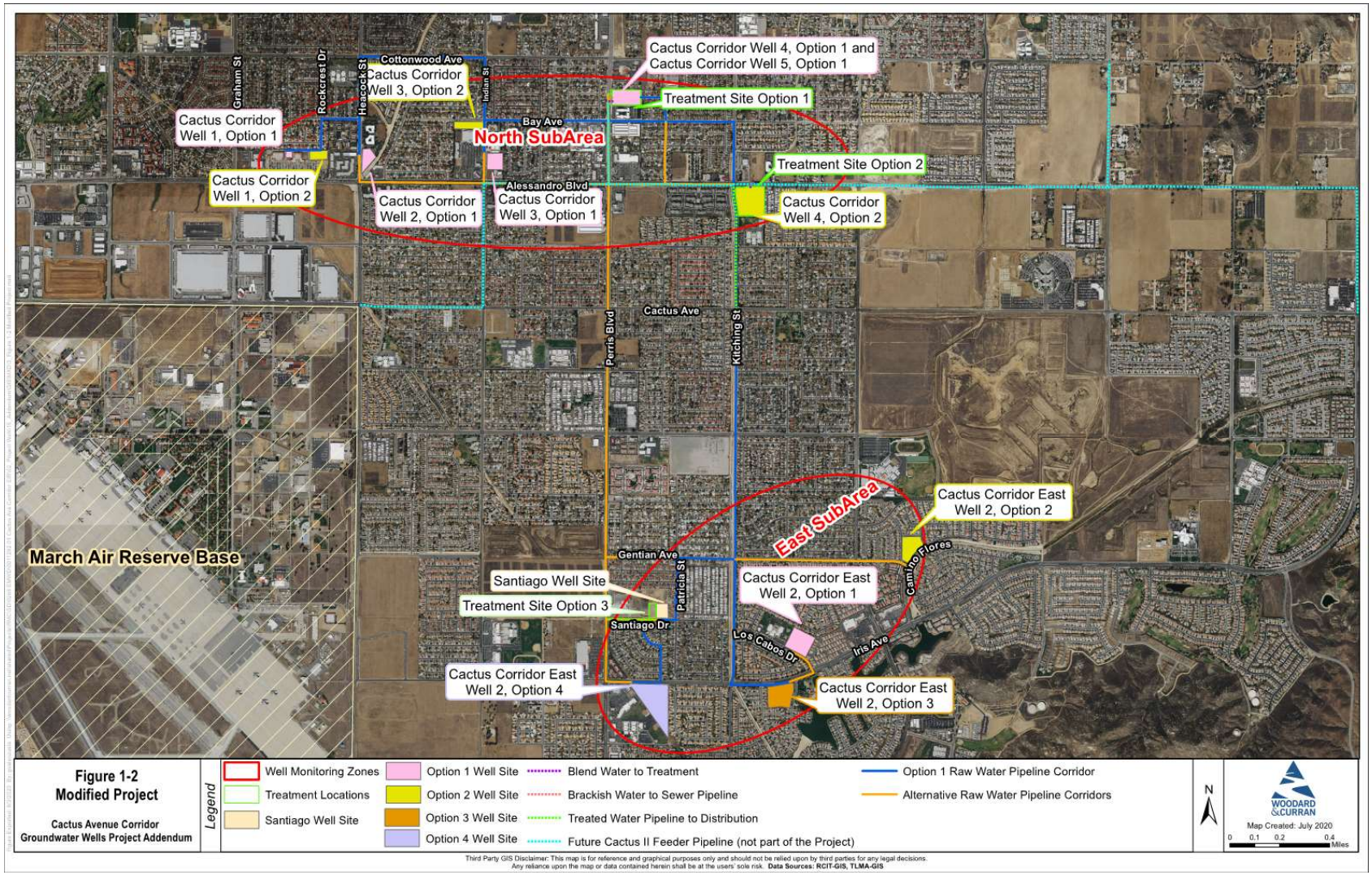
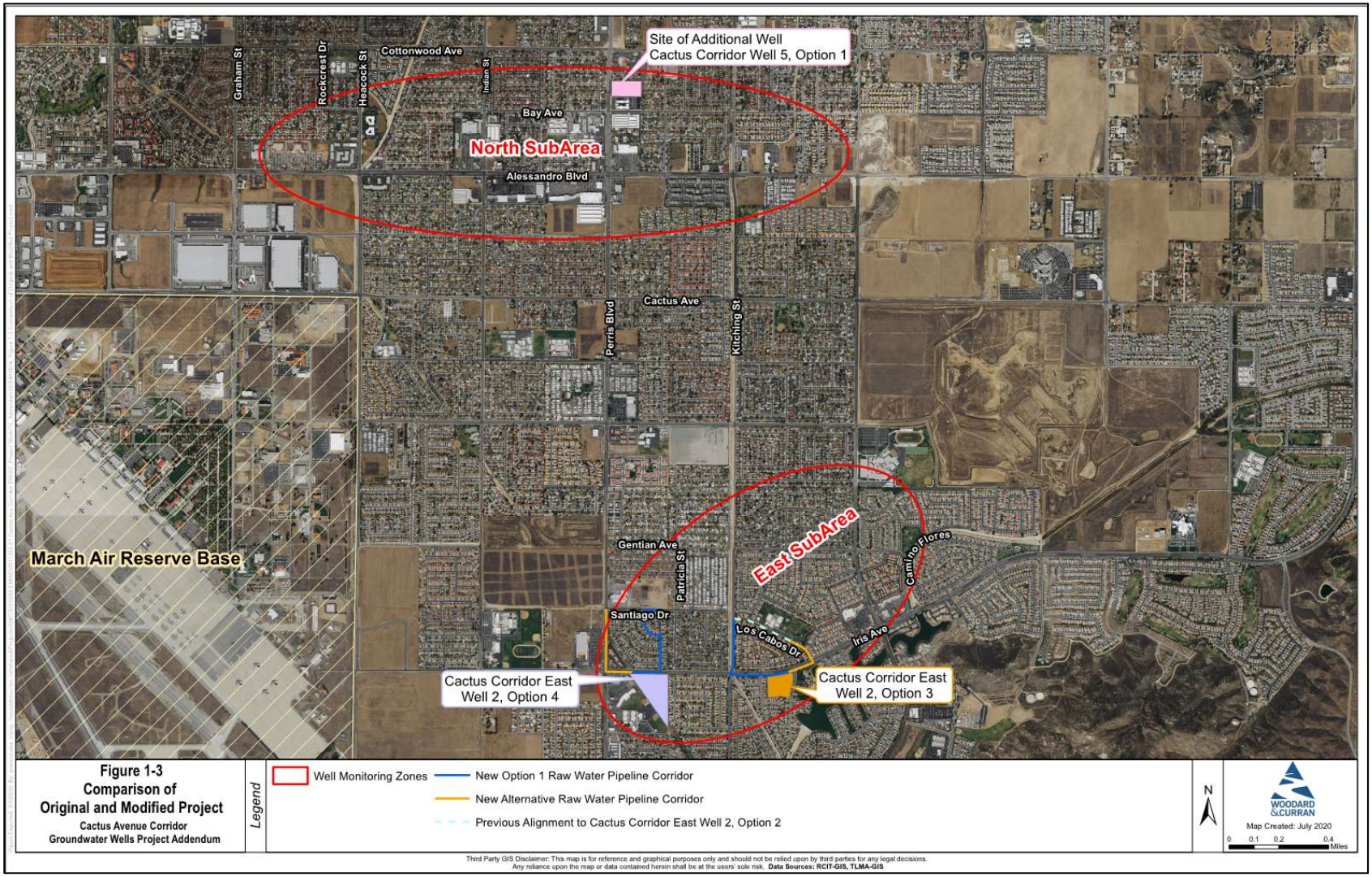


Figure 1-3: Changes from the Approved Project in the Modified Project



1.3 Basis for Addendum

Section 15164 of the CEQA Guidelines states: "The lead agency or responsible agency shall prepare an addendum to a previously certified Environmental Impact Report (EIR) if some changes or additions are necessary but none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR have occurred." Pursuant to Section 15162 of the CEQA Guidelines, no subsequent EIR may be required for the project unless the lead agency determines, on the basis of substantial evidence, that one or more of the following conditions are met:

A. When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

(1) Substantial changes are proposed in the project which would require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which would require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

(a) The project would have one or more significant effects not discussed in the previous EIR or negative declaration;

(b) Significant effects previously examined would be substantially more severe than shown in the previous EIR;

(c) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(d) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

B. If changes to a project or its circumstances occur or new information becomes available after adoption of a negative declaration, the lead agency shall prepare a subsequent EIR if required under subdivision a). Otherwise the lead agency shall determine whether to prepare a subsequent negative declaration, an addendum, or no further documentation.

C. Once a project has been approved, the lead agency's role in project approval is completed, unless further discretionary approval on that project is required. Information appearing after an approval does not require reopening of that approval. If after the project is approved, any of the conditions described in subdivision a) occurs, a subsequent EIR or negative declaration shall only be prepared by the public agency which grants the next discretionary approval for the project, if any. In this situation no other responsible agency shall grant an approval for the project until the subsequent EIR has been certified or subsequent negative declaration adopted.

EMWD has assessed the proposed project modifications in light of the requirements defined under Section 15162 of the CEQA Guidelines. As discussed in this Addendum, none of the conditions requiring preparation of a subsequent negative declaration under Section 15162 of the CEQA Guidelines are satisfied.

1.4 Evaluation of Environmental Impacts

This Addendum uses an Environmental Checklist Form, pursuant to Section 15063(d)(3) of the CEQA Guidelines, that compares the anticipated environmental effects of the proposed Modified Project with those disclosed in the MND, and reviews whether any of the conditions requiring preparation of a Subsequent EIR or MND pursuant to Section 15162 of the CEQA Guidelines are met, and whether there are new significant impacts resulting from the proposed Modified Project. The Environmental Checklist Form is used to review the potential environmental effects of the proposed Modified Project for each of the following areas:

- Aesthetics;
- Agriculture Resources;
- Air Quality;
- Biological Resources;
- Cultural Resources;
- Geology and Soils;
- Greenhouse Gas Emissions;
- Energy;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use and Planning;
- Noise;
- Public Services;
- Recreation;
- Transportation and Traffic;

- Tribal Cultural Resources;
- Utilities and Service Systems; and
- Wildfire Risk Emergency Planning.

The following resource areas were found to have No Impact in the MND, and the Modified Project would also result in a finding of No Impact. Therefore, these resource areas are not analyzed further in this Addendum:

- Scenic resources within the viewshed of a State scenic highway;
- Forestry Resources;
- Rupture of an earthquake fault;
- Soils capable of supporting alternative waste disposal systems;
- Safety hazards or excessive noise within two miles of an airport;
- Mineral Resources;
- Population and Housing,
- Sufficient water supplies; and
- Wildfire hazards on lands classified as very high fire hazard severity zones.

Impact Terminology

The responses to each of the Environmental Checklist questions addressed in this Addendum use CEQA terminology as specified below:

Reduced Impact. The impacts of the Modified Project would be less than those of the original Approved Project.

No New Impact/No Impact. The Modified Project would result in no impact or no new impact compared to the original Approved Project.

New Mitigation Required. The Modified Project would result in a new or substantially greater impact compared to the original Approved Project and new mitigation would be required to reduce the impact to a less than significant level.

New Potentially Significant Impact. The Modified Project would result in a new impact or substantially greater impact compared to the Original Approved Project. A subsequent MND or EIR would be required.

1.5 Summary of Findings

The environmental evaluation in this Addendum has concluded that major revisions of the MND due to new significant environmental effects or a substantial increase in the severity of previously identified significant effects are not required. There are no substantial changes proposed in the Modified Project; no substantial changes in the circumstances under which the Modified Project would be undertaken; and no new information of substantial importance which was unknown or could not have been know at the time the MND was certified. The impacts of the Modified Project are consistent with the impacts of the original Approved Project in the MND. There are no new significant impacts resulting from implementation of the Modified Project, nor are there any substantial

increases in the severity of any previously identified environmental impacts, and no new mitigation measures would be required. The environmental analysis in this Addendum and all feasible mitigation measures identified in the MND would be incorporated into the resolutions approving the Modified Project.

2. PROJECT DESCRIPTION

2.1 Purpose of Project

The overall goal of the Project is described in *Section 2.2 Project Purpose* of the MND As with the original approved project, the proposed Modified Project is expected to produce approximately 4,100 AFY, which equates to approximately 2.7 percent of the total demand, off-setting the equivalent volume of imported supply.

2.2 Description of Modified Project

The proposed Modified Project would increase the number of extraction wells in the North Sub-Area from four to five (total of seven overall for the Project) to ensure adequate yield from the groundwater basin to meet the supply goals of the proposed Project. The additional extraction well is proposed at the site currently identified for Treatment Plant Option 1 and Cactus Corridor Well 4, Option 1. The Modified Project also evaluates two new location options for CCE Well 4 in the East Sub-Area. The two new location options are Pedrorena Park and a vacant parcel on Iris Avenue at the intersection with Wedow Drive. The Modified Project also includes raw water pipeline alignments from the new well location options. Finally, the Modified Project includes a proposed in-street pipeline realignment for CCE Well 2, Option 1 at Victoriano Park.

2.2.1 Extraction Wells

The Modified Project proposes to construct one new extraction well in the North Sub-Area, and evaluates two optional well sites for another previously evaluated well in the East Sub-Area.

The new well, Cactus Corridor Well 5, Option 1 would be located within the site currently identified for Treatment Plant Option 1 and Cactus Corridor Well 4, Option 1 (**Figure 2-1)**. The design and construction of this new well would be similar to the other wells in the North Sub-Area, which would be drilled to a depth of approximately 1,000 feet and expected to generate 250 gpm. Pipeline connections to existing in-street water infrastructure would be located in Perris Boulevard, as shown in **Figure 2-1**. A 24-inch product water pipeline would convey treated/blended water to existing EMWD pipelines in Perris Boulevard.

The well sites in the East Sub-Area are analyzed to provide options for the ultimate location of CCE Well 2. Currently, the MND identifies two options (1) Victoriano Park and (2) Parque Armistad. The two additional optional sites presented by this Modified Project include Pedrorena Park and a vacant 10-acre site south of the Iris Avenue/Wedow Drive intersection.

Pedorena Park is approximately five acres in size and contains landscaping trees, paved walking paths, picnic benches and grills, a restroom building, playground structure, tennis courts, basketball courts, and surface parking. The western half of the park is an open, grassy field. The existing surrounding setting at Pedrorena Park is primarily residential.

The site is bordered by Iris Avenue and the back side of residences shielded by a five-to-six foot block wall to the north; the back sides of one- and two- story residences shielded by a hedge and five-to-six foot block wall to the west and south; and Rancho Del Lago Road and a community center to the east. The closest residential property line to a proposed well drilling site would be 50 feet.

The Iris Avenue/Wedow Drive optional well site is approximately 10 acres and consists of sparse ruderal vegetation. The existing surrounding setting is a mixture of residential and commercial land uses. To the west, opposite an approximately six-foot block wall is a shopping center. Val Verde Academy, a public 3rd through 12th grade school, is also located on the western border of the proposed site. The site is bordered to the east by the back side of one- and two-story residences shielded by six- to eight-foot wooden fences. If the site is selected, the well would be located in the northwest corner of the site; the closest residential property lines would be approximately 100 feet from the well drilling site, opposite Iris Avenue.

The design and construction of the wells at these optional sites would be similar to the other wells in the East Sub-Area, as described in the MND. The wells would be assumed to be drilled to a depth of approximately 1,000 feet and anticipated to generate 600 gpm.

With an increase from six total extraction wells to seven, annual volume of potable water that would be produced from the new extraction wells is estimated at 4,113 acre-feet per year (AFY) ([250x5]+[650x2] x 525,600 minutes per year ÷ 325,851 gallons per acre foot = 4,113 AFY). The Modified Project represents an increase of 403 AFY (9.8% increase) of total potable water over the original Approved Project. The groundwater extraction wells would be expected to have a lifespan of 30 years.

As described in the MND for the original Approved Project (*Section 2.6.1*), each well would have a minimum permanent footprint of approximately 20,000 square feet (150 feet by 150 feet). To minimize long-term noise from the pumps and to provide security, each well would be enclosed within a 20-feet by 20-feet, 15-feet tall concrete masonry unit (CMU) block well house, surrounded by an eight-foot perimeter CMU wall , and sited at least 50 feet from the nearest existing land uses. A well blow-off pond would be constructed at each well site, as well as discharge connection to either storm drain or sewer, depending on water quality.

Well Construction

Wells of the Modified Project would be constructed as described in the MND for the original Approved Project (*Section 2.6.1*) consisting of a well drilling phase and a well equipping phase. Well drilling would last nine months per well, including two weeks of continuous (24-hours/day) drilling operation and additional nighttime construction activities (for well development and testing) occurring over an additional 12 weeks. The well equipping phase consists of developing the site with the blow off pond and the building, mechanical and electrical components for the well, and would last approximately 12 months per well (does not include treatment).

Construction of the new well (Cactus Corridor Well 5 Option 1) in the North Sub-Area is assumed to temporarily disturb 100 percent of the site and would be constructed immediately before or after the other well at the site. Construction of CCE Well 2 Option 3 at Pedrorena Park would involve a temporary construction disturbance footprint of 25,500 square feet (150 feet by 170 feet). Construction of CCE Well 2 Option 4 south of Iris Avenue/Wedow Drive intersection is assumed to temporarily disturb 100 percent of the site.

Based on the wells' approximate depth (1,100 feet) and permanent footprint (approximately 150 feet by 150 feet, minimum), and the typical borehole diameter of 32 inches, it is estimated that approximately 230 cubic yards (cy) of drill cuttings would be exported from each well site. However, it should be noted that additional material exported would only result from one new well in the Cactus Corridor North Sub-Area when compared with quantities analyzed for the Approved Project. Selection of one of the optional sites in the East Sub-Area would not increase overall material export when compared with quantities provided in the MND for the Approved Project. In addition to material generated by the well drilling, additional material would be associated with construction of the well foundation and pump house. Material exported for the new well, foundation and pump station would total approximately 300 cy. This would raise the amount of export analyzed in the MND for the Approved Project from 1,800 cy to 2,100 cy.

The estimated amount of material export from construction of the well blow-off pond at each well site is 2,000 cy (i.e. 12,000 cy of export in total for all seven of the Project's wells). No additional material exported would result from the Modified Project because Cactus Corridor Well 4 and Cactus Corridor Well 5 would share the same blow-off pond. Material from drilling activities would be disposed to the nearest landfill.

Portable, steel liquid container tanks (i.e. Baker Tanks) would be used for onsite dewatering clarification during construction of the Modified Project wells, which would not differ from the analysis for the original Approved Project. There are three options for disposal of dewatering and well testing water:

- Discharge to land per Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System (NPDES) Permit/Waste Discharge Requirements for construction dewatering; or
- Discharge to storm drain per RWQCB NPDES Permit and Riverside County Flood Control and Water Conservation District requirements; or
- Discharge to EMWD sewer.

2.2.2 Pipeline Alignment

The pipeline in the vicinity of CCE Well 2 Option 1 and Option 3 would be realigned under the Modified Project (**Figure 2-2**). The revised alignment would be constructed within the roadway right-of-way. The portion of the Approved Project's alignment along Los Cabos Drive between CCE Well 2 Option 1 and Kitching Street would not be used under the

Modified Project. If the Option 1 location is used in final Project design and construction, the Modified Project would include a 12-inch pipeline from CCE Well 2 southeast to Iris Avenue, then west along Iris Avenue to Kitching Street where it would turn north to meet the original alignment described in the MND at the intersection of Kitching Street and Los Cabos Drive. If the CCE Well 2 Option 3 location is selected, the alignment would run from CCE Well 2 along Iris Avenue to Kitching Street, and then north to meet the original alignment described in the MND at the intersection of Kitching Street and Los Cabos Drive. If the CCE Well 2 Option 4 location is selected, the alignment would run eastward from CCE Well 2 along Iris Avenue, then north along Wedow Drive, then northwest along Nan Avenue to Santiago Drive where it would meet the raw water pipeline corridor on Santiago Drive that was analyzed under the MND. Alternatively, if Well 2 Option 4 location is selected, the alignment would run westward from CCE Well 2 along Iris Avenue, then north along Perris Boulevard where it would meet the raw water pipeline corridor on Perris Boulevard that was analyzed under the MND. In total, the modified alignment represents an overall increase in pipeline length of 2,219 linear feet if Victoriano Park/Option 1 location is selected, 962 linear feet if Pedrorena Park/Option 3 location is selected, and 1,045 linear feet if Iris Avenue/Wedow Drive/Option 4 location is selected.

Pipeline Construction

Pipelines would be constructed the same way as described in the MND: in existing roadways using an open cut method, except at crossings of existing facilities, utilities, and storm channels, such as the storm channel at the intersection of Iris Avenue and Kitching Street. Pipelines installed using open cut methods would include a typical trenching depth of 7 feet. The estimated trench width would be equal to 2 feet plus the pipeline diameter, for a width of up to 5 feet. When trenchless techniques are required, pipelines would be constructed using “bore and jack” methods, which are described in the MND (*Section 2.6.3*). Using this technique, ground surface disturbance would not occur, except at the pits.

As described in the MND (*Section 2.6.3*), construction of the pipelines would occur in four phases: trenching; pipe installation and backfill; testing; and pavement restoration. The pipelines would be constructed at an average rate of 150 linear feet per day, consistent with the rate of construction analyzed in the MND. The Modified Project would therefore increase the total duration of pipeline construction by about three weeks if Victoriano Park/CCE Well 2 Option 1 is chosen, by about one week if Pedrorena Park/CCE Well 2 Option 3 is chosen, and by about three weeks if CCE Well 2 Option 4 is chosen. Overall, the total duration of pipeline construction would increase from approximately 10 months to up to 11 months.

As described in the MND for the original Approved Project, approximately 35 percent of the excavated material would be re-used onsite as fill during the pavement restoration phase. Thus, the Modified Project would increase the total estimated volume of material export from construction of the pipelines from 22,500 cy by about 1,100 cy if Victoriano Park/ CCE Well 2, Option 1 location is chosen, by about 500 cy if Pedrorena Park/CCE Well 2, Option 3 location is chosen, or by about 530 cy if CCE Well 2, Option 4 location

is chosen. After construction is complete, all pipeline construction areas would be restored to pre-construction conditions (i.e., no permanent disturbance footprint).

Figure 2-1: Cactus Corridor Well 5, Option 1

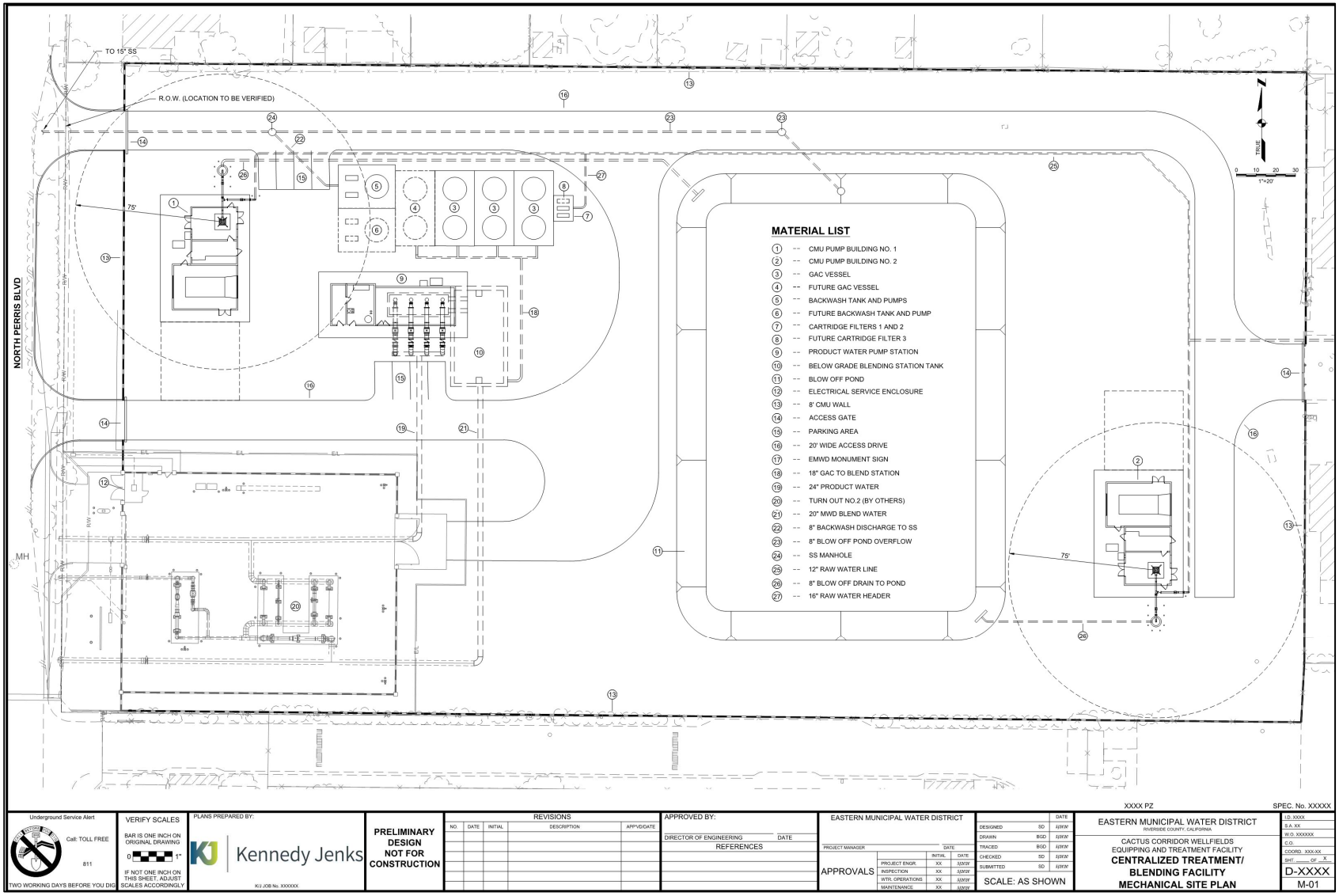


Figure 2-2: Cactus Corridor East Well 2, Options 3 and 4 and Revised Alignment

2.2.3 Construction Equipment and Staging

The construction equipment required for well construction and the pipeline alignment of the Modified Project would be the same as for the original Approved project and is listed in **Table 2-1**.

Table 2-1: Construction Equipment

Equipment	Number Required for Each Well	Number Required for Pipeline
Backhoe/Loader	1	1
Drilling Rig	1	-
Crane	1	1
Utility Truck	1	1
Water Truck	1	1
Welder	1	1
Compressor	1	1
Pump	1	1
Pick-up Trucks	2	2
Concrete Pumper	1	-
Generator	1	1
Hydraulic Excavator	-	1
Auger Boring Machine	-	1
Dump Truck	-	2
Concrete Saw	-	1
Pavement Breaker	-	1
Sweeper	-	1
Paver	-	1

2.2.4 Construction Schedule

In total, construction of the Project, including the modified elements, is estimated to take 22 months, with anticipated commencement in July 2021 and completion in March 2023, which is the same as the original Approved Project. Construction of all three Project components (wells, pipelines and treatment facility) would occur simultaneously, including those components included in this Addendum. The additional extraction well, Cactus Corridor Well 5 Option 1, would require an additional two weeks of continuous drilling immediately before or after the two-week continuous drilling phase for the other proposed well at the same site, Cactus Corridor Well 4 Option 1. This additional two weeks of drilling would occur within the overall 22-month Project construction schedule. Well development and testing for all seven wells would be performed over a 12-week period. The well equipping phase, including development of the blow off ponds, well housing, mechanical and electrical components, would last approximately 12 months for all seven wells. Increasing the total number of extraction wells from six to seven is not expected to require a substantial change in the construction crew or equipment fleet that would already be deployed for the original Approved Project.

2.2.5 Project Operation and Maintenance

Once operational, the volume of water pumped from each well is estimated to be 250 gpm for the additional well (Cactus Corridor Well 5, Option 1) and 650 gpm for the well at either Pedrorena Park (CCE Well 2, Option 3) or at Iris Avenue/Wedow Drive (CCE Well 2, Option 4), which are the same volumes described in the MND. It should be noted that the 650 gpm from CCE Well 2 Option 3 or 4 would not result in additional pumping beyond what was analyzed in the MND for CCE Well 2 Option 1 or 2. Operation of the pumps would involve the same energy usage per well (kilowatt hours per day [kWh/day]) as described in the MND, as shown in **Table 2-2**. As described for the original Approved Project, each well site would be provided with a portable generator connection for emergency scenarios at a minimum. Emergency generators may be installed at the well sites at a later date. Operations and maintenance (O&M) activities would be the same as those described in the MND and involve monthly site visits from EMWD operators to inspect the site.

Table 2-2: Energy Consumption

Equipment	Qty	hp	hrs/day	kWh/day	Comments
Cactus Corridor Wells (North Sub-Area) – including Well 5, Option 1	5	50–75	24	4,400–6,800	Range depends on the type of well pump provided (vertical vs submerged)
Cactus Corridor East Wells (East Sub-Area)	2	200–250	24	7,100–9,000	Range depends on the type of well pump provided (vertical vs submerged)

As was the case under the original Approved Project, the pipelines of the Modified Project would not be associated with long-term energy usage or additional EMWD O&M activities. The anticipated volume of raw water to be conveyed in the pipelines once they are complete would depend on the actual well flow and is estimated at 300 to 2,900 gpm, an increase over the estimated at 250 to 2,300 gpm described in the MND due to the addition of one new extraction well (Cactus Corridor Well 5, Option 1).

2.2.6 Environmental Commitments

The following environmental commitments are EMWD construction best management practices (BMPs) that would be implemented as part of the Modified Project are the same as those applied to the original Approved Project and listed in *Section 2.7* of the MND.

- Temporary sound walls would be required for well drilling construction due to 24-hour operation of the drilling rig for noise control
- Block wall buildings would be designed and constructed for the well facilities and treatment/blending facilities for noise control, aesthetics (to blend in with surrounding aesthetics and buildings) and for security purposes
- The chlorination facilities would use onsite sodium hypochlorite generation or bulk sodium hypochlorite (chlorine bleach) to minimize the use of hazardous materials

- Permanent exterior security lighting would be shielded downward to avoid light spill onto surrounding properties
- The design and construction of the facilities would be based on a soils report and geotechnical investigation to minimize geological risk
- Groundwater encountered during construction would be discharged to land or the storm drain in accordance with applicable permits or discharged to EMWD's sewer for treatment and reuse
- All construction work within public roadways would require the contractor to prepare and implement a traffic control plan
- All construction work would require the contractor to implement fire hazard reduction measures, such as having fire extinguishers located onsite, use of spark arrestors on equipment and using a spotter during welding activities
- 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 BMPs to control water quality of stormwater discharges offsite, according to the SWPPP, such as site management "housekeeping," erosion control, sediment control, tracking control and wind erosion control.

2.3 Permits and Discretionary Approvals

Anticipated permits for the Modified Project are identified in **Table 2-3** and are the same as anticipated for the original Approved Project (as listed in *Section 2.8* of the MND).

Table 2-3: Permits and Approvals

Agency	Permit/Approval
City of Moreno Valley	Encroachment Permit
South Coast Air Quality Management District	Permit to Construct, Permit to Operate, Dust Control Permits
Riverside County Flood Control and Water Conservation District	Encroachment Permit
California Division of Drinking Water	Amended Water Supply Permit
Riverside County Department of Environmental Health	Well Drilling Permit
State Water Resources Control Board	NPDES Construction General Permit for Storm Water Discharges
Regional Water Quality Control Board	NPDES permit for dewatering and test water discharges during construction

3. ENVIRONMENTAL DETERMINATION

EMWD previously adopted the Final Initial Study and Mitigated Negative Declaration, and Mitigation Monitoring and Reporting Program for the Cactus Avenue Corridor Groundwater Wells Project (Approved Project) on May 20, 2020. Based on all available information in light of the entire record, the analysis in this Addendum, and pursuant to Section 15162 of the State CEQA Guidelines, EMWD has determined:

- There are no substantial changes proposed in the project which would require major revisions of the previous environmental document due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- Substantial changes have not occurred with respect to the circumstances under which the project is undertaken which would require major revisions of the previous environmental document due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- There is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous environmental document was adopted, that shows any of the following:
    - The project would have one or more significant effects not discussed in the previous environmental document;
    - Significant effects previously examined will be substantially more severe than shown in the previous environmental document;
    - Mitigation measures previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
    - Mitigation measures or alternatives which are considerably different from those analyzed in the previous environmental document would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Based on a review of the Modified Project, none of the situations described in Section 15162 of the State CEQA Guidelines apply. No changed circumstances have occurred, and no new information of substantial importance has become known, which would result in new significant or substantially increased adverse impacts as a result of the Modified Project. Therefore, this Addendum has been prepared in accordance with Section 15164 of the State CEQA Guidelines. Public review of this Addendum is not required under CEQA.

New or More Severe Environmental Effects Compared to MND

The potential impacts of the Modified Project on the environmental factors in the checklist below were evaluated in this Addendum. None were found to involve new significant environmental effects or a substantial increase in the severity of environmental effects either due to a change in the project, change in circumstances, or new information of substantial importance. As indicated by the checklist and discussion in Section 4 of this Addendum, the proposed project modifications would not result in new or more severe environmental effects and no new mitigation would be required.

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

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial evaluation:

[ ] I find that no substantial changes are proposed in the project, there are no substantial changes in the circumstances under which the project will be undertaken, and there is no new information of substantial importance that was unknown when the project was approved. Major revisions to the previous approved ND or MND or certified EIR are not required due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. Therefore, the previously adopted ND or MND or previously certified EIR adequately addresses the potential impacts of the project without modification.

[X] I find that no substantial changes are proposed in the project, there are no substantial changes in the circumstances under which the project will be undertaken, and there is no new information of substantial importance that was unknown when the project was approved. Major revisions to the previous approved ND or MND or certified EIR are not required due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. The previously adopted ND or MND or previously certified EIR adequately addresses the potential impacts of the project. However, minor changes require the preparation of an ADDENDUM.

[ ] I find that substantial changes are proposed in the project, there are substantial changes in the circumstances under which the project will be undertaken, or there is new information of substantial importance that was unknown when the project was approved. Major revisions to the previous approved ND or MND or certified EIR are required due to the involvement of significant new environmental effects or a substantial increase in the severity of previously identified significant effects. However, all new potentially significant environmental effects or substantial increases in the severity of previously identified significant effects are reduced to below a level of significance through the incorporation of mitigation measures agreed to by the project applicant. Therefore, a SUBSEQUENT MND is required.

[ ] I find that substantial changes are proposed in the project, there are substantial changes in the circumstances under which the project will be undertaken, or there is new information of substantial importance that was unknown when the project was approved. Major revisions to the previous approved environmental document are required due to the involvement of significant new environmental effects or a substantial increase in the severity of previously identified significant effects. However, only minor changes or additions or changes would be necessary to make the previously certified EIR adequate. Therefore, a SUPPLEMENTAL EIR is required.

[ ] I find that substantial changes are proposed in the project, there are substantial changes in the circumstances under which the project will be undertaken, or there is new information of substantial importance that was unknown when the project was approved. Major revisions to the previous approved environmental document are required due to the involvement of significant new environmental effects or a substantial increase in the severity of previously identified significant effects. Therefore, a SUBSEQUENT EIR is required.

Signature	January 11, 2021 Date
Alfred Javier Printed Name	Dir. of Env. and Reg. Compliance Title

4. ENVIRONMENTAL CHECKLIST

The following includes the environmental checklist review pursuant to CEQA. The analysis herein evaluates the adequacy of the environmental impact findings and mitigation in the original approved IS/MND relative to impacts and mitigation of the Modified Project.

4.1 Aesthetics

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced Impact*
Except as provided in Public Resources Code Section 21099, would the Project:				
a) Have a substantial adverse effect on a scenic vista?	[ ]	[ ]	[X]	[ ]
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	[ ]	[ ]	[X]	[ ]
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	[ ]	[ ]	[X]	[ ]

As explained in *Section 1.4 Evaluation of Environmental Impacts*, resource areas that were found to have No Impact in the MND, and for which the Modified Project would also result in a finding of No Impact, are not analyzed further in this Addendum. This includes checklist question (b) under Aesthetics.

a) No New Impact

Approved Project

The MND found that the pipelines would be underground and the area of temporary disturbance would be restored to its original condition, thus having no long-term impact on scenic vistas. The well housings and treatment facility would be consistent in height to the surrounding, existing buildings that currently obstruct scenic vistas at the Project sites. Therefore, the MND found that the Approved Project would not substantially adversely impact local scenic vistas of surrounding foothills and mountains, and impacts would be less than significant.

Modified Project

The Modified Project revised pipeline alignment in the vicinity of Pedrorena Park, Victoriano Park, and East Well 2 Option 4 would be underground and would have no long-term impact on scenic vistas. The additional extraction well at the Treatment Plant Option 1 site would be consistent in size and design to Cactus Corridor Well 4 Option 1 and would not add a substantial additional obstruction of a scenic vista at the site beyond what was analyzed in the Approved Project IS/MND. Pedrorena Park, similar to Victoriano Park and Parque Amistad, is surrounded by existing residential development and the Iris Avenue/Wedow Drive site is surrounded by existing residential, commercial, and education land uses similar to the Approved Project, the extraction well housing would be consistent in height with the existing development. There would be no new impacts as a result of the Modified Project and no new mitigation would be required.

c) No New Impact

Approved Project

The MND found that all permanent Approved Project structures would be designed to be consistent with the existing visual character of the surrounding area in accordance with the Environmental Commitments specified in *Section 2.7 Environmental Commitments* of the MND, and **Mitigation Measure AES-1: Design of Aboveground Structures**. Construction activities would temporarily impact the visual character and quality of the Project sites; however, once the construction is complete all construction related visual impacts would be removed. The public views in the Project area include those from roadways and from public parks and schools. Therefore, Project impacts on visual character and public views would be less than significant with mitigation incorporated.

Modified Project

The Modified Project would include an additional well at the Treatment Plant Option 1 site, an additional well option site at Pedrorena Park, an additional well option site at the vacant parcel at Iris Avenue and Wedow Drive and the revised pipeline alignment between either Pedrorena or Victoriano Park, or East Well 2 Option 4 and the treatment/blending facility. Construction activities would temporarily impact the visual character and quality of the Modified Project sites; once construction is complete all

construction related visual impacts would be removed. The proposed pipeline would be constructed underground within existing roadways and therefore would not permanently impact the visual quality of the area. Cactus Corridor Well 5 Option 1 at Approved Project Treatment Plant Option 1 would not impact the visual quality of the area beyond what would result from construction of the Approved Project treatment plant and well at this location. CCE Well 2 Option 3 at Pedrorena Park and CCE Well 2 Option 4 would have a permanent effect on public views; however, the well would comply with the commitments explained in *Section 2.7 Environmental Commitments* and previously adopted **Mitigation Measure AES-1** in the MND. With incorporation of the previously adopted Mitigation Measures from the MND, impacts would be less than significant and no new impact would occur as a result of the Modified Project, and no new mitigation would be required.

d) No New Impact

Approved Project

The MND found that most construction activities for the Approved Project would occur during the day and not require lighting. Well construction would require up to two weeks of continuous drilling and additional nighttime construction activities over the following 12 weeks. During these nighttime construction activities, lights would be required for construction and security. Once construction is complete, permanent exterior security lights would be required but would be shielded downward to avoid light spillage onto surrounding properties. All nighttime lighting and operational lighting would comply with the Mount Palomar Nighttime Lightning Policy and incorporate **Mitigation Measure AES-2: Low Illumination Nighttime Construction Lighting** and **Mitigation Measure AES-3: Lighting Fixtures** to minimize impacts on neighboring properties in accordance with Riverside County Ordinance No. 655. Impacts from the Approved Project were found to be less than significant with the incorporation of mitigation measures.

Modified Project

The Modified Project would include the same construction methods for the Cactus Corridor Well 5 Option 1 and CCE Well 2 Option 3 and Option 4. All nighttime construction would conform to the Mount Palomar Nighttime Lighting Policy because the Project area is within the 45-mile zone radius of the Palomar Observatory and must comply with Zone B regulations. All nighttime and operational lighting would also incorporate **Mitigation Measure AES-2** and **Mitigation Measure AES-3**, which were previously adopted in the MND, and be shielded and directed downward to minimize impacts on neighboring properties in accordance with Riverside County Ordinance No. 655. With incorporation of the previously adopted Mitigation Measures from the MND, impacts would be less than significant and no new impact would occur as a result of the Modified Project and no new mitigation would be required.

Mitigation Measures:

To mitigate possible visible impacts to public views and lighting during construction and operation, EMWD shall implement **Mitigation Measures AES-1, AES-2,** and **AES-3**

which were previously adopted in the MND for the Approved Project. The impacts of the Modified Project are the same as the Approved Project: less than significant with mitigation incorporated. No new mitigation is required for the Modified Project.

4.2 Agriculture Resources

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced 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?	[ ]	[ ]	[X]	[ ]
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]

As explained in *Section 1.4 Evaluation of Environmental Impacts*, resource areas that were found to have No Impact in the MND, and for which the Modified Project would also result in a finding of No Impact, are not analyzed further in this Addendum. This includes environmental checklist questions (c) and (d) under Agricultural Resources.

a) No New Impact

Approved Project

The MND found that none of the proposed Project sites (well sites, treatment facility sites, or pipeline alignments) are classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The MND found the proposed Project would not convert farmland to non-agricultural use; therefore, the impact would be less than significant.

Modified Project

The Modified Project would add a new extraction well at the Approved Project Treatment Plant Option 1 site and two new extraction well site options and associated pipeline alignments. None of the Modified Project sites are located on land classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (CDOC, 2016). The Modified Project would not convert farmland to non-agricultural use, consistent with the Approved Project IS/MND. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

b) No New Impact

Approved Project

The MND found that none of the proposed well sites, treatment facility sites, or pipeline alignments were located on land zoned for agricultural use or protected by a Williamson Act Contract. Therefore, there would be no impact.

Modified Project

None of the Modified Project sites are located on land zoned for agricultural use or a Williamson Act contract (see **Table 4-7**). Therefore, there would be no new impact as a result of the Modified Project and no new mitigation would be required.

e) No New Impact

Approved Project

The MND found that the Project would not induce changes in the environment that would result in conversion of agricultural land to non-agricultural use. While the Project would extract groundwater from the Perris North Sub-Basin, it would not affect groundwater levels for private wells or impede the ability of farmers to pump groundwater for irrigation use. As explained in the MND, water levels have been slowly rising in the Perris North Sub-Basin due to increased sales of EMWD recycled and municipal water; reduced groundwater extraction, primarily due to urbanization and less agricultural water use; incidental recharge from EMWD recycled water facilities; and, for the portions of the Perris North Sub-Basin downstream of Lake Perris, seepage from Lake Perris. The proposed groundwater extraction would be conducted in a manner consistent with the EMWD Groundwater Sustainability Plan (GSP), which is currently under development with an implementation date of January 2022, and thus would not substantially decrease the groundwater supplies. The MND found that the Project would have a less than significant impact.

Modified Project

Implementation of the Modified Project would extract groundwater from the Perris North Sub-Basin in a manner consistent with that analyzed in the MND (i.e., consistent with the GSP). Although operation of the Modified Project would increase the amount of

groundwater produced compared to the Approved Project by 403 AFY (9.8 percent), it would not substantially decrease the groundwater supplies that would result in the unplanned conversion of agricultural land to non-agricultural use. Therefore, there would be no new impact as a result of the Modified Project and no new mitigation would be required.

Mitigation Measures: None required or recommended.

4.3 Air Quality

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced Impact*
Would the Project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]
c) Expose sensitive receptors to substantial pollutant concentrations?	[ ]	[ ]	[X]	[ ]
d) Result in other emissions (such as those leading to odors or adversely affecting a substantial number of people?	[ ]	[ ]	[X]	[ ]

a) No New Impact

Approved Project

The MND concluded that the Project would not lead to unplanned population, housing or employment growth that exceeded the forecasts used in the development of the applicable air quality plans, and thus impacts would be less than significant.

Modified Project

The Modified Project would add a new extraction well at the Approved Project Treatment Plant Option 1 site, which, as explained in "b" below, is not expected to result in a considerable amount of air pollution emissions. The two new location options for CCE Well 2 and the revised pipeline alignments of the Modified Project would provide the Project with more site flexibility, but would not necessarily change the overall amount of construction and operation activities associated with the Project. The Modified Project would have no effect on unplanned growth, similar to the Approved Project. Therefore, no new impact would occur as a result of the Modified Project and no new mitigation would be required.

b) No New Impact

Approved Project

The MND conducted air emissions modeling using the California Emissions Estimator Model (CalEEMod) version 2016.3.2, to estimate the Approved Project's criteria air pollutant emissions (Appendix A of the MND). Model emissions scenarios were based on Project-specific information, found in *Chapter 2 Project Description* of the MND. As discussed in the MND, regional and localized air quality thresholds have been established by the SCAQMD and were used to evaluate the significance of the Projects' air pollutant emissions. The MND found that NO_X emissions during construction have the potential to exceed SCAQMD mass daily thresholds. The MND found that all operational criteria air pollutant emissions would not exceed applicable thresholds. The MND concluded that less than significant impacts would occur with **Mitigation Measure AIR-1** incorporated, which would require that EMWD incorporate off-road equipment into the Project's construction vehicle fleet that meets US Environmental Protection Agency (EPA) certified Tier 4 final engines.

Modified Project

For the Modified Project, air emissions modeling was conducted using methods similar to the Approved Project. As with the Approved Project, in instances where Project-specific information was not available (e.g. construction equipment horsepower, length of worker trips, soil moisture content), the analysis relied on CalEEMod default values for construction activities. The new model evaluates the activities associated with the proposed Modified Project, including all of the elements of the Approved Project and the modified project elements. CalEEMod results can be found in **Appendix A**.

The Modified Project additional site Options 3 and 4 for CCE Well 2 would not result in a change in Project construction or operational air pollutant emissions compared to the Approved Project because the MND analyzed emissions from either Option 1 or Option 2. Therefore, the addition of the new optional sites for CCE Well 2 at Pedrorena Park (Option 3) or Iris Avenue/Wedow Drive (Option 4), was not modeled.

Construction

The Modified Project includes the construction of one additional well in the North Sub-Area. This well would be constructed at a depth of up to approximately 1,100 feet, similar to the other proposed wells in the North Sub-Area. No additional site clearing, preparation or grading was assumed to be needed because the site would already accommodate Cactus Corridor Well 4 Option 1 and Treatment Plant Option 1 and these construction phases were already analyzed in the MND for this site. New construction emissions would only result from the drilling phase and wellhead construction phase for Cactus Corridor Well 5 Option 1.

As stated in the MND, in total, construction of the Project is estimated to take 22 months, with anticipated commencement in July 2021 and completion in March 2023. Construction of all three Project components (wells, pipelines and treatment facility) is expected to occur simultaneously. For the purposes of estimating air pollution, it was assumed that the construction schedule, would be adjusted for the Modified Project and is summarized in the following table.

Table 4-1: Project Construction Schedule Changes Due to Modified Project

Phase Name	Start Date	Approved Project IS/MND End Date	Modified Project End Date	Total Days	Notes
Treatment Plant					
Site Preparation	7/1/2021	8/13/2021	8/13/2021	32	*No Change*
Grading	8/16/2021	9/23/2021	9/23/2021	29	*No Change*
Building Construction	9/24/2021	11/1/2022	11/1/2022	288	*No Change*
Paving	11/2/2022	12/2/2022	12/2/2022	23	*No Change*
Architectural Coating	9/24/2021	12/30/2022	12/30/2022	331	*No Change*
Well Sites					
Site Preparation	7/1/2021	12/31/2021	12/31/2021	132	*No Change – Although there would be a new well, it would be located on the same property as a proposed treatment plant and would not require more site preparation*
Drilling, Well installation	1/3/2022	3/27/2022	4/10/2022	94	Extended by 14 workdays for new well drilling under Modified Project
Pump installation	3/28/2022	3/31/2023	3/31/2023	265	*No Change - Engineering estimates provide 12 months to equip all wells. Emissions calculations assume crew working 5 days per week during this time would be adequate to install the additional pump.*
Pipeline					
Trenching/Resurfacing	7/1/2021	5/3/2022	6/16/2022	273	Extended by 33 workdays for Modified Project's net additional pipeline length, assuming longest potential alignment option length, to be accommodated at same 150 linear feet per day rate

Construction of the treatment facility is the same as described in the MND and would occur in a single phase lasting 18 months. The extraction wells would be constructed the same as described in the MND, in two phases: a well drilling phase (separated into site preparation and drilling in the above table for modelling purposes), and a well equipping phase (pump installation). Well drilling would last approximately nine months, including two weeks of continuous drilling operation and additional nighttime construction activities (for well development and testing) occurring over an additional 12 weeks. Well drilling is assumed to require drill operation for 24 hours/day to prevent borehole collapse. Continuous drilling of the new well would occur immediately before or after the other well located on the same site. The well equipping phase consists of developing the site such as construction of the blow off pond, the building, mechanical and electrical components for the well and would last approximately 12 months for all wells (does not include treatment).

Construction of the pipelines would occur in the same manner as described in the MND, in four phases: trenching; pipe installation and backfill; testing; and pavement restoration.

The pipelines would be constructed at an average rate of 150 linear feet per day, depending on the pipe size being installed on a given day, extent of the existing utilities and traffic control, and permitted work hours. The Modified Project would therefore increase the total duration of pipeline construction by about three weeks if Victoriano Park/CCE Well 2 Option 1 is chosen, by about one week if Pedrorena Park/CCE Well 2 Option 3 is chosen, and by about three weeks if CCE Well 2 Option 4 is chosen. Overall, the total duration of pipeline construction would increase from approximately 10 months to up to 11 months.

The following tables summarize the estimated criteria pollutant emissions associated with construction of the Modified Project (e.g. original Approved Project plus modified project elements), along with a significance determination.

Table 4-2: Mitigated Modified Project (Approved Project and Modified Elements) Maximum Daily Construction Emissions (pounds/day)

Emissions Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Construction Equipment	9	94	106	<1	4	4
Offsite emissions	0	<1	2	<1	2	<1
Fugitive dust (with required fugitive dust controls)	--	--	--	--	0	0
Total Maximum Daily Emissions	**9**	**94**	**108**	**<1**	**6**	**4**
SCAQMD Regional Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No
New Impact?	**No**	**No**	**No**	**No**	**No**	**No**

Table 4-3: Mitigated Modified Project (Approved Project and Modified Elements) Maximum Daily Construction Emissions Compared to LSTs (pounds/day)

Emissions Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Well Sites	1	11	12	<1	0	0
Well Sites LST (one-acre LST)	--	*118*	*602*	--	*4*	*3*
Threshold exceeded?	No	No	No	No	No	No
Pipeline	1	11	26	<1	0	0
Pipeline LST (one-acre LST)	--	*118*	*602*	--	*4*	*3*
Threshold exceeded?	No	No	No	No	No	No
Treatment facility	4	47	33	<1	2	2
Treatment facility LST (onsite stationary emissions only, five-acre LST)	--	*270*	*1,577*	--	*13*	*8*
Threshold exceeded?	No	No	No	No	No	No
New Impact?	**No**	**No**	**No**	**No**	**No**	**No**

Table 4-4: Annual Modified Project (Approved Project and Modified Elements) Construction Emissions Compared to De Minimis Thresholds (tons/year)

Emissions Source	Ozone (VOC/ROG)	CO	PM_{10}	$PM_{2.5}$
Approved Project Construction Emissions	1	10	1	1
Modified Project Construction Activities	*<1*	*1*	*<1*	*<1*
Total	***1***	***11***	***1***	***1***
De Minimis Threshold	*10*	*100*	*100*	*70*
Threshold Exceeded?	**No**	**No**	**No**	**No**
New Impact?	**No**	**No**	**No**	**No**

Table 4-2 through **Table 4-4** above show that, with mitigation, emissions thresholds would not be exceeded during construction of the Modified Project. These modeling results incorporate actions required under SCAQMD dust control BMPs and previously adopted **Mitigation Measure AIR-1** from the MND. No maximum daily emissions of criteria pollutants would differ from the values estimated in the MND because the well drilling phase would be extended by two weeks to accommodate the new well, the pipeline construction phase would be extended by a month to accommodate new alignments, and the remainder of the construction activities would overlap on the same schedule as analyzed under the MND. As no emission thresholds would be exceeded during construction of Modified Project, no new construction impacts would occur and no new mitigation would be required.

Operations

The Modified Project includes one additional well in the North Sub-Area. This well would be operated similar to the other proposed wells in the North Sub-Area. Operational energy consumption for the new Cactus Corridor Well 5 Option 1 well was estimated as follows. The original Approved Project North Sub-Area Cactus Corridor wells had an estimated energy demand of 3,500-5,400 kWh/day for four wells. Dividing 5,400 kWh/day by four is 1,350 kWh/day per well. Thus, the additional Well 5 Option 1 would have an annual energy demand of 1,350*365 = 492,750 kWh/year for the new well pump. The new well's location is on the same site as Cactus Corridor Well 4 Option 1 and Treatment Plant Option 1, which were included in the MND. It was assumed no additional lighting would be needed as a result of adding one additional well. It was assumed the new well would require an emergency generator of the same type and used on the same schedule as the wells that were included in the MND.

No additional brine truck trips or an increase in the truck disposal would be needed for operation of the additional well because disposal from the additional well would be incorporated into the disposal that was modeled for the MND. The MND estimated that brine disposal would be required every four days and require six trucks. The treatment facility discussed in the MND would utilize a 30,000-gallon brine holding tank, and the six wells would contribute 6,500 gallons of brine per day. Assuming that the six wells

contribute brine equally, each well would contribute 1,083 gallons per day (6,500/6 = 1,083 gallons[1]). Therefore, the tank would fill at a rate of 7,583 gallons per day (6,500 from the Approved Project six wells plus an additional 1,083 from the Modified Project additional well). Accordingly, the brine holding tank would be filled in just under four days (30,000/7,583 = 3.96 days). Therefore, no additional trucks or increased disposal schedule would be needed under the Modified Project.

Table 4-5 provides the operational emissions in pounds per day of the Modified Project compared to SCAQMD thresholds. Increases in emissions during operation of the Modified Project would be minimal and would not exceed SCAQMD thresholds. As no emission thresholds would be exceeded with the Modified Project, no new impact would occur and no new mitigation would be required.

Table 4-5: Maximum Daily Modified Project (Approved Project and Modified Elements) Operational Emissions Compared to SCAQMD Thresholds

Emissions Source	(NO_x)	(VOC)	CO	SO_x	PM_{10}	$PM_{2.5}$
Operational Emissions of Approved Project (pounds/day)	1	<1	1	<1	<1	<1
Operational Emissions of Modified Project Activities (pounds/day)	<1	<1	<1	<1	<1	<1
SCAQMD Mass Daily Threshold (pounds/day)	55	55	550	150	150	55
Threshold Exceeded?	***No***	***No***	***No***	***No***	***No***	***No***
New Impact?	***No***	***No***	***No***	***No***	***No***	***No***

c) No New Impact

Approved Project

As discussed in the MND, SCAQMD has developed Localized Significance Thresholds (LSTs) in response to concern regarding exposure of individuals to criteria pollutants in local communities. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or State ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area, distance to the sensitive receptor, and project size. LSTs only apply to emissions within a fixed stationary location; they are not applicable to mobile sources. The use of LSTs is voluntary, to be implemented at the discretion of local agencies (SCAQMD 2008). The MND found that there would be a less than significant impact on nearby sensitive receptors with mitigation incorporated.

[1] It is unlikely the new well would contribute 1,083 gallons of brine per day. The new well would be located in the North Cactus Corridor, and thus would be of a smaller design and would pump less than the wells located in the East Corridor.

Modified Project

Near the sites of the modified project elements, sensitive receptors include The Val Verde Academy, Mary Mcleod Bethune Elementary School, single and multi-family residences, Ortega Family Child Care Home, and the Angelview Board & Care Nursing Facility. Previously adopted **Mitigation Measure AIR-1**, along with best management practices such as vehicle idling reductions, would be incorporated into the Modified Project. These measures would reduce potential impacts on the sensitive receptors by utilizing Tier 4 engines or engines that are certified to meet or exceed the emission ratings for EPA Tier 4 final or interim engines such that average daily NO_X emissions are lower than SCAQMD Regional Mass Emissions Thresholds of 100 pounds per day. Tier 4 engines would be used on at least 55 percent of the construction equipment and vehicles. Emissions would be lower than SCAQMD LSTs (see **Table 4-3**). Therefore, no new impact would occur under the Modified Project and no new mitigation would be required.

d) No New Impact

Approved Project

The MND found that emissions of sulfur compounds from the use of oil and diesel fuel during construction, would result in unpleasant odors, but that such impacts would be temporary. Once operational, the proposed wells and treatment/blending facilities would not be expected to generate nuisance odors that are more typically associated with land uses such as a landfills or rendering plants.

Modified Project

The Modified Project would add a new extraction well at the Approved Project Treatment Plant Option 1 site, new extraction well site options at Pedrorena Park and Iris Avenue/Wedow Drive, and a revised pipeline alignment in the immediate vicinity of Pedrorena Park and Victoriano Park. The Modified Project would be associated with similar, temporary construction odor impacts and no long-term operational odor impacts as identified for the original Approved Project. Therefore, no new impact would occur as a result of the Modified Project and no new mitigation would be required.

Mitigation Measures:

To mitigate possible visible impacts related to criteria pollutant emissions during construction, EMWD shall implement **Mitigation Measure AIR-1** which was previously adopted in the MND for the Approved Project. The impacts of the Modified Project are the same as the Approved Project: less than significant with mitigation incorporated. No new mitigation is required for the Modified Project

4.4 Biological Resources

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced 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?	[ ]	[ ]	[X]	[ ]
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]

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

A Biological Resources Assessment Addendum (BRAA) was prepared for the modified elements of the Project in August 2020 (the full Report is found in **Appendix B**). The revised pipeline alignment and two new optional well sites are located within the original five-mile database search radius of the original Biological Resources Assessment (BRA) prepared for the Approved Project in March 2020.

a) No New Impact

Approved Project

The MND found ten sensitive plant species and 30 sensitive wildlife species within five miles of the Approved Project area. However, sensitive species are not expected to occur within the Approved Project area because the proposed sites are located on highly disturbed, urban developed land. Out of the 40 plant and wildlife species identified, only two wildlife species were determined to have a low potential to occur within the Approved Project area, burrowing owl (BUOW, *Athene cunicularia*) and California horned lark (*Eremophila alpestris actia*). However, the potential habitat at Cactus Corridor Well 2 Option 1, near a highly travelled urban transportation corridor, is low quality and has high levels of existing disturbance. Therefore, there is a low potential of these species being present. No horned larks, BUOW or signs of either species being present were observed at the Approved Project sites. The Approved Project sites have shrubs or trees that could provide suitable nesting habitat for several common avian species; however, the sites consist of low-quality habitat because of the existing disturbances and proximity to heavily travelled roadways. In addition, the Approved Project would be located in the County of Riverside Stephen's Kangaroo Rat Plan and Fee Area. The BRA determined the Approved Project area does not have the suitable grassland, coastal shrub and sagebrush habitat needed to support the Stephen's Kangaroo Rat. Construction activities

would primarily occur in areas that are highly disturbed that are surrounded by development. Such high levels of disturbance would likely deter wildlife and nesting birds from using the site long-term. Nonetheless, **Mitigation Measure BIO-1** and **BIO-2** would be implemented to avoid direct impacts on BUOW and nesting birds and impacts would be less than significant.

Modified Project

For the Modified Project, the BRAA identified there are no additional special status species within the area of the modified project elements, beyond what was addressed in the Approved Project BRA. Sensitive plant and wildlife species typically have very specific habitat requirements which are not found within the Modified Project area. Due to the lack of specific habitat types or suitable substrates as well as high levels of historic and existing disturbance, sensitive plant species are not expected to occur on the sites of the modified project elements. Special status wildlife species are not expected to occur due to lack of suitable habitat and no species were observed during the reconnaissance field survey. Low quality or marginal foraging and/or nesting habitat for two sensitive wildlife species, BUOW and California horned lark occurs within and adjacent to the Modified Project sites. No suitable habitat for special-status species is present at CCE Well 2 Option 3 site. Undeveloped areas at CCE Well 2 Option 4 site contain marginally suitable habitat that are dominated by low-growing, non-native ruderal species. In addition, small mammal burrows too small for BUOW use were observed in a small bare area near the intersection of Perris Boulevard and Iris Avenue. Overall, the sites of the modified project elements do not contain suitable habitat for either of these species because of the low habitat quality and the high levels of disturbance. No horned larks, BUOW, or signs of either species were observed. The sites of the modified project elements lack suitable habitat to support Stephen's Kangaroo Rat. Therefore, no impacts on special status wildlife species are expected. The level of impact of the Modified Project would be equal to the Approved Project with the implementation of previously adopted **Mitigation Measures BIO-1** and **BIO-2**. Therefore, no new impact would occur and no new mitigation would be required.

b) No New Impact

Approved Project

The MND found one sensitive plant community, sycamore alder riparian woodland, was identified approximately five miles from the Project area. However, it is not present on any of the Project sites nor are the sites suitable to support such communities due to the high level of disturbance and development. In addition, there are no sensitive riparian or natural communities, as defined by local ordinance and the CNDDB, present on the Project sites. There are also no riparian/riverine habitats present. The MND found the Project area is within the boundaries of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP); however, there are no riparian/riverine habitats protected by the MSHCP on the Project sites and, therefore, no MSHCP actions are required. Lastly, the MND found there are no jurisdictional features located within the

Project area that are under jurisdiction of the US Army Corps of Engineers (USACE), RWQCB, or California Department of Fish and Wildlife (CDFW). Therefore, there would be no impact associated with the Approved Project.

Modified Project

The area of the modified project elements does not contain riparian habitat or other sensitive natural communities. In addition, the sites of the modified project elements are not located within designated study areas for MSHCP covered natural communities. Therefore, no new impacts would be expected and no new mitigation would be required.

c) No New Impact

Approved Project

The MND found the Project would not be located anywhere with jurisdictional drainages or wetlands. An earthen retention basin was observed at Treatment Site Option #3/CCE Santiago Well Site; however, no riparian vegetation such as shrubs, persistent emergents, emergent mosses, lichens, or trees was present in or around the site. In addition, no vernal pools or fairy shrimp habitat were observed in the Project sites, nor could the Project sites support vernal pools or vernal pool species. Therefore, the MND found no impact would occur on jurisdictional wetlands, vernal pools, and fairy shrimp habitat.

Modified Project

The area of the modified project elements consists of urban developed land and non-native grasslands. The BRAA identified a single, potentially jurisdictional feature within CCE Well 2 Option 3 along Kitching Street: a large trapezoidal concrete channel. However, no hydric soils are present within the channel, nor is riparian vegetation including trees, shrubs, persistent emergent, emergent mosses, or lichens, present in or around the channel. The Project would use trenchless jack-and-bore construction methods to cross underneath the channel crossing. No other waters or wetlands were found to have the potential to occur. Therefore, no new impacts on jurisdictional waters and wetlands would occur. In addition, no riparian/riverine habitat, vernal pools, or fair shrimp habitat are present within the areas of the modified project elements. The areas of the modified project elements consist of moderately well-drained soils and developed land, which could not support these habitats. Therefore, no new impacts would occur and no new mitigation would be required.

d) No New Impact

Approved Project

The MND found there are no mapped essential habitat connectivity areas in the immediate vicinity of the Project sites. There are two mapped habitat connectivity areas located within five miles of the Project area; however, the MND found that these two areas

would not be impacted by the Project. Therefore, there would be no impacts on wildlife movement.

Modified Project

The Modified Project would not be located in or within the immediate vicinity of essential habitat connectivity areas. Therefore, no new impact would occur and no new mitigation would be required.

e) No New Impact

Approved Project

The MND found there are no other biological resources protected by local policies or ordinances within the Approved Project area. Therefore, there would be no impact.

Modified Project

There are no other biological resources protected by local policies or ordinances within the Modified Project area. Therefore, no new impacts would occur and no new mitigation would be required.

f) No New Impact

Approved Project

The MND found the Project would be located in the Western Riverside MSHCP and portions of the Project sites would be located within the BUOW study area. There is low potential for BUOW to occur because the Project sites are highly disturbed, surrounded by urban development, and no BUOW or their signs were observed during the field survey. **Mitigation Measure BIO-1** would be implemented to ensure minimal impact on BUOW. In addition, the MND found the Project would not be located within a Criteria Cell or Public/Quasi Public conserved lands. Therefore, the MND found the Project would have a less than significant impact with mitigation incorporated.

Modified Project

A portion of CCE Well 2 Option 4 is located within a habitat assessment/survey area for BUOW but not within a designated survey area identified for any other MSHCP covered species. The other elements of the Modified Project are not located within a habitat assessment or survey area. To ensure minimal impact on BUOW, **Mitigation Measure BIO-1**, which was previously adopted as part of the MND, would be implemented. The modified project element sites are not be located within a criteria cell or within Public/Quasi Public conserved lands. Therefore, no new impacts would occur and no new mitigation would be required.

Mitigation Measures:

To mitigate possible impacts to BUOW and nesting birds during construction, EMWD shall implement **Mitigation Measure BIO-1** and **BIO-**2 which were previously adopted in the MND for the Approved Project. The impacts of the Modified Project are the same as the Approved Project: less than significant with mitigation incorporated. No new mitigation is required for the Modified Project

4.5 Cultural Resources

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced Impact*
Would the Project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	[ ]	[ ]	[X]	[ ]
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	[ ]	[ ]	[X]	[ ]
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	[ ]	[ ]	[X]	[ ]

a) No New Impact

Approved Project

The MND found no historical structures overlap with the Approved Project area. However, if previously unknown historical resources are encountered during Project ground-disturbing activities, implementation of **Mitigation Measures CUL-1** through **CUL-6** would result in no impact on historic properties or resources.

Modified Project

A Cultural Resources Assessment Addendum (CRAA) was prepared in August 2020, which included a cultural resources records search and pedestrian field survey of the sites of the modified project elements. The CRAA determined no cultural resources were

identified in the area of the modified project elements (the full Report can be found in **Appendix C**). Implementation of previously adopted **Mitigation Measures CUL-1** through **CUL-6** would ensure no new impact would occur on historic properties or resources, and no additional mitigation measures would be needed.

b) No New Impact

Approved Project

The MND found no archaeological resources have been recorded within or immediately adjacent to the Project area and because of the high degree of existing development of the Project area, no archaeological resources are anticipated to be encountered. If ground-disturbing activities expose previously unrecorded resources, implementation of **Mitigation Measures CUL-1** through **CUL-6** would result in less than significant impacts on cultural or archaeological resources.

Modified Project

The CRAA determined there are no previously recorded archaeological resources in the area of the modified project elements and because of the high degree of existing development no archaeological resources are anticipated to be encountered. With the implementation of previously adopted **Mitigation Measures CUL-1** through **CUL-6** no new impacts on cultural or archaeological resources would occur and no new mitigation would be required.

c) No New Impact

Approved Project

The MND found that implementation of **Mitigation Measure CUL-7** would ensure proper procedures are in place if human remains are discovered during construction. With **Mitigation Measure CUL-7**, the impacts would be less than significant.

Modified Project

The Modified Project would implement **Mitigation Measure CUL-7**, which was previously adopted as part of the MND, to ensure unanticipated discovered human remains are properly handled. Therefore, no new impact would occur and no new mitigation would be required.

Mitigation Measures:

To mitigate possible visible impacts on cultural or historical resources and human remains during construction, EMWD shall implement **Mitigation Measure CUL-1** through **CUL-7** which were previously adopted in the MND for the Approved Project. The impacts of the Modified Project are the same as the Approved Project: less than significant with mitigation incorporated. No new mitigation is required for the Modified Project.

4.6 Energy

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced Impact*
Would the Project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	[ ]	[ ]	[X]	[ ]
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	[ ]	[ ]	[X]	[ ]

a) No New Impact

Approved Project

The MND found that both construction and operation of the Project would require the consumption of energy resources, including electricity and fossil fuels. Electric supplies for the Approved Project would be provided by Moreno Valley Electric Utility (MVU) and Southern California Edison (SCE). The Project's construction fleet would be required to comply with the California Air Resources Board (CARB) In-Use Off-Road Diesel-Fueled Fleets Regulations, which would limit vehicle idling time to five minutes, restrict adding vehicles to construction fleets with older-tier engines, and establish a schedule for retiring older, less fuel-efficient engines from the construction fleet. So as not to incur unnecessary costs, EMWD is incentivized to use the most energy efficient pumps, compressors, and other equipment possible to minimize operational costs. As such, the MND found construction and operation of the Project would not result in wasteful, inefficient, or unnecessary consumption of energy and impacts would be less than significant.

Modified Project

The Modified Project would use the same construction fleet, energy providers, and types of pumps planned for in the MND. Therefore, no wasteful, inefficient, or unnecessary consumption of energy would occur. There would be no new impacts as a result of the Modified Project and no new mitigation would be required.

b) No New Impact

Approved Project

The MND found that the Project would not significantly increase the amount of new vehicle trips for operational activities, including vehicle trips for operation and maintenance, brine disposal, and chemical deliveries. Additionally, the MND found the Project would not involve land use changes that would indirectly result in an increase in vehicle trips or vehicle miles travelled. The MND also found that the Approved Project would not involve wasteful or inefficient energy consumption. Therefore, the Approved Project would not conflict with the City of Moreno Valley Energy Efficiency and Climate Action Strategy, which was developed to keep Citywide greenhouse gas (GHG) emissions in line with State reduction targets, and thus would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

Modified Project

As discussed in *Section 4.3 Air Quality*, the Modified Project would not add any additional vehicle trips for Project operation and maintenance. The Modified Project would also not involve wasteful or inefficient energy consumption. Therefore, the Modified Project would not conflict with the City strategy to keep Citywide GHG emissions in line with State reduction targets, and thus would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. There would be no new impacts as a result of the Modified Project and no new mitigation would be required.

Mitigation Measures: None required or recommended.

4.7 Geology and Soils

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced Impact*
Would the Project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
ii) Strong seismic ground shaking?	[ ]	[ ]	[X]	[ ]
iii) Seismic-related ground failure, including liquefaction?	[ ]	[ ]	[X]	[ ]
iv) Landslides?	[ ]	[ ]	[X]	[ ]
b) Result in substantial soil erosion or the loss of top soil?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	[ ]	[ ]	[X]	[ ]

As explained in *Section 1.4 Evaluation of Environmental Impacts*, resource areas that were found to have No Impact in the MND, and for which the Modified Project would also result in a finding of No Impact, are not analyzed further in this Addendum. This includes checklist questions a.i) and e).

a.ii) No New Impact

Approved Project

The MND found the Project components would likely be subject to seismic ground shaking in a measurable seismologic event because of its close proximity to the San Jacinto Fault Zone. The MND found the Project facilities would be designed per EMWD's Engineering Standards and Specifications and other applicable standards to ensure structural resiliency. Because building and construction codes related to seismic shaking would be followed, there would be less potential for structural damage or loss due to seismic ground shaking. Even if structural damage does occur during a seismic event it would be isolated to the various Project facilities and Project areas; the Project would not exacerbate a risk of seismic-related damage to other existing resources in the vicinity. Impacts would be less than significant.

Modified Project

The Modified Project would hold the same risk of structural damage or loss due to seismic ground shaking as the Approved Project because the Modified Project is within the same fault zone area. The Modified Project facilities would also be built under the same standards and guidelines. Even if structural damage does occur during a seismic event, the Modified Project would not exacerbate a risk of seismic-related damage to other existing resources in the vicinity because all damages would be isolated to the Modified Project sites. Therefore, no new impact related to seismic ground shaking would occur from the Modified Project and no new mitigation would be required.

a.iii) No New Impact

Approved Project

The MND found that a soils and geotechnical report, which would be prepared for all Project components by a California licensed geotechnical engineer, would determine whether there is a liquefaction risk and provide recommendations for materials and design that should be incorporated into the specifications for each Project facility and component. Therefore, the MND found there would be less than significant impacts associated with the Project.

Modified Project

The soils and geotechnical report would also be prepared for the facilities proposed under the Modified Project, which would determine whether there is a liquefaction risk and recommendations for materials and design would be incorporated into the specifications. The Modified Project facilities would also be designed in accordance with EMWD's Engineering Standards and Specifications and the other standards and guidelines described under "a.ii" in the MND, which would help ensure structural resiliency during earthquakes and other ground instability events, such as liquefaction. Therefore, no new impacts would occur and no new mitigation would be required.

a.iv) No New Impact

Approved Project

The MND determined the potential for the Project to exacerbate the risk of landslides in the Project area, or be impacted by a landslide, is low. In addition, the MND found the Project facilities are not in a region known to have unstable soils. Therefore, the MND found the Project would have a less than significant impact related to landslide.

Modified Project

The Modified Project, like the Approved Project would not be in a region known to have unstable soils such as the Badlands or near the mountain slopes in the City of Moreno Valley. Therefore, there are no new impacts related to landslides or soil instability resulting from the Modified Project and no new mitigation would be required.

b) No New Impact

Approved Project

The MND found that the Project would temporarily undergo soil-disturbing activities during construction that would expose soil. BMPs would be identified in the SWPPP to control erosion and sediment in stormwater discharges during construction. Once construction is complete, areas would be returned to pre-Project conditions or be paved or landscaped to avoid further soil erosion. Therefore, the MND found impacts would be less than significant from the Project.

Modified Project

The Modified Project, like the Approved Project would involve soil-disturbing activities such as excavation during construction, which would expose soil. In addition, the Modified Project would disturb one acre or more in total and would require an NPDES Construction General Permit, similar to the Approved Project. BMPs would be identified in the SWPPP to control erosion and sediment in stormwater discharges during construction. Once construction is complete, all pipeline disturbance areas would be returned to pre-Project conditions and all wells and the treatment/blending facility sites would be paved or landscaped. Therefore, no new impacts would occur as a result of the Modified Project and no new mitigation would be required.

c) No New Impact

Approved Project

The MND determined the Project would extract groundwater in a sustainable manner that would not impact land subsidence. No Project facilities would be located in areas known for subsidence and collapse. In addition, risks associated with lateral spreading and liquefaction were determined to be less than significant because the Project would be extracting groundwater, which would help regulate groundwater levels and minimize the

potential risk of liquefaction. Therefore, the Project is not expected to be susceptible to risks associated with land subsidence or collapse; impacts would be less than significant.

Modified Project

Because the Modified Project would be within the same area as the Approved Project, no Modified Project facilities would be located in areas known for subsidence and collapse. The Modified Project would increase groundwater production by approximately 9.8 percent to 4,113 AFY; however, groundwater would still be required to be produced in a sustainable manner and be consistent with the GSP (currently under development) for the Perris North Sub-Basin. Therefore, no new impact would occur from the Modified Project and no new mitigation would be required.

d) No New Impact

Approved Project

The MND determined none of the Project sites would be located in areas with expansive soils. With the development of the geotechnical report, expansive soils would be identified, and design specifications would be implemented to avoid damage to the Project facilities. In addition, the Project would be designed in accordance with EMWD's Engineering Standards and Specifications, as well as other State and International building standards and guidelines, which would ensure structural resiliency and minimize the potential effects of expansive soils. Therefore, the impact would be less than significant.

Modified Project

The Modified Project would be located within areas with no known expansive soils. The geotechnical report that would be completed would identify expansive soils and provide design specifications to avoid potential damage to the Modified Project facilities. The Modified Project would also be designed in accordance to EMWD's Engineering Standards and Specifications and other State and International building standards and guidelines. Therefore, no new impacts associated with expansive soils would occur for the Modified Project and no new mitigation measures would be required.

f) No New Impact

Approved Project

The MND found there is low potential for encountering fossils, and therefore, impacts on paleontological resources would not be expected. Well drilling would have negligible impacts on paleontological resources or unique geologic features because the well drill auger has a small diameter which would limit disturbances to intact Pleistocene sediments. "Bore and jack" drilling would also have negligible impacts on paleontological resources or unique geological features because this type of ground disturbance does not typically remove observable geologic sediments. Fossiliferous deposits have the potential to occur at greater depths than the anticipated Project ground disturbance. To

ensure proper procedures are in place in the event of an unanticipated fossil discovery, **Mitigation Measure GEO-1: Unanticipated Fossil Discovery** would be implemented during all construction phases of the Project. With implementation of **Mitigation Measure GEO-1**, the, potential impacts on paleontological resources would be less than significant.

Modified Project

The Modified Project sites are all located in urbanized, previously developed or disturbed land. The Modified Project sites are located in close proximity to the Approved Project sites and have the same potential risk for fossiliferous deposits during anticipated ground disturbance and well drilling. The Modified Project would implement previously adopted **Mitigation Measure GEO-1** in case of unanticipated fossil discovery. Therefore, no new impacts on paleontological resources would occur with the Modified Project and no new mitigation would be required.

Mitigation Measures:

To mitigate unanticipated fossil discovery during construction, EMWD shall implement **Mitigation Measure GEO-1** which was previously adopted in the MND for the Approved Project. The impacts of the Modified Project are the same as the Approved Project: less than significant with mitigation incorporated. No new mitigation is required for the Modified Project.

4.8 Greenhouse Gas Emissions

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced Impact*
Would the Project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	[ ]	[ ]	[X]	[ ]
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	[ ]	[ ]	[X]	[ ]

a) No New Impact

Approved Project

The MND provided an analysis of the total amount of metric tons of CO_2e anticipated from construction and operational activities of the Approved Project. As discussed in the MND, the Project area is within the limits of the City of Moreno Valley, and therefore the City of Moreno Valley's *Energy Efficiency and Climate and Strategy,* the County of Riverside *Climate Action Plan* (CAP)*,* and SCAQMD thresholds were relied upon for determining what is considered a significant level of GHG emissions. The County's CAP has set a threshold of 3,000 metric tons of carbon dioxide equivalents ($MTCO_2e$) to identify small projects that are considered less than significant and would not require mitigation, and this threshold was used to evaluate the Approved Project. Total $MTCO_2e$ for the Project was found to be 2,366, and therefore had less than significant impacts.

Modified Project

The Modified Project includes two new extraction well site options for East Well 2, which would not change the estimated Project construction and operational GHG emissions. However, the Modified Project's new Well 5 Option 1 and all modified pipeline alignments associated with the new well and new well site options, would have the potential to change the estimated GHG emissions. As previously discussed in *Section 4.3 Air Quality*, emissions modeling for the new well drilling phase, well construction phase, new pipeline alignment, and the new energy requirements for operating the well and its emergency backup generator were estimated for the Modified Project in CalEEMod version 2016.3.2

(see **Appendix A**). The model results of the overall Modified Project (e.g. Approved Project and modified project elements) are provided in **Table 4-6** below.

Table 4-6: Modified Project GHG Emissions per Year ($MTCO_2e$/year)

Source	Approved Project ($MTCO_2e$)	Additional Emissions from Modified Project Elements ($MTCO_2e$)
Energy	1,422	105
Stationary	6	1
Mobile	844	N/A
Area	Negligible	N/A
Construction (amortized over 30 years)	96	5
Total	**2,368**	**111**
Combined Total	**2,479**	
Threshold	3,000	
Exceed Threshold?	*No*	
New Impact?	**No**	

Note: CalEEMod's default CO_2e intensity factor for Southern California Edison is 702.44 lb/MWhr. However, recent information provided by SCE (2019) specifies a CO_2e intensity factor of 467.38 lb/MWhr for SCE, which was used in this analysis.

The Modified Project would emit an additional 111 $MTCO_2e$ per year, for a total potential emission of 2,479 $MTCO_2e$ per year. This is below the 3,000 $MTCO_2e$ per year threshold; therefore, there would be no new GHG emission impacts as a result of the Modified Project and no new mitigation would be required.

b) No New Impact

Approved Project

The MND found the Project would not interfere with existing City, County, or regional programs intended to reduce energy and improve water use efficiency. It would not result in emissions higher than the Riverside County CAP significance screening thresholds. Therefore, it would not conflict with a GHG reduction plan, policy or regulation and impacts would be less than significant.

Modified Project

The additional emissions from the Modified Project would not increase total emissions that would exceed the County of Riverside CAP 3,000 $MTCO_2e$/year screening threshold. Therefore, the Modified Project would not conflict with or obstruct a State or local plan for reducing the emissions of greenhouse gases and no new impacts would occur.

Mitigation Measures: None required or recommended.

4.9 Hazards and Hazardous Materials

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced 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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	[ ]	[ ]	[X]	[ ]
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	[ ]	[ ]	[X]	[ ]

As explained in *Section 1.4 Evaluation of Environmental Impacts*, resource areas that were found to have No Impact in the MND, and for which the Modified Project would also result in a finding of No Impact, are not analyzed further in this Addendum. This includes checklist question e) for Hazards and Hazardous Materials.

a) No New Impact

Approved Project

The MND found the routine use of hazardous materials during construction and operation of the Project would be minimized through compliance with existing federal, State and local regulations, which are identified in the MND. During construction, construction machinery and associated chemicals would be required. During operation, chemicals would be routinely used, stored, and delivered for the treatment/blending facility. With conformance to appropriate regulations and BMPs, the MND found impacts would be less than significant and no mitigation would be required.

Modified Project

For the Modified Project, the use of construction machinery and chemicals during construction would be the same as for the Approved Project , except at Treatment Plant Option 1 where well drilling would be prolonged by two weeks due to the additional extraction well. The Modified Project new extraction well site options and revised pipeline alignments would not substantially change routine use of hazardous materials during construction. During operation, additional chemicals would need to be transported to the Treatment Plant Option 1 site for the additional extraction well. However, no additional chemical deliveries would be needed for the additional Modified Project facilities. EMWD would be required to be in compliance with all applicable federal, State, and local regulations pertaining to hazardous materials and would use appropriate BMPs addressed in the SWPPP. Therefore, no new impacts would occur for the Modified Project related to routine transport, use, or disposal of hazardous materials and no new mitigation would be needed.

b) No New Impact

Approved Project

During construction, implementation of **Mitigation Measure HAZ-1** would minimize the risk of accidental hazardous material exposure. During operations, the Approved Project would comply with various existing regulations (see response to “a” in the MND) that would minimize the risk of accidental hazardous material release. In addition, a Hazardous Materials Business Plan, Emergency Response Plan, and Risk Management Plan would need to be prepared and implemented based on the State of California Accidental Release Prevention (CalARP) requirements. Safety measures would be put in place to ensure proper storage containers, safety labeling, materials needed to readily absorb spills, and training for site workers. The MND found the development of a Hazardous Materials Management and Spill Prevention and Control Plan would ensure

Project-specific contingencies are in place to protect the environment and public surrounding the Approved Project sites from accidental release of hazardous materials. Therefore, impacts from hazardous materials to the public or the environment from potential accidents would be less than significant. with the implementation of mitigation.

Modified Project

The Modified Project would also implement **Mitigation Measure HAZ-1**, which was previously adopted as part of the MND, to minimize the risk of hazardous material exposure during construction. The Modified Project would require the development of all preventative plans that would apply to the Approved Project, and comply with the same existing regulations. During operation, the same safety measures would be put in place. Therefore, no new impact would occur and no new mitigation would be necessary.

c) No New Impact

Approved Project

The MND found there are existing schools located within one-quarter mile of the Project sites and pipeline locations. Both treatment facility option sites are located within one-quarter mile of multiple schools and would store chemicals and require transportation of hazardous chemicals to the facility once a month. Facilities would be compliant with local regulations, and there would be less than significant impacts related to hazardous material release associated with long-term Project O&M activities. For operation of pipelines and extraction wells, no hazardous materials would be handled or emitted on a regular basis. During construction, there would be emissions of toxic air pollutants, such as diesel particulate matter, within one-quarter mile of schools; however, emissions would be below SCAQMD LST thresholds and less than significant. With the implementation of **Mitigation Measure HAZ-1**, the MND found impacts of the Project would be reduced to less than significant.

Modified Project

The Modified Project consists of alternative extraction well site options and alternative pipeline alignments, which would not result in a change in the potential for hazardous materials release. The potential for hazardous material release during construction at the additional well at the Treatment Plant Option 1 site would be slightly elevated due to the longer construction duration. Previously adopted **Mitigation Measure HAZ-**1 would be implemented to minimize risk of hazardous materials exposure during construction. Emissions of toxic air pollutants, such as diesel particulate matter, would be below SCAQMD LST thresholds and less than significant, as explained in *Section 4.3 Air Quality*. The Modified Project would not change the potential for hazardous materials release from O&M activities, as compared to the Approved Project. The Modified Project would not create a new impact and no new mitigation is required.

d) No New Impact

Approved Project

The MND found none of the Project locations are proposed on a site that is included on a list of hazardous materials sites per Government Code Section 65962.5. Recent and currently-active clean-up sites in the Project area are summarized in the MND. Because soil and groundwater at the cleanup sites have been remediated and closed, or are being remediated and monitored, no significant hazards to the public would be expected. Additionally, none of the Approved Project facilities would be located on a clean-up site undergoing or awaiting remediation. Therefore, impacts would be less than significant.

Modified Project

The Modified Project proposes a new site location for CCE Well 2 Option 3 at Pedrorena Park, a new site location for CCE Well 2 Option 4 at Iris Avenue and Wedow Drive, and new pipeline alignments to convey raw water from the East Well 2 Option 4 site to the treatment/blending facility as well as an additional extraction well at Approved Treatment Plant Option 1. All Modified Project sites are within the observed Approved Project area and none of the sites are included on a list of hazardous materials site per Government Code Section 65962.5. There are no additional recent and currently active clean-up sites to be found near the Modified Project area. Additionally, none of the Modified Project facilities would be located on a clean-up site undergoing or awaiting remediation. Therefore, no new impacts would occur and no new mitigation would be required

f) No New Impact

Approved Project

The MND determined construction of the Project components would temporarily alter, block, or impair roads such that they would conflict with the adopted emergency response plan and emergency evacuation plan. Coordination with local emergency responders would be required regarding lane closures. Implementation of **Mitigation Measure TRA-1** would ensure coordination with local emergency responders regarding lane closures. As explained in the MND, during operation, Project facilities would require monthly site visits for the wells and treatment facility as well as a monthly chemical delivery. These minimal operational activities would not interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, with implementation of mitigation measures impacts would be less than significant.

Modified Project

The Modified Project includes an additional extraction well at Approved Treatment Plant Option 1, additional well site options at Pedrorena Park and the intersection of Iris Avenue and Wedow Drive, and new pipeline alignments. The additional extraction well at Approved Treatment Plant Option 1 would be incorporated into the overall construction timeline at the site and would not prolong lane closures during construction. CCE Well 2 Option 3 as well as the new pipeline alignment would temporarily impact Iris Avenue and

Las Cabos Drive. East Well 2 Option 4 would temporarily impact Iris Avenue and Wedow Drive. The new pipeline alignments would prolong lane closures during construction by up to one month. However, as with the Approved Project impacts would be reduced to less than significant with implementation of previously adopted **Mitigation Measure TRA-1** which requires coordination with local emergency responders regarding lane closures. Therefore, no new impact would occur and no new mitigation would be required.

g) No New Impact

Approved Project

The MND found the Project would not involve the installation or maintenance of infrastructure that is typically associated with fire risk (see *Section 4.18 Wildfire Risk*). In addition, the Approved Project is located within the Moreno Valley Local Responsibility (LRA) and designated as a non-Very High Fire Hazard Severity Zone (VHFHSZ). Therefore, there would be a less than significant impact on exposing people or structures to a significant risk of loss, injury or death involving wildland fires.

Modified Project

Similar to the Approved Project, the Modified Project would also not involve the installation or maintenance of infrastructure that is typically associated with fire risk. The Modified Project is also located within the Moreno Valley LRA and designated as a non-VHFHSZ. Therefore, no new impact would occur, and no new mitigation would be required.

Mitigation Measures:

To mitigate unanticipated exposure to hazardous materials and physical interference with evacuations and emergencies during construction and operation, EMWD shall implement **Mitigation Measure HAZ-1** and **TRA-**1 which were previously adopted in the MND for the Approved Project. Impacts of the Modified Project are the same as the Approved Project: less than significant with mitigation incorporated. No new mitigation is required for the Modified Project.

4.10 Hydrology and Water Quality

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced Impact*
Would the Project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	[ ]	[ ]	[X]	[ ]
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	[ ]	[ ]	[X]	[ ]
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;	[ ]	[ ]	[X]	[ ]
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	[ ]	[ ]	[X]	[ ]

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	[ ]	[ ]	[X]	[ ]
iv) impede or redirect flood flows?	[ ]	[ ]	[X]	[ ]
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	[ ]	[ ]	[X]	[ ]
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	[ ]	[ ]	[X]	[ ]

a) No New Impact

Approved Project

The MND found that the Project would not violate water quality standards or waste discharge requirements, nor significantly degrade surface water quality. The Project would disturb an area greater than one acre in size and would therefore be subject to the NPDES Stormwater Construction General Permit during Project construction. As part of the Permit conditions, EMWD would be required to prepare a SWPPP, which would identify BMPs to control sediment and other construction-related pollutants in stormwater discharges. Contractors would be required to comply with the Construction General Permit throughout construction. Well test water and dewatering produced during construction would be either discharged to land in accordance with RWQCB Waste Discharge Requirements for construction dewatering, discharged to the local storm drain system per Riverside County Flood Control and Water Conservation District requirements, or discharged to the EMWD sewer system. Implementation of the Project would reduce the migration of groundwater contaminants and would help remediate areas of concern in the Perris North Basin. No adverse impacts on water quality would be expected.

Modified Project

The Modified Project would remain greater than one acre and would be required to obtain an NPDES Stormwater Construction General Permit, similar to the Approved Project. Dewatering and well test water produced during construction would be discharged consistent with the permits and requirements identified in the MND. Compliance with these permits and implementation of BMPs would ensure the Project would not violate

water quality standards or waste discharge requirements, nor significantly degrade surface water quality. Operation of the Modified Project would consist of extracting and treating groundwater from the Perris North Groundwater Management Zone in a manner similar to what was analyzed in the MND, which would be beneficial to the groundwater quality. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

b) No New Impact

Approved Project

The MND found that the Project would not substantially decrease groundwater supplies or interfere with groundwater recharge. The Project would extract and treat approximately 3,700 AFY of contaminated groundwater for beneficial use and would offset the use of imported water supplies. The Project is part of EMWD's ongoing groundwater management in the basin and would produce water in a sustainable manner consistent with the San Jacinto Groundwater Management Plan and the GSP currently in preparation. Therefore, the MND found that the Project would have a less than significant impact on groundwater supplies and recharge

As stated in *Section 2.2.1,* the Modified Project would increase the total number of wells from six to seven and would produce an estimated 4,113 AFY, which is a 403 AFY increase (9.8 percent increase) over the Approved Project. However, implementation of the Modified Project would be consistent with the San Jacinto Groundwater Management Plan and the GSP currently under development. Therefore, the Modified Project would not substantially decrease groundwater supplies or interfere with groundwater recharge and would have a less than significant impact. There would be no new impacts as a result of the Modified Project and no new mitigation would be necessary.

c.i, ii, iii, and iv) No New Impact

Approved Project

The MND found that the Project would not substantially alter drainage patterns of the sites or Project area, cause substantial erosion, substantially increase surface runoff, generate runoff in excess of the existing storm drainage systems, or be a source of polluted runoff. While construction may result in exposure of soil that may be subject to erosion and sedimentation, ground disturbing activities would be temporary and reduced to less than significant with implementation of BMPs and the SWPPP as required by the NPDES Stormwater Construction General Permit. The pipeline components of the Project would not increase total impervious surface area because they would be constructed in existing roadways and restored to prior conditions after construction. Project facilities would have relatively minor above ground surface profiles and would be designed in accordance with Riverside County drainage design requirements and applicable NPDES municipal storm water permit requirements to control water quality in site runoff and would not impede or redirect flood flows.

Modified Project

The Modified Project would add a new extraction well at the Approved Project Treatment Plant Option 1 site. This site was analyzed for construction of the central treatment/blending facility and one extraction well under the MND. Addition of a second well at the site would not substantially increase the impervious surface area or alter the drainage pattern beyond what was analyzed for the Approved Project in the MND. The Modified Project would add a new CCE Well 2 Option 3 site option at Pedrorena Park, and a new CCE Well 2 Option 4 site option on a vacant lot at the intersection of Iris Avenue and Wedow Drive. The well sites at the two new CCE Well 2 options are currently covered by bare dirt, grass and, at CCE Well 2 Option 3, a tennis court. Changes in drainage patterns from construction of CCE Well 2 were analyzed under the MND as CCE Well 2 Options 1 and 2 and found to be less than significant. Only one site would be selected for construction of the CCE Well 2 extraction well. Therefore, impacts associated with adding additional site Options 3 and 4 for CCE Well 2 would not be greater than what was already analyzed in the MND. The Modified Project would include associated revised pipeline alignments for each of the new CCE Well 2 site options which would occur within existing paved roadways and would not result in changes in drainage patterns, Implementation of the Modified Project would be similar to the Approved Project and would not impede or redirect flows beyond what was analyzed in the MND. Implementation of BMPs and the SWPPP during ground disturbing activities as required by the NPDES Stormwater Construction General Permit would reduce potential impacts to less than significant. Similar to the MND findings, the Modified Project would not cause substantial erosion, increase surface runoff, generate runoff in excess of the existing storm drainage systems, or be a source of polluted runoff. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

d) No New Impact

Approved Project

The MND found that the Project would unlikely become inundated by flood, seiche or tsunami and the potential for release of pollutants is low. The Pacific Ocean is located approximately 40 miles west of the Project area and there are no significant documented seiche hazards for any water bodies within Riverside County. In addition, no Project well or treatment facility site would be located in a Federal Emergency Management Agency (FEMA) 100- or 500-year floodplain. There is no associated risk of floods inundating pipelines because they would be installed belowground. Although the well sites would not house sources of pollutants that could be released in the event of inundation, the treatment/blending facility would. Therefore, the Project would implement the requirements of CalARP to ensure safe handling, transport, and storage of hazardous materials. Impacts of the Project would be less than significant.

Modified Project

Similar to the Approved Project, the Modified Project is located approximately 40 miles east of the Pacific Ocean and would have no risk of tsunami inundation. Although the

Modified Project sites are closer to the Moreno Valley Ranch community 35-acre lake, potential for a damaging seiche to be generated at this lake is considered low because there are no documented seiche hazards for any water bodies within Riverside County. The only 100- or 500-year floodplain that falls within the Modified Project area is the storm channel that travels along Kitching Street which was identified in the MND and is sized to contain the 100-year flood. Areas outside of the storm channels themselves, including the two additional CCE Well 2 site options, are unlikely to become inundated and the potential for release of pollutants is low. The Modified Project would be implemented similarly to the Approved Project and would implement CalARP requirements to ensure safe handling, transport, and storage of hazardous materials. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

e) No New Impact

Approved Project

The MND found that the Project would not conflict with applicable water quality control plans or groundwater management plans. The RWQCB Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) sets water quality thresholds that are intended to reduce pollutant discharge and ensure that water bodies are of sufficient quality to meet their designated beneficial uses. During construction, pollutant discharge would be minimized via compliance with the NPDES Stormwater Construction General Permit and SWPPP as well as NPDES permits for construction dewatering and well test water discharges as applicable. During operation, pollutant discharge would be avoided because groundwater would be conveyed for use in EMWD's service area after extraction and treatment rather than discharged to downstream water bodies. Therefore, the Project would not conflict with the water quality standards outlined in the Basin Plan. In addition, the Project would not conflict with the San Jacinto Groundwater Basin GSP. The GSP would establish sustainability indicators for the groundwater basin; however, no indicators or thresholds have been established to date. Therefore, the MND found the Project would not conflict with applicable water quality control plans or groundwater management plans, and impacts would be less than significant.

Modified Project

Implementation of the Modified Project would be similar to construction and operation of the Approved Project analyzed in the MND. Construction of the Modified Project would comply with the NPDES Stormwater Construction General Permit and NPDES permits to avoid pollutant discharge. Similar to the Approved Project, the Modified Project would not discharge extracted or treated water to downstream water bodies. The Modified Project would also be consistent with the GSP which is currently under development. Therefore, the Modified Project would have a less than significant impact on applicable water quality control plans and groundwater implementation plans. No new impacts would occur as a result of the Modified Project and no new mitigation would be required.

Mitigation Measures: None required or recommended.

4.11 Land Use and Planning

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced Impact*
Would the Project:				
a) Physically divide an established community?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]

a) No New Impact

Approved Project

The MND found that the pipelines would be constructed in existing roadway rights of way and roadways would be restored to pre-construction condition. All well and treatment facility sites currently consist of vacant, disturbed land or public parks with landscaped open space that are accessible by existing public roadways. The Project would not develop new roads that would divide an established community or permanently interfere with the pedestrian, bicycle or vehicle circulation. Therefore, the MND found that the Project would have a less than significant impact related to physically dividing an established community.

Modified Project

The Modified Project pipeline alignments would be constructed in existing roadways and the optional well sites would be constructed within vacant sites or public parks that are accessible by existing public roads, similar to the MND. The Modified Project would not construct new roads that would divide an established community or permanently interfere with the pedestrian, bicycle, or vehicle circulation of the neighborhoods or communities. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

b) No New Impact

Approved Project

The MND found that the Project would not conflict with the City of Moreno Valley's zoning policies. Under the City of Moreno Valley's zoning ordinance, facilities such as wells and

treatment facilities are permitted at the proposed Project sites. In addition, the Project would be implemented entirely within disturbed lands. Therefore, the MND found that the Project would not conflict with applicable land use plans, policies, or regulations intended to avoid or mitigate an environmental effect and no impact would occur.

Modified Project

All new well sites of the Modified Project are located on vacant, disturbed land and a park with the following zoning and land use designations.

Table 4-7: Zoning and Land Use

Site	Land Use[1]	Zoning[2]
North Sub-Area		
Well 5, Option 1/Treatment Facility Option 1	Residential/Office	Office
East Sub-Area		
East Well 2, Option 3	Open Space	Open Space/Park
East Well 2, Option 4	Residential: Maximum of 2 dwelling units per acre	Suburban Residential
[1] City of Moreno Valley, 2019a [2] City of Moreno Valley, 2019b		

Development of a 20,000 square foot well site would prevent other activities such as recreation, office, or commercial use at the Modified Project sites. Nonetheless, construction of wells at the Modified Project sites would be permitted under the City of Moreno Valley zoning ordinance. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

Mitigation Measures: None required or recommended.

4.12 Noise

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced 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?	[ ]	[ ]	[X]	[ ]
b) Generation of excessive groundborne vibration or groundborne noise levels?	[ ]	[ ]	[X]	[ ]
c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	[ ]	[ ]	[X]	[ ]

a) No New Impact

Approved Project

The MND analyzed the potential for temporary noise impacts from construction of the wells, pipelines, and treatment/blending facility. As discussed in the MND, most of the well construction, pipeline construction, and treatment/blending construction would occur during daytime hours as allowable per City noise standards. Pipelines would be constructed typically at least 25 feet from noise sensitive receptors, while the wells would be constructed at least 50 feet from noise sensitive receptors. Truck trips associated with construction of the Project would generate noise along haul routes. Although EMWD is exempt from other jurisdictional agencies' noise ordinances, the proximity of construction activities for the Approved Project could potentially cause disruption to nearby residents, businesses, and parks. This impact would be reduced to a less-than-significant level with the implementation of **Mitigation Measure NOI-1**, which requires that EMWD and its contractor implement construction noise reduction measures.

Well drilling would require up to two weeks of 24-hour drilling for each well. The MND assumed drilling activities would occur at a minimum distance of 50 feet between the drilling rig and property boundary of the nearest noise sensitive receptor. At this distance, well drilling activities (consisting of a drill rig, pickup truck, and backhoe) would be expected to generate noise levels up to 90.2 dBA Leq with no shielding present. The MND applied **Mitigation Measure NOI-2** to the Approved Project, which requires the use of noise barriers during 24-hour well construction activities to achieve at least 25 dBA of noise attenuation. With the use of all feasible sound barriers, the noise from well drilling activities associated with the Approved Project would be reduced to 65.2 dBA Leq at a distance of 50 feet, which is close to what the City and County consider acceptable noise levels for residential land uses. At a distance of 200 feet from the source, such a sound barrier would reduce construction noise levels to 53.1 dBA Leq, which is within the range of what the City and County consider acceptable nighttime noise levels for residential land uses. With mitigation incorporated, the MND found that temporary noise impacts would be less than significant.

The MND found permanent noise from operation of the wells would be reduced through implementation of design standards (i.e., wells would be enclosed within a CMU well house surrounded by a 6-foot CMU wall, and would be sited at least 50 feet from the nearest adjacent land use), which would reduce operational noise from well facilities. Pipeline operation would not result in a permanent increase in ambient noise because facilities would be underground. Operation and maintenance activities at the treatment plant would not involve activities that would result in a significant increase in ambient noise. The MND found that operational noise generated by the Project would have a less-than-significant impact with mitigation incorporated.

Modified Project

The Modified Project would add well sites/well site options and pipeline alignments to the Project. The proposed well sites included in the Modified Project are described in *Section 1.1.2 Proposed Modified Project*. The section provides information on surrounding receptors and existing attenuation features. Key details related to sensitive receptors near each proposed well site are summarized below:

- Cactus Corridor Well 5, Option 1: The site is adjacent to residences and a school (Riverside County Education Academy). The well would be located at least 200 feet from residential property lines and at least 100 feet from the property boundary of Riverside County Education Academy (similar to Cactus Corridor Well 4, Option 1 which would be constructed at the same site and was analyzed in the Approved Project IS/MND).

- CCE Well 2, Option 3 (Pedrorena Park): The site is adjacent to residences and a community center. The well would be located at the park such that the distance to the nearest residential property line would be at least 50 feet.

- CCE Well 2, Option 4 (Iris Avenue/Wedow Drive): The site is adjacent to residential and commercial land uses as well as a school (Val Verde Academy), which is

located adjacent to the southwest boundary of the site. The well would be constructed in the northwest corner of the site such that the closest residential property line would be approximately 100 feet from the well drilling site. The well would be constructed approximately 300 feet from the school.

Extraction wells would be constructed using the same construction fleet and techniques described in the MND; therefore, the potential for noise generation during construction of the Modified Project is the same as that of the Approved Project. All of the well sites included in the Modified Project would also allow for at least 50 feet between well drilling activities and the property boundary of the nearest sensitive receptor, consistent with the siting described in the MND. Noise levels generated by well-drilling activities associated with the Modified Project would be expected to have the potential to produce the same noise level as the Approved Project. The Modified Project would also include implementation of previously adopted **Mitigation Measure NOI-2** to reduce well drilling noise. Under the Modified Project, two wells, Cactus Corridor Well 4 Option 1 and Cactus Corridor Well 5 Option 1, would be constructed at the same site. Although the well drilling at this site would require a total of 4 weeks of 24-hour well drilling for two wells, well-drilling activities would not occur simultaneously and would not result in a louder noise level than that evaluated in the MND.

Similar to the pipeline alignments evaluated in the MND, the potential Modified Project alignments would pass through residential areas and open spaces (i.e., existing parks), typically at least 25 feet from the nearest receptor. Pipeline construction for the Modified Project would proceed at the same rate as for the Approved Project and would occur during daytime hours in accordance with City of Moreno Valley noise standards. Noise-generating activities during pipeline construction would be the same as those assessed in the MND for the Approved Project.

Truck trips associated with construction of the Modified Project would be comparable to the Approved Project. The Modified Project would not result in more truck trips per day, longer trips, or in a significantly longer construction duration; therefore the noise impacts from truck trips would not be greater than the impacts discussed in the MND.

Mitigation Measure NOI-1, which requires that EMWD and its contractor implement construction noise reduction measures and was previously adopted as part of the MND, would also apply to the Modified Project. With implementation of the same mitigation specified in the MND, temporary, construction noise impacts associated with the Modified Project would be similar to the impacts of the Approved Project.

Operation of the Modified Project would not differ from operation of the Approved Project. Wells constructed at any of the proposed Modified Project sites would follow the same design standards discussed in the MND. Pipeline operation would not generate noise, consistent with pipelines evaluated in the MND). The Modified Project would not require additional maintenance or inspection trips beyond those analyzed in the MND, therefore no additional vehicle noise would be generated, and the permanent ambient noise impact from operation of the Modified Project would remain less than significant.

With incorporation of previously adopted **Mitigation Measure NOI-1** and **Mitigation Measure NOI-2** from the MND, impacts would be less than significant. No new impact would occur as a result of the Modified Project and no new mitigation would be required.

b) No New Impact

Approved Project

The MND found that the construction of the Project may generate low levels of temporary vibration noise during construction. As discussed in the MND, the construction equipment to be used for the Approved Project, as listed in **Table 3-19**, would generate groundborne vibration lower than 0.2 inches/second peak particle velocity (PPV), the threshold for potential damage to buildings, at a distance of 25 feet. The Approved Project pipeline construction would be at least 25 feet from noise receptors, the well drilling sites would be 50 feet from noise receptors, and the treatment/blending facility construction would be at least 40 feet from noise receptors. Therefore, the potential for the Approved Project to damage nearby buildings through groundborne vibration was found to be less than significant.

As discussed in the MND, groundborne noise (measured in vibration decibels, or VdB) at levels above 80 VdB can cause human annoyance when events are infrequent. For construction at the Approved Project, groundborne noise from the most impactful piece of equipment (the drilling rig) would attenuate to below 80 VdB at a distance of 43 feet from the source. Vibration noise from trucks would attenuate to below 80 VdB at a distance of 40 feet from the source. Sensitive receptors are located at least 50-feet from the Approved Project well drilling rig sites, so the impact would be less than significant. Vibration noise from trucks at the pipeline sites would be infrequent, short in duration, and would not occur at the same location for an extended period of time. Finally, construction vehicles at the treatment/blending construction site would be located at least 40 feet from receptors, and thus result in groundborne noise lower than the significance threshold. Once operational, the Approved Project would not generate groundborne vibration or noise. Vibration and vibration noise would not be damaging or excessive. Therefore, the MND found the Project would have a less-than-significant impact in terms of groundborne vibration and noise.

Modified Project

The Modified Project would add a second well (Cactus Corridor Well 5 Option 1) at Treatment Plan Option 1 / Cactus Corridor Well 4 Option 1. The Modified Project would also add two new well site options (CCE Well 2, Option 3 and CCE Well 2, Option 4). Although two wells would be constructed at the same site, well-drilling activities would not occur simultaneously. The duration of well drilling activity would increase, but the level of noise and groundborne vibration would not increase. The Modified Project wells would use the same construction fleet as shown in **Table 3-19** of the MND. The well drilling rig and trucks would occur at least 50 feet from adjacent land uses, consistent with the siting analyzed in the MND; therefore, there would be no increase in groundborne vibration or

noise impacts due to construction activities for the additional well and CCE 2 well site options.

For the pipeline construction component of the Modified Project, loaded trucks could cause occasional groundborne vibration above 80 VdB at receptors within 40 feet of the construction sites. However, groundborne noise associated with Modified Project pipeline construction would be infrequent, temporary, and would move along the pipeline alignment and would not expose receptors to vibration for the entire construction duration. Groundborne noise impacts along the proposed Modified Project pipeline alignments would be the same as impacts evaluated for the pipeline alignments in the Approved Project.

Operation of the Modified Project would not differ from operation of the Approved Project. Once operational, pipelines and extraction wells would not generate groundborne vibration or noise.

The Modified Project would not generate excessive groundborne noise or vibration levels either during construction or operation. The impact would be less than significant, and the Modified Project would have no new impact nor require additional mitigation.

c) No New Impact

Approved Project

As discussed in the MND, the March Air Reserve Base (MARB)/March Inland Port is the only airport in the vicinity of the Approved Project site. The Approved Project sites are outside of the airport noise contours and, therefore, there would be no impact related to exposure of residents or workers to excessive aircraft noise.

Modified Project

The Modified Project elements would be located approximately 1.5 miles from the MARB/March Inland Port. All components of the Modified Project would be located outside the 60-CNEL noise contour for the airport. Therefore, the Modified Project would not expose residences or workers to excessive aircraft noise and there would be no impact.

Mitigation Measures:

To mitigate possible temporary construction noise impacts of the Modified Project, EMWD shall implement **Mitigation Measure NOI-1** and **Mitigation Measure NOI-2** which were previously adopted in the MND for the Approved Project. Impacts of the Modified Project are the same as the Approved Project: less than significant with mitigation incorporated. No new mitigation is required for the Modified Project.

4.13 Public Services

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced 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 following public services:	[ ]	[ ]	[X]	[ ]
i) Fire protection?	[ ]	[ ]	[X]	[ ]
ii) Police protection?	[ ]	[ ]	[X]	[ ]
iii) Schools?	[ ]	[ ]	[X]	[ ]
iv) Parks?	[ ]	[ ]	[X]	[ ]
v) Other public facilities?	[ ]	[ ]	[X]	[ ]

a.i, ii, iii, and v.) No New Impact

Approved Project

The MND found that the Project would not require the construction of new or physically altered fire protection facilities, police protection facilities, schools, or other public facilities that would result in adverse physical impacts. Additionally, the Project would not substantially change response times or service ratios for fire protection services, police protection, or schools. Fire, police or other emergency response services required during construction would be temporary and provided by existing Riverside County Fire Department and Riverside County Sherriff's Department facilities. Operation of the Project would not directly or indirectly induce unplanned population or employment growth or result in an influx of students that would require construction of new or expansion of existing fire departments, police departments, or schools. No additional or increased

facilities would be needed to maintain response times, service ratios, or other performance measures. As a result, no impact would occur.

Modified Project

Implementation of the Modified Project would be consistent with the analysis in the MND and would rely on existing Riverside County Fire Department facilities and the existing Riverside County Police Department for fire protection, police protection and emergency services during temporary construction activities. Construction of the Modified Project would not include new homes or businesses, and operation would not directly or indirectly induce population or employment growth or result in an influx of students. Operation of the Modified Project would not necessitate construction of new or expansion of existing fire protection facilities, police stations, schools, or other public facilities to maintain response times, service ratios, or other measures of performance. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

a.iv.) No New Impact

Approved Project

The MND analyzed impacts on three parks that were selected as options for installation of extraction wells: Bayside Park (Cactus Corridor Well 3 Option 2), Victoriano Park, and Parque Amistad (CCE Well 2 Option 1 and Option 2), as shown in **Figure 1-1**. Installation would result in replacement of up to approximately 20,000 square feet (one-half acre) of public park area for each of the groundwater extraction wells. Impacts resulting from temporary construction activities would be mitigated to less than significant with adherence to standard EMWD BMPs. Impacts were evaluated against the City of Moreno Valley's General Plan policy 4.2.7 which establishes the City level of service (LOS) standard as 3 acres of developed parkland for every 1,000 residents, which is the minimum parkland dedication allowed by the Quimby Act for residential subdivisions. Impacts were also evaluated against the 3 acres/1,000 residents service ratio recognized by the City as the National Recreation and Park Association recommendation that urban cities strive to reach a goal of 10 acres per 1,000 of population counting local, regional and state/federal parkland and facilities within the agencies' sphere of influence. As analyzed in the MND, the Project would not significantly reduce the City's park acreage or impact the service ratios established by the General Plan or National Recreation and Park Association. In total, implementation of the Project would replace up to one acre of park land within the City of Moreno Valley. Construction and operation of the Project does not propose new housing or employment that would result in an increase in the demand for park facilities in the area or a further reduction in the park service ratio. As a result, a less than significant impact on parks would occur.

Modified Project

The Modified Project would add a new extraction well at the Approved Project Treatment Plant Option 1 site and a new CCE Well 2 extraction well site option (Option 3) within a

vacant parcel at the intersection of Iris Avenue and Wedow Drive. These new components of the Modified Project would have no impact on park or recreation facilities. The Modified Project also includes a revised pipeline alignment within Kitching Street, Iris Avenue, and Los Cabos Drive for the CCE Well 2 Option 3 site and a revised pipeline alignment within Perris Boulevard, Santiago Drive, Wedow Drive, and Iris Avenue for the CCE Well 2 Option 4 site. Neither of these pipeline alignments would permanently impact park or recreation facilities.

Modified Project CCE Well 2 Option 3 site is proposed at Pedrorena Park, which is five and one-half acres in size and includes picnic areas, restrooms, four tennis courts, a basketball court, a children's play structure, a parking lot, and open green space (City of Moreno Valley 2010). There are several locations within Pedrorena Park where East Well 2 could be located if Option 3 is chosen, according to conceptual well site options (EMWD 2020). If the well is constructed in an open grassy area, it would occupy one-half acre of the park's approximately five and one-half acres leaving approximately five acres available. If the well is constructed in place of an existing tennis court, a replacement tennis court would be built in an area that is currently occupied by open, grassy space, which would also result in a decrease of the park's open grassy area. A standard tennis court is 2,808 square feet, or 0.06 acres (Tennis Companion, 2020). Construction of both East Well 2 and a new tennis court within Pedrorena Park would occupy 0.56 acres of the park's approximately five and one-half acres. However, replacing open green space with a new tennis court would not count against the total area available for recreation and five acres of Pedrorena Park would still be available for recreational purposes if the well were to be constructed at the site of the existing tennis court.

Although the Pedrorena Park well site is a new option, only one site will be chosen for the CCE Well 2 among Option 1 (Victoriano Park), Option 2 (Parque Amistad), Option 3 (Pedrorena Park) and Option 4 (Iris Avenue/Wedow Drive). Therefore, the maximum total displacement of parkland by the Project would remain at up to one acre, consistent with the MND, however, with the addition of the CCE Well 2 Option 4 location (a vacant lot), there is a possibility that no parkland would be displaced. Because the Modified Project would not require conversion of parkland beyond what was analyzed in the MND, and could potentially result in no lost parkland if Option 4 is chosen, impacts to the established service ratios in the City of Moreno Valley General Plan and National Recreation and Park Association would be less than significant. There would be no new impacts as a result of the Modified Project and no new mitigation would be required.

Mitigation Measures: None required or recommended.

4.14 Recreation

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced Impact*
Would the Project:				
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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]

a) No New Impact

Approved Project

The MND found that the Project would not permanently increase the use of parks and recreational facilities. Although three parks were identified as optional locations for an extraction well (Cactus Corridor Well 3 Option 2 [Bayside Park], CCE Well 2 Option 1 [Victoriano Park], CCE Well 2 Option 2 [Parque Amistad]), the proposed well footprint would occupy approximately one-half acre of open, landscaped area of the parks and would not involve removal of recreational facilities or equipment. Construction of the wells would have a temporary impact on access to and use of the recreational amenities, but impacts would be minimized through adherence to standard EMWD BMPs (see *Section 2.7 Environmental Commitments* of the MND). Operation of the wells would not interfere with regular use of the parks and park facilities. Implementation of the Project does not include residential housing and would not induce population growth that would permanently increase the use of the parks and recreational facilities. Therefore, the Project would have a less than significant impact.

Modified Project

The Modified Project would add a new extraction well at the Approved Project Treatment Plant Option 1 site and a new East Well 2 Option 3 extraction well site option within a

vacant parcel at the intersection of Iris Avenue and Wedow Drive. These new components of the Modified Project would have no impact on park or recreation facilities. The Modified Project also includes a revised pipeline alignment within Kitching Street, Iris Avenue, and Los Cabos Drive for the CCE Well 2 Option 3 site and a revised pipeline alignment within Perris Boulevard, Santiago Drive, Wedow Drive, and Iris Avenue for the CCE Well 2 Option 4 site. Neither of these pipeline alignments would permanently impact park or recreation facilities. There are several locations within Pedrorena Park where CCE Well 2 could be located if Option 3 is chosen. If the well is constructed in an open grassy area, it would occupy one-half acre of the park's approximately five and one-half acres, leaving approximately five acres of space area available for recreation (see *Section 4.13 a.iv.* for further explanation).

Although the Modified Project includes another park as a potential well extraction site option, only one site would be developed between CCE Well 2 Option 1 (Victoriano Park), CCE Well 2 Option 2 (Parque Amistad), CCE Well 2 Option 3 (Pedrorena Park) and CCE Well 2 Option 4 (vacant lot at Iris Avenue and Wedow Drive) Location of the extraction well at Pedrorena Park would be similar to the siting of extraction well in Victoriano Park or Parque Amistad and would not remove any recreational park space beyond what was analyzed in the MND. Construction of the well would not involve net loss of recreational facilities or equipment and impacts would be minimized through adherence to standard EMWD BMPs (see *Section 2.7 Environmental Commitments* of the MND). If CCE Well 2 Option 4 is chosen, impacts on recreational facilities could be reduced in comparison to impacts analyzed in the MND. Ongoing operation and maintenance activities associated with the extraction well would be minimal and would not interfere with regular use of the parks and park facilities. To minimize operational noise generated from the 24-hour pumping, the well would be enclosed within a concrete masonry unit well house and a six-foot tall concrete masonry unit wall would surround each well house. As with the Approved Project, the Modified Project would not impact existing park service ratio objectives nor increase the use of parks or other recreational facilities. Therefore, there would be no new impacts as a result of the Modified Project and no mitigation would be required.

b) No New Impact

Approved Project

The MND found that implementation of proposed Project would not require construction or expansion of recreational facilities which could have an adverse physical impact on the environment. As a result, no impact would occur.

Modified Project

The Modified Project would be implemented in a manner consistent with the MND and would not require construction of new or expansion of existing recreational facilities which could have an adverse physical impact on the environment. Therefore, there would be no new impact as a result of the Modified Project and no new mitigation would be required.

Mitigation Measures: None required or recommended.

4.15 Transportation and Traffic

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced Impact*
Would the Project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	[ ]	[ ]	[X]	[ ]
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	[ ]	[ ]	[X]	[ ]
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	[ ]	[ ]	[X]	[ ]
d) Result in inadequate emergency access?	[ ]	[ ]	[X]	[ ]

a) No New Impact

Approved Project

The MND found that construction of the Approved Project would not conflict with regional transportation plans or the City of Moreno Valley General Plan. All construction activities would occur within roadway rights of way, areas adjacent to the roadways, and within select parcels. Construction impacts would be temporary and limited to the 22-month construction period. Although construction-related traffic impacts would be temporary, closures of roadways, bicycle lanes, and sidewalks may be necessary. Implementation of **Mitigation Measure TRA-1** would require development and implementation of a Traffic Control Plan which would ensure that potential traffic related impacts would be less than significant. Operation of the Approved Project would not have a permanent impact on circulation. Therefore, the MND found that the Approved Project would have a less than significant impact with mitigation incorporated.

Modified Project

Construction of the Modified Project components, including the additional extraction well at Treatment Plant Site Option 1, new optional sites for CCE Well 2, and associated pipeline alignments would occur within roadway rights of way, areas adjacent to the roadways, and the vacant land parcels or park sites, similar to the Approved Project. Construction of an additional extraction well at the treatment/blending facility site and the modified pipeline alignments would be incorporated into the total 22-month construction period analyzed in the MND. **Mitigation Measure TRA-1**, which was previously adopted as part of the MND, would be implemented to reduce potential construction related circulation impacts to a less than significant level. Operation of the Modified Project would be similar to the Approved Project and would not have a permanent impact on traffic circulation. Therefore, there would be no new impacts and no new mitigation required as a result of the Modified Project.

b) No New Impact

Approved Project

CEQA Guidelines Section 15064.3, subdivision (b) outlines criteria for analyzing transportation impacts in terms of vehicle miles traveled (VMT), the amount and distance of automobile travel, for land use projects and transportation projects. The MND found that the Project would not significantly increase VMT in the Project area. Construction of the Approved Project would require trips associated with worker transportation, delivery of construction supplies and equipment, and hauling materials to and from the site; these trips would be temporary. Operation of the Project would require monthly visits to well sites and biweekly visits to the treatment facility site, but these trips would be incorporated into EMWD's existing operation and maintenance program. Construction and operation of the Project would not cause a notable increase in VMT that would exceed a City or County threshold of significance and would be consistent with CEQA Guidelines Section 15064.3, subdivision (b). Therefore, the MND found that the Project would have a less than significant impact related to VMT increases.

Modified Project

Although the Modified Project would require temporary vehicle trips during construction, only the new extraction well at Treatment Plant Option 1 site would result in a small amount of additional VMT compared to the Approved Project. VMT for CCE Well 2 was analyzed in the MND through the Option 1 and Option 2 sites. Only one of the CCE Well 2 sites would be chosen for construction, and addition of new site options Option 3 and Option 4 would not change the analysis that was conducted in the MND. Therefore, construction of the Modified Project would not cause a notable increase in VMT that would exceed a city or county threshold of significance. Operation of the new extraction well at the Approved Project Treatment Plant Option 1 site and, operation of either the CCE Well 2 Option 3 or Option 4 would require the monthly visits, similar to the trips identified for wells in the MND. However, operation and maintenance of the Modified Project extraction wells would be incorporated into EMWD's existing operation and maintenance program,

consistent with the MND. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

c) No New Impact

Approved Project

The MND found that impacts of the Project would be less than significant with mitigation incorporated. While construction of the Project may require some incompatible uses on roadways as the result of heavy construction equipment, these potential hazards would be temporary and roadways would be restored to pre-construction conditions once construction is complete. The MND found implementation of **Mitigation Measure TRA-1** would reduce potential impacts from the Project to less than significant.

Modified Project

As with the Approved Project, construction of the Modified Project may require incompatible roadways uses (such as transportation of heavy construction equipment) that may result in potential hazards. Implementation of previously adopted **Mitigation Measure TRA-1** would ensure that vehicle ingress and egress from construction sites and staging areas occurs safely and reduces potential impacts to less than significant. Construction would restore roadways to their prior conditions once pipeline installation is complete and would not result in hazardous geometric design features. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

d) No New Impact

Approved Project

The MND found that the Project would have a less than significant impact with implementation of **Mitigation Measure TRA-1**. Construction of the Project may require lane closures that have the potential to hinder emergency vehicle access. In order to prevent Project construction from interfering with emergency responders, implementation of **Mitigation Measure TRA-1** and traffic control measures would require that emergency crews are able to access Project sites and surrounding areas and are informed of construction locations. With this mitigation measure incorporated, impacts would be reduced to less than significant.

Modified Project

Construction activities of the Modified Project would be consistent with those analyzed in the MND and may require lane closures that could hinder emergency vehicle access. Implementation of **Mitigation Measure TRA-1**, which was previously adopted as part of the MND, would require emergency crews have access to and be informed of all Project construction sites. Implementation of previously adopted **Mitigation Measure TRA-1** would reduce potential impacts to less than significant. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

Mitigation Measures:

To mitigate possible impacts to circulation and emergency access during construction, EMWD shall implement **Mitigation Measure TRA-1**, which was previously adopted in the MND for the Approved Project. The Modified Project impacts are the same as the Approved Project: less than significant with mitigation incorporated. No new mitigation is required for the Modified Project.

4.16 Tribal Cultural Resources

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced 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	[ ]	[ ]	[X]	[ ]
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	[ ]	[ ]	[X]	[ ]

a) No New Impact

Approved Project

The MND found there are no cultural resources, Native American or historical, within the Project area. Most of the Approved Project area includes areas highly disturbed by urban development, which makes the possibility of encountering intact surface tribal cultural resources low. However, the lack of surface evidence of archaeological remains does not mean there is no potential for cultural resources to be found below the surface. There is potential for construction ground-disturbing activities to expose previously unrecorded tribal cultural resources. No archaeological resources have been previously recorded within or immediately adjacent to the Project area. Therefore, there is a relatively low potential for encountering substantial prehistoric archaeological remains during construction. To avoid or lessen potential the risk of impacting tribal cultural resources, **Mitigation Measures CUL-1** through **CUL-7** would be implemented to require agreements and monitoring plans be established prior to any ground-disturbing activities and require appropriate treatment of any inadvertently uncovered artifacts. Proper procedures would also be put in place if human remains are discovered during construction. Therefore, impacts on tribal cultural resources would be less than significant with the incorporation of mitigation.

Modified Project

The elements of the modified project are proposed within the same area as the Approved Project. No cultural resources, Native American or historical, were found in the CRAA. The Modified Project would be sited on highly disturbed, developed areas, which makes the possibility of encountering intact surface tribal cultural resources very low. Previously adopted **Mitigation Measures CUL-1** through **CUL-7** from the MND would also be implemented for the Modified Project to avoid or lessen potential risk of impacting tribal cultural resources. Therefore, no new impacts would occur and no new mitigation would be required.

Mitigation Measures:

To minimize impacts in the event of the discovery of unanticipated tribal resources during construction, EMWD shall implement **Mitigation Measures CUL-1** through **CUL-7** which were previously adopted in the MND for the Approved Project. Impacts of the Modified Project are the same as the Approved Project: less than significant with mitigation incorporated. No new mitigation is required for the Modified Project

4.17 Utilities and Service Systems

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced Impact*
Would the Project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	[ ]	[ ]	[X]	[ ]

As explained in *Section 1.4 Evaluation of Environmental Impacts*, resource areas that were found to have No Impact in the MND, and for which the Modified Project would also result in a finding of No Impact, are not analyzed further in this Addendum. This includes checklist questions (b) and (e) under Utilities and Service Systems.

a) No New Impact

Approved Project

The MND found that the environmental impacts of the Project's proposed new water production and associated conveyance and treatment facilities were mitigated to less than significant. Although the Project involves expansion of EMWD's water service infrastructure, the purpose of the Project is to offset imported water and increase water supply reliability. The Project would serve existing and planned communities and would not induce unplanned population or employment growth that would result in the construction of new or expanded water, wastewater treatment, stormwater drainage, electrical power, natural gas, or telecommunications facilities. The Project would not require improvements to the existing municipal storm water drain or electrical system because increases in runoff and electrical use would be minor. The impacts of the Project were evaluated throughout the MND and were mitigated to a less than significant level.

Modified Project

The Modified Project would serve existing and planned communities and would not result in expansion to EMWD's water service infrastructure beyond what was analyzed in the MND and this Addendum. Similar to the Approved Project, the Modified Project would not induce unplanned population or employment growth that would result in the construction of new or expanded wastewater treatment, stormwater drainage, electrical power, natural gas, or telecommunications facilities. Construction activities of the pipeline and extraction wells would be similar to those analyzed in the MND and would result in similar increases in runoff and electrical use. The impacts of the Modified Project are evaluated throughout this Addendum and would be less than significant with mitigation incorporated. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

c) No New Impact

Approved Project

The MND found that the amount of wastewater discharged into the sanitary sewer system - brackish or backwash water from the central treatment and blending facility - would be small compared to the approximately 43 million gallons per day (mgd) of wastewater EMWD treats throughout its service area. Operation of the Project would not induce unplanned population or employment growth that would result in or require expansion of existing wastewater collection or treatment services. Therefore, the MND found that the Project would have a less than significant impact.

Modified Project

The minimal amount of additional wastewater that would be discharged into the sanitary sewer system associated with adding one additional well would not be substantially greater than what was analyzed in the MND. The addition of site Options 3 and 4 for CCE Well 2 would not change the amount of wastewater discharge analyzed in the MND. In

addition, implementation of the Modified Project would not induce unplanned population or employment growth that would require expansion of existing wastewater collection or treatment services. Therefore, the Modified Project would have a less than significant impact on wastewater treatment. There would be no new impacts as a result of the Modified Project and no new mitigation would be required.

d) No New Impact

Approved Project

The MND found that the Project would have a less than significant impact to local landfill capacity. While operation of the Project would not produce long-term solid waste, soil and asphalt waste would be generated during construction of underground pipes, wells, and treatment/blending facilities. Excavated soil would be reused onsite to the extent feasible, but approximately 41,800 cubic yards (cy) of material would need to be disposed at a permitted landfill in accordance with local, state, and federal disposal requirements. Excess construction debris is reasonably anticipated to be within the permitted capacity of the Moreno Valley and Riverside County landfills after onsite backfill and adherence with mandatory construction waste diversion requirements. Impacts would be less than significant, and no mitigation would be required.

Modified Project

Construction activities of the Modified Project extraction wells would be similar to those identified in the MND. Therefore, the estimated amount of material export from construction of each of the extraction wells and associated well blow-off pond is consistent with the MND (*Section 2.2.1 Extraction Wells)*. As stated in *Section 2.2.2 Pipeline Alignment*, the Modified Project would increase the total estimated volume of material export from construction of the pipelines from 22,500 cy by about 1,100 cy if CCE Well 2 Option 1 is chosen, by about 500 cy if CCE Well 2 Option 3 is chosen, or by about 530 cy if CCE Well 2 Option 4 is chosen. Although approximately 35 percent of the excavated material would be re-used onsite as fill during the pavement restoration phase, the Modified Project would still result in a minimal increase of excess construction debris. However, the amount of solid waste to dispose of would not be significantly greater than what was analyzed in the MND and would be within the permitted capacity of the Moreno Valley and Riverside County landfills. Solid waste generation would be limited to temporary construction activities and would result in a less than significant impact. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

e) No New Impact

Approved Project

The MND found that construction and operation of the Project would comply with local, State, and federal regulations related to solid waste. While operation of the Project is not anticipated to generate long term solid waste, construction activities would create debris.

Excavated soil would be backfilled to the extent possible, but construction contractor(s) would be required to dispose of excess construction debris in accordance with existing reduction statutes (AB 939 and AB 341) and regulations. Therefore, impacts would be less than significant, and no mitigation would be required.

Modified Project

Similar to the Approved Project, generation of solid waste debris for the Modified Project would be limited to temporary construction activities and operation would produce minimal long-term solid waste. While excavated soil would be used as backfill to the extent possible, excess construction debris would require disposal to a landfill. Construction contractor(s) would be required to dispose of excess construction debris in accordance with the same local, State, and federal statutes and regulations identified in the MND. Therefore, impacts related to compliance with local, State, and federal reduction statues and regulations would be less than significant. There would be no new impacts as a result of the Modified Project and no new mitigation would be required.

Mitigation Measures: No additional mitigation measures required or recommended.

4.18 Wildfire Risk

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced 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?	[ ]	[ ]	[X]	[ ]

As explained in *Section 1.4 Evaluation of Environmental Impacts*, resource areas that were found to have No Impact in the MND, and for which the Modified Project would also result in a finding of No Impact, are not analyzed further in this Addendum. This includes check list question (b), (c), and (d) under Wildfire Risk

a) No New Impact

Approved Project

The MND found that temporary sidewalk and lane closures during construction could impair implementation of or physically interfere with the City of Moreno Valley Emergency Operations Plan (EOP) and Local Hazard Mitigation Plan (LHMP). Implementation of **Mitigation Measure TRA-1** would require EMWD to develop a Traffic Control Plan which would reduce conflict between Project construction activities and the EOP and LHMP. Therefore, the Approved Project would have a less than significant impact on adopted emergency response or evacuation plans with mitigation incorporated.

Modified Project

The Modified Project would add a new extraction well at the Approved Project Treatment Plant Option 1 site and two extraction well site options and associated pipeline alignments. While construction equipment staging would be located within vacant areas, construction activities would occur within easements and public rights of way and have impacts to the EOP and LHMP similar to the Approved Project. Implementation of previously adopted **Mitigation Measure TRA-1** would require EMWD to develop a Traffic Control Plan, which would reduce conflict between Project construction activities and the EOP and LHMP by requiring coordination with emergency services (police, fire, and others); requiring identification of roadways and access points for emergency services; and requiring that disruptions to or closures of these locations be minimized. All surfaces would be returned to pre-construction conditions after excavation, and implementation of the Modified Project would not add any additional vehicle trips for operation and maintenance. Therefore, there would be no new impacts as a result of the Modified Project and no new mitigation would be required.

Mitigation Measures:

To mitigate possible impacts to emergency access during construction, EMWD shall implement **Mitigation Measure TRA-1**, which was previously adopted in the MND for the Approved Project. The Modified Project impacts are the same as the Approved Project: less than significant with mitigation incorporated. No new mitigation is required for the Modified Project.

4.19 Mandatory Findings of Significance

	New Potentially Significant Impact	*New Mitigation Required*	*No New Impact/No Impact*	*Reduced Impact*
Does the Project:				
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	[ ]	[ ]	[X]	[ ]
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	[ ]	[ ]	[X]	[ ]
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	[ ]	[ ]	[X]	[ ]

a) No New Impact

With the implementation of mitigation measures, the Modified Project would have a less than significant impact on the environment. Potential construction impacts on burrowing owl, horned larks, and common avian species such as mourning doves and house finches would be reduced to a less than significant level through the implementation of mitigation

measures previously adopted in the MND, **Mitigation Measures BIO-1** and **BIO-2**. No cultural or archaeological resources were identified within the area that would be directly impacted by the Modified Project activities plus a one-half mile buffer; however, there is a potential for previously unknown cultural material to exist at Modified Project sites. With the implementation of **Mitigation Measures CUL-1** through **CUL-7**, which were previously adopted in the MND, potentially significant impacts on cultural resources would be reduced to less than significant. The Modified Project site overlies Holocene deposits, which have low paleontological sensitivity, overlying Pleistocene sediments at a depth of approximately 11 feet, which have high paleontological sensitivity. Impacts on paleontological resources are not anticipated because Fossiliferous deposits have the potential to occur at greater depths than most of the Modified Project ground disturbance. To ensure proper procedures are in place in the event of an unanticipated fossil discovery, previously adopted **Mitigation Measure GEO-1** would be implemented during all construction phases of the Modified Project. **Mitigation Measure GEO-1** would ensure any unanticipated fossil discovered onsite would be preserved, and potential impacts on paleontological resources would be less than significant.

With the incorporation of mitigation measures from the MND, the Modified Project would not result in an increase in the degradation of environmental resources or increase the severity of degradation identified in the MND. The Modified Project would have a less-than-significant impact with mitigation incorporated. There would be no new impact and no new mitigation would be required.

b) No New Impact

The MND evaluated cumulative impacts based on the *List-of-Projects Method*: a list of past, present, and probable future projects producing related or cumulative impacts (including, if necessary, those projects outside the control of the lead agency). The same method is used to evaluate the Modified Project. The Modified Project is currently being considered as one project of several within an EMWD grant application to the State Water Resources Control Board called the Perris North Groundwater Program. The other projects would result in the construction and operation of groundwater monitoring wells, extraction wells, treatment and distribution facilities also within the Perris North Basin. These projects are the Well 204 Project, Perris North Groundwater Monitoring Project, and the Well 65/66 Project. This same suite of projects was used to assess cumulative impacts in the Approved Project IS/MND.

The differences between the Modified Project and the Approved Project are incremental. The Modified Project would add one additional extraction well, up to 2,220 net additional feet of pipeline, and two new potential well sites (which provide new location options but would not increase the total number of wells in the project). As discussed in this Addendum, the Modified Project would not have a greater impact than the Approved Project for any environmental impact. Therefore, the Modified Project's contribution to cumulative impacts (such as fugitive dust, construction noise, traffic control, storm water control, handling/storage of hazardous materials, regulations related to protections for plants/wildlife/waters of the State and U.S, operational vehicle trips, etc.) would remain

less than significant. In addition, many of the potential short-term construction related impacts such as air quality, transportation, noise, hazards, biological resources, greenhouse gases, hydrology, and aesthetics would occur in individual localized areas within a discrete period of time, and potential for overlapping cumulative impacts among individual projects together with the Modified Project is minor. Therefore, these projects are not be expected to create impacts that are individually limited, but cumulatively considerable.

In addition to, and separate from, the Perris North Groundwater Program, EMWD is undertaking the Cactus II Feeder pipeline project, which will convey MWD water to EMWD's potable system. Turnout 2 for the Cactus II Feeder pipeline project is located at the same site as the proposed Project Option #1 Treatment Facility site. The Approved Project IS/MND evaluated the potential need for additional equipment storage/staging if construction of the Turnout and the Option #1 Treatment Facility Site (if selected) were to occur at same time. The Modified Project would add a second extraction well at this site, which could also require additional storage/staging at another EMWD property if the site cannot accommodate all equipment. As discussed in the MND, other existing EMWD property would be utilized, as necessary, for staging and intermediate storage for the installation of the water pipelines, or the contractor would be responsible for securing suitable temporary equipment storage/staging site(s) prior to construction, as well as implementing applicable environmental commitments at the staging area(s). Therefore, the cumulative effect is not expected to be considerable.

The Modified Project would not have impacts that are individually limited, but cumulatively considerable. The impacts of the Modified Project have been analyzed in accordance with the CEQA Guidelines; each topic has been found to have either no impact, a less than significant impact, or a less than significant impact with previously adopted mitigation from the MND incorporated. The Modified Project is of a limited scale, and, taken in sum with other projects in the area, would not produce cumulatively considerable impacts to the environment or human beings. Therefore, cumulative impacts of the Modified Project would be less than significant. There would be no new impacts and no new mitigation would be required.

c) No New Impact

The environmental evaluation in this Addendum found that the Modified Project would either have no impact, less-than-significant impacts, or less-than-significant impacts with previously adopted mitigation from the MND incorporated. Potential impacts on air quality, aesthetics, noise, hazardous materials, and traffic would all be reduced to less-than-significant levels with the implementation of applicable previously adopted mitigation measures (**Mitigation Measures AIR-1**, **AES-1**, **AES-2**, **AES-3**, **NOI-1**, **NOI-2**, **HAZ-1**, and **TRA-1**) that were included in the MND for the Approved Project. Therefore, the Modified Project would not result in any environmental effects that would cause substantial adverse effects on human beings directly or indirectly. The Modified Project would not result in a new or increased adverse effect to human beings. Impacts would

not be more severe than those identified in the MND, and no additional mitigation would be necessary.

5. ADDITIONAL REFERENCES

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Appendix A – CalEEMod Results

Cactus Corridor Addendum Model Run with Tier 4 Engines

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	20.00	1000sqft	0.46	20,000.00	0
Other Non-Asphalt Surfaces	427.00	1000sqft	9.80	427,000.00	0
Other Asphalt Surfaces	19.00	1000sqft	0.44	19,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	467.38	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Project Characteristics - Based on 2018 SCE information for Intensity Factor

Land Use - First line = new well pad
Second line = set prep for new well option location
thrid line = new pipe alingment

Construction Phase - Based on Engineer estimates and CalEEMod Default Ratios

Off-road Equipment - Based on Engineer Estimates

Off-road Equipment - Based on Engineering Estimates.
This phase lasts 24 hours a day to prevent borehold collapse. Thus, all normal 8hr/workday estimates have been multiplied by 3.

Trips and VMT - based on engineering estimates

Architectural Coating -

Vehicle Trips - No additional trips needed, well site is same location as treatment plant

Road Dust - Based on engineering estimates

Energy Use - None, this was captured in the other model run.

Water And Wastewater - No additional water use needed

Solid Waste - Brine disposal is covered in VMT

Construction Off-road Equipment Mitigation - Based on standard mitigation required by SCAQMD

Fleet Mix - Based on Engineerng estimates

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generators for 1 well site

Off-road Equipment - based on engineering estimates

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	30.00	14.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	PhaseEndDate	8/11/2021	4/10/2022
tblConstructionPhase	PhaseStartDate	7/1/2021	3/28/2022
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

tblOffRoadEquipment	OffRoadEquipmentType		Pavers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblProjectCharacteristics	CO2IntensityFactor	702.44	467.38
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	115.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	24.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	52.00
tblTripsAndVMT	WorkerTripNumber	35.00	15.00
tblTripsAndVMT	WorkerTripNumber	35.00	15.00
tblTripsAndVMT	WorkerTripNumber	35.00	15.00
tblTripsAndVMT	WorkerTripNumber	35.00	15.00
tblTripsAndVMT	WorkerTripNumber	35.00	15.00

2.0 Emissions Summary

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0979	0.8658	0.8542	1.8300e-003	0.0934	0.0393	0.1327	0.0335	0.0374	0.0708	0.0000	159.0407	159.0407	0.0335	0.0000	159.8786
Maximum	**0.0979**	**0.8658**	**0.8542**	**1.8300e-003**	**0.0934**	**0.0393**	**0.1327**	**0.0335**	**0.0374**	**0.0708**	**0.0000**	**159.0407**	**159.0407**	**0.0335**	**0.0000**	**159.8786**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0979	0.8658	0.8542	1.8300e-003	0.0586	0.0393	0.0979	0.0190	0.0374	0.0564	0.0000	159.0405	159.0405	0.0335	0.0000	159.8785
Maximum	**0.0979**	**0.8658**	**0.8542**	**1.8300e-003**	**0.0586**	**0.0393**	**0.0979**	**0.0190**	**0.0374**	**0.0564**	**0.0000**	**159.0405**	**159.0405**	**0.0335**	**0.0000**	**159.8785**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**37.21**	**0.00**	**26.19**	**43.11**	**0.00**	**20.36**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
3	1-1-2022	3-31-2022	0.1758	0.1758
4	4-1-2022	6-30-2022	0.7783	0.7783
		Highest	0.7783	0.7783

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0372	5.0000e-005	5.9500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0116	0.0116	3.0000e-005	0.0000	0.0123
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary	2.2600e-003	6.3300e-003	8.2200e-003	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004	0.0000	1.0510	1.0510	1.5000e-004	0.0000	1.0547
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0394**	**6.3800e-003**	**0.0142**	**1.0000e-005**	**0.0000**	**3.5000e-004**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**3.5000e-004**	**0.0000**	**1.0626**	**1.0626**	**1.8000e-004**	**0.0000**	**1.0670**

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0372	5.0000e-005	5.9500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0116	0.0116	3.0000e-005	0.0000	0.0123
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary	2.2600e-003	6.3300e-003	8.2200e-003	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004	0.0000	1.0510	1.0510	1.5000e-004	0.0000	1.0547
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0394**	**6.3800e-003**	**0.0142**	**1.0000e-005**	**0.0000**	**3.5000e-004**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**3.5000e-004**	**0.0000**	**1.0626**	**1.0626**	**1.8000e-004**	**0.0000**	**1.0670**

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

3.0 Construction Detail

Construction Phase

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Well Sites - Well Drilling	Grading	3/28/2022	4/10/2022	7	14	
2	Pipeline install	Trenching	5/3/2022	6/16/2022	5	33	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 10.7

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

OffRoad Equipment

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Well Sites - Well Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Well Sites - Well Drilling	Cranes	1	24.00	231	0.29
Well Sites - Well Drilling	Welders	1	18.00	46	0.45
Well Sites - Well Drilling	Air Compressors	1	18.00	78	0.48
Well Sites - Well Drilling	Pumps	1	18.00	84	0.74
Well Sites - Well Drilling	Generator Sets	1	18.00	84	0.74
Pipeline install	Air Compressors	1	6.00	78	0.48
Pipeline install	Concrete/Industrial Saws	1	6.00	81	0.73
Pipeline install	Cranes	1	4.00	231	0.29
Pipeline install	Dumpers/Tenders	2	6.00	16	0.38
Pipeline install	Excavators	1	6.00	158	0.38
Pipeline install	Generator Sets	1	6.00	84	0.74
Pipeline install	Off-Highway Trucks	1	2.00	402	0.38
Pipeline install	Pavers	1	6.00	130	0.42
Pipeline install	Pumps	1	6.00	84	0.74
Pipeline install	Sweepers/Scrubbers	1	6.00	64	0.46
Pipeline install	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Pipeline install	Welders	1	6.00	46	0.45
Well Sites - Well Drilling	Excavators	2	8.00	158	0.38
Well Sites - Well Drilling	Graders	1	8.00	187	0.41
Well Sites - Well Drilling	Rubber Tired Dozers	1	8.00	247	0.40
Well Sites - Well Drilling	Scrapers	2	8.00	367	0.48
Well Sites - Well Drilling	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Well Sites - Well Drilling	14	15.00	0.00	15.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	14	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	14	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	14	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Sites - Well Drilling	14	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline install	13	33.00	0.00	52.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Well Sites - Well Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0607	0.0000	0.0607	0.0252	0.0000	0.0252	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0573	0.5525	0.4673	1.0600e-003		0.0241	0.0241		0.0228	0.0228	0.0000	92.3722	92.3722	0.0230	0.0000	92.9473
Total	**0.0573**	**0.5525**	**0.4673**	**1.0600e-003**	**0.0607**	**0.0241**	**0.0848**	**0.0252**	**0.0228**	**0.0479**	**0.0000**	**92.3722**	**92.3722**	**0.0230**	**0.0000**	**92.9473**

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.2 Well Sites - Well Drilling - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	1.8500e-003	4.4000e-004	1.0000e-005	5.2000e-004	1.0000e-005	5.2000e-004	1.3000e-004	1.0000e-005	1.4000e-004	0.0000	0.5561	0.5561	4.0000e-005	0.0000	0.5571
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0500e-003	1.4600e-003	0.0169	5.0000e-005	0.0257	4.0000e-005	0.0258	6.4300e-003	4.0000e-005	6.4700e-003	0.0000	4.8425	4.8425	1.2000e-004	0.0000	4.8456
Total	**2.1000e-003**	**3.3100e-003**	**0.0174**	**6.0000e-005**	**0.0263**	**5.0000e-005**	**0.0263**	**6.5600e-003**	**5.0000e-005**	**6.6100e-003**	**0.0000**	**5.3986**	**5.3986**	**1.6000e-004**	**0.0000**	**5.4027**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0260	0.0000	0.0260	0.0108	0.0000	0.0108	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0573	0.5525	0.4673	1.0600e-003		0.0241	0.0241		0.0228	0.0228	0.0000	92.3721	92.3721	0.0230	0.0000	92.9472
Total	**0.0573**	**0.5525**	**0.4673**	**1.0600e-003**	**0.0260**	**0.0241**	**0.0500**	**0.0108**	**0.0228**	**0.0335**	**0.0000**	**92.3721**	**92.3721**	**0.0230**	**0.0000**	**92.9472**

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.2 Well Sites - Well Drilling - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	1.8500e-003	4.4000e-004	1.0000e-005	5.2000e-004	1.0000e-005	5.2000e-004	1.3000e-004	1.0000e-005	1.4000e-004	0.0000	0.5561	0.5561	4.0000e-005	0.0000	0.5571
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0500e-003	1.4600e-003	0.0169	5.0000e-005	0.0257	4.0000e-005	0.0258	6.4300e-003	4.0000e-005	6.4700e-003	0.0000	4.8425	4.8425	1.2000e-004	0.0000	4.8456
Total	**2.1000e-003**	**3.3100e-003**	**0.0174**	**6.0000e-005**	**0.0263**	**5.0000e-005**	**0.0263**	**6.5600e-003**	**5.0000e-005**	**6.6100e-003**	**0.0000**	**5.3986**	**5.3986**	**1.6000e-004**	**0.0000**	**5.4027**

3.3 Pipeline install - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0362	0.3020	0.3504	6.3000e-004		0.0151	0.0151		0.0145	0.0145	0.0000	54.3196	54.3196	0.0101	0.0000	54.5718
Total	**0.0362**	**0.3020**	**0.3504**	**6.3000e-004**		**0.0151**	**0.0151**		**0.0145**	**0.0145**	**0.0000**	**54.3196**	**54.3196**	**0.0101**	**0.0000**	**54.5718**

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

3.3 Pipeline install - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-004	6.4300e-003	1.5100e-003	2.0000e-005	4.5000e-004	2.0000e-005	4.7000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.9279	1.9279	1.4000e-004	0.0000	1.9313
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1300e-003	1.5200e-003	0.0176	6.0000e-005	5.9700e-003	4.0000e-005	6.0200e-003	1.5900e-003	4.0000e-005	1.6300e-003	0.0000	5.0224	5.0224	1.3000e-004	0.0000	5.0256
Total	**2.3200e-003**	**7.9500e-003**	**0.0191**	**8.0000e-005**	**6.4200e-003**	**6.0000e-005**	**6.4900e-003**	**1.7100e-003**	**6.0000e-005**	**1.7700e-003**	**0.0000**	**6.9503**	**6.9503**	**2.7000e-004**	**0.0000**	**6.9569**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0362	0.3020	0.3504	6.3000e-004		0.0151	0.0151		0.0145	0.0145	0.0000	54.3196	54.3196	0.0101	0.0000	54.5717
Total	**0.0362**	**0.3020**	**0.3504**	**6.3000e-004**		**0.0151**	**0.0151**		**0.0145**	**0.0145**	**0.0000**	**54.3196**	**54.3196**	**0.0101**	**0.0000**	**54.5717**

3.3 Pipeline install - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-004	6.4300e-003	1.5100e-003	2.0000e-005	4.5000e-004	2.0000e-005	4.7000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.9279	1.9279	1.4000e-004	0.0000	1.9313
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1300e-003	1.5200e-003	0.0176	6.0000e-005	5.9700e-003	4.0000e-005	6.0200e-003	1.5900e-003	4.0000e-005	1.6300e-003	0.0000	5.0224	5.0224	1.3000e-004	0.0000	5.0256
Total	**2.3200e-003**	**7.9500e-003**	**0.0191**	**8.0000e-005**	**6.4200e-003**	**6.0000e-005**	**6.4900e-003**	**1.7100e-003**	**6.0000e-005**	**1.7700e-003**	**0.0000**	**6.9503**	**6.9503**	**2.7000e-004**	**0.0000**	**6.9569**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.552712	0.042774	0.202769	0.116939	0.015078	0.005847	0.021692	0.031910	0.002110	0.001769	0.004822	0.000710	0.000869
Other Asphalt Surfaces	0.552712	0.042774	0.202769	0.116939	0.015078	0.005847	0.021692	0.031910	0.002110	0.001769	0.004822	0.000710	0.000869

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0372	5.0000e-005	5.9500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0116	0.0116	3.0000e-005	0.0000	0.0123
Unmitigated	0.0372	5.0000e-005	5.9500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0116	0.0116	3.0000e-005	0.0000	0.0123

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.4800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0301					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.5000e-004	5.0000e-005	5.9500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0116	0.0116	3.0000e-005	0.0000	0.0123
Total	**0.0372**	**5.0000e-005**	**5.9500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0116**	**0.0116**	**3.0000e-005**	**0.0000**	**0.0123**

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.4800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0301					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.5000e-004	5.0000e-005	5.9500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0116	0.0116	3.0000e-005	0.0000	0.0123
Total	**0.0372**	**5.0000e-005**	**5.9500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0116**	**0.0116**	**3.0000e-005**	**0.0000**	**0.0123**

7.0 Water Detail

7.1 Mitigation Measures Water

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

Cactus Corridor Addendum Model Run with Tier 4 Engines - South Coast Air Basin, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	24	115	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (100 - 175 HP)	2.2600e-003	6.3300e-003	8.2200e-003	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004	0.0000	1.0510	1.0510	1.5000e-004	0.0000	1.0547
Total	**2.2600e-003**	**6.3300e-003**	**8.2200e-003**	**1.0000e-005**		**3.3000e-004**	**3.3000e-004**		**3.3000e-004**	**3.3000e-004**	**0.0000**	**1.0510**	**1.0510**	**1.5000e-004**	**0.0000**	**1.0547**

11.0 Vegetation

Appendix B - Biological Resources Assessment Addendum

Rincon Consultants, Inc.

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August 18, 2020
Project No: 19-08223

Rosalyn Prickett, AICP
Senior Water Resources Planner
Woodard & Curran, Inc.
9665 Chesapeake Drive, Suite 320
San Diego, California 92123

Subject: Biological Resources Assessment Addendum for the Cactus Avenue Corridor Project, Riverside County, California

Dear Ms. Prickett:

This report documents the findings of a Biological Resources Assessment Addendum conducted by Rincon Consultants, Inc. (Rincon), for the Eastern Municipal Water District's (EMWD) proposed Cactus Avenue Corridor Project ("project"). Rincon prepared a Biological Resources Assessment (BRA) for the project in March 2020. The original project description, potential impacts to sensitive biological resources, and recommended measures to reduce those impacts to a less-than-significant level are discussed in the BRA. Since then, revised project activities and work locations have been identified, including a new extraction well site option at Pedrorena Park (East Well 2 Option 3) and approximately 3,500 linear feet of associated pipelines, and an additional extraction well site option (East Well 2 Option 4) and approximately 4,400 linear feet of associated 12-inch raw water pipeline alignment alternatives in the City of Moreno Valley (City), California (collectively, "new project sites"). The purpose of this Addendum is to document existing site conditions at the new project sites via desktop review and field survey, and evaluate potential impacts to sensitive biological resources at these locations relative to those previously analyzed in the BRA. The East Well 2 Option 3 site and associated 3,500 linear feet of interconnecting pipelines (collectively referred to below as the East Well 2 Option 3 components) and the East Well Option 4 site and associated 4,400 linear feet of pipeline alignment alternatives (collectively referred to below as the East Well Option 4 components) includes the proposed limits of work and an additional 25-foot buffer around these sites. The report also contains the results of a habitat assessment for burrowing owl (*Athene cunicularia*; BUOW) and includes an analysis of potential project-related impacts to a new 10.6-acre project site (East Well 2 Option 4) and an additional 500-foot buffer around the East Well 2 Option 4 site. These project components are hereinafter referred to as the "study area".

Project Location and Description

The new project sites are located in the City in western Riverside County, California (Figures 1a and 1b), in Township 3 south, Range 3 west, Sections 19, 20, and 29 of the United States Geological Survey (USGS) *Sunnymead, CA* 7.5-minute topographic quadrangle. The revised project elements include two newly proposed extraction well sites, one at Pedrorena Park (East Well 2 Option 3) and one east of Perris Boulevard and south of the intersection of Iris Avenue and Wedow Drive (East Well 2 Option 4),

and interconnecting pipelines spanning approximately 3,500 linear feet of developed area at one location (associated with East Well 2 Option 3) and approximately 4,400 linear feet at another location (associated with East Well 2 Option 4) throughout the city. Figure 1a shows the East Well 2 Option 3 components and Figure 1b shows the East Well 2 Option 4 components. The new project sites are generally characterized by developed, disturbed, and non-native grassland areas with surrounding lands used for residential, recreational, commercial, educational, and light industrial purposes. Descriptions of the additional project elements are provided below.

Extraction Wells

East Well 2 Option 3

A new location option for extraction well East Well 2 is proposed for Pedrorena Park and would be constructed as part of the project. The extraction well would be constructed in two phases: a well drilling phase and a well equipping phase. Construction of the extraction well is expected to result in temporary disturbance of 100 percent of the selected parcel site. The well site would be designed to utilize the existing grade of the parcel where applicable. The well would be constructed with an accompanying overflow (i.e., blow-off) pond. Portable, steel liquid container tanks (i.e., Baker Tanks) would be used for onsite dewatering clarification.

East Well 2 Option 4

The triangular, vacant parcel south of the Iris Avenue and Wedow Drive intersection was identified as a new alternative site for Cactus Corridor East Well 2. If selected, a well would be constructed that is consistent in size and depth with Cactus Corridor East Well 2 Option 1 and 2 (at Victoriano Park or Parque Amistad). The well would be located in the northwest corner of the site where the closest residential property lines would be approximately 100 feet from the well drilling site, opposite Iris Avenue. The proposed well option at Iris Avenue and Wedow Drive is referred to as Cactus Corridor East Well 2 Option 4 in this Addendum.

Pipelines

East Well 2 Option 3

Approximately 3,500 linear feet of revised alignment pipelines would be constructed to convey raw water from the extraction well to the proposed treatment plant. This pipeline alignment option would be located primarily within easements, roadway rights of way, and EMWD-owned land. This pipeline alignment option generally extends southeast along Los Cabos Drive south of Victoriano Park (site of East Well 2 Option 1), west along Iris Avenue, and north along Kitching Street as shown on Figure 1a.

East Well 2 Option 4

Two options for another new alignment are currently under consideration. Under the first option, the alignment would run from Cactus Corridor East Well 2 Option 4 east on Iris Avenue, then north along Wedow Drive, then northwest along Nan Avenue to Santiago Drive where it would meet the raw water pipeline corridor that was analyzed by the BRA. Alternatively, under the second option, the alignment would run west from Cactus Corridor East Well 2 Option 4 along Iris Avenue, then north along Perris

Boulevard where it would meet the raw water pipeline corridor on Perris Boulevard that was analyzed by the BRA. These two options are shown on Figure 1b.

The revised pipelines would be installed using open cut trench construction, as well as trenchless boring techniques. Open cut excavation would be used in existing roadways, except at crossings of existing facilities, utilities, and storm channels, where trenchless "jack and bore" methods would be used. Pipelines installed using open cut methods would include a trenching depth of up to seven feet. The estimated trench width would be equal to two feet plus the pipeline diameter, for a width of up to five feet. When trenchless techniques are required, pipelines would be constructed using jack and bore methods. For this construction method, pits would be dug on either side of the surface feature to be avoided (e.g., storm channel or existing utilities). The pits are typically 10-15 feet wide and 10-20 feet long for the receiving pit and up to 50 feet long for the jacking pit. The depth would depend on the feature to be avoided.

Methodology

Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees.

Environmental Statutes

For the purpose of this report, potential impacts to biological resources were analyzed based on the following statutes:

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- City of Moreno Valley Municipal Code (City of Moreno Valley 1997)
- Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)(2003)

Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by the CEQA Guidelines Appendix G Initial Study Checklist, were used to evaluate potential environmental effects. Based on these criteria, the proposed project would have a significant effect on biological resources if it would:

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

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

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal areas, 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.

Literature Review

Prior to the field visit, a literature review was conducted to establish the environmental and regulatory setting of the new project site. The literature review included the U.S. Department of Agriculture (USDA) *Soil Survey for the Western Riverside Area* (2020a), *Sunnymead, CA* USGS 7.5-minute topographic quadrangle, literature detailing the habitat requirements of subject species, and aerial photographs (Google Earth 2020) and topographic maps (USGS 1979). The MSHCP, species accounts, and other reference materials were reviewed for habitat assessment requirements as well as habitat suitability elements for special status species. The primary objective of the habitat assessment was to evaluate the study area's potential to support special status species as well as to determine the applicability of other MSHCP and CEQA requirements as they pertain to the proposed project.

The California Department of Fish and Wildlife (CDFW) California Natural Diversity Data Base (CNDDB; CDFW 2020a), Biogeographic Information and Observation System (BIOS; CDFW 2020b) and United States Fish and Wildlife Service (USFWS) Critical Habitat Portal (USFWS 2020a) and Information, Planning, and Consultation (IPaC; USFWS 2020b) system were reviewed to determine if any special status wildlife, plant or vegetation communities were previously recorded within five miles of the study area. Map review of the U.S. Forest Service (USFS)-managed National Wild and Scenic River System was performed to assess whether wild or scenic rivers occurred in the study area (USFS 2020). The National Wetlands Inventory (NWI; USFWS 2020c) was reviewed to determine if any wetland and/or non-wetland waters had been previously documented and mapped on or in the vicinity of the proposed study area. Other resources reviewed included the California Native Plant Society (CNPS) online *Inventory of Rare and Endangered Plants of California* (2020), and CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (2020c).

Field Reconnaissance Survey

Two field reconnaissance surveys of the study area were conducted to document existing site conditions and the potential presence of sensitive biological resources, including special status plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. Rincon Senior Biologist Ryan Gilmore conducted a reconnaissance survey of the East Well 2 Option 3 components on July 1, 2020, between the hours of 0700-0900. Rincon Senior Biologist Jared Reed conducted a reconnaissance survey of the East Well 2 Option 4 components on August 4, 2020 between the hours of 0645-0945. The biologists surveyed the respective study areas on foot and visually inspected the areas with the aid of binoculars (8 x 40) as necessary.

Identification of potentially jurisdictional aquatic resources during the reconnaissance surveys included any potential wetlands and non-wetland waters that may constitute waters of the U.S., waters of the State, streambeds, and/or riparian/riverine or vernal pool resources. During the surveys, the biologists noted general site characteristics, documented vegetation, and took representative photographs (Appendix A). On July 1, 2020, survey conditions included a temperature of 72 degrees Fahrenheit (°F), clear skies, and winds of 0-3 miles per hour (mph). On August 4, 2020, survey conditions included a temperature of 67°F, clear skies, and winds of 0-3 mph.

BUOW Habitat Assessment

The BUOW habitat assessment and focused burrow survey were conducted for the East Well 2 Option 4 site on August 4, 2020, between the hours of 0645-0945. Rincon Senior Biologist Jared Reed walked the entire 10.6-acre Cactus Corridor East Well 2 Option 4 site and 500-foot buffer, where accessible, to identify potential burrows and BUOW sign. Areas of focus included all topographic relief areas characterized by low growing vegetation, grasslands, shrub lands with low density shrub cover, earthen berms, and any large debris piles. Access to adjacent properties was not granted. Therefore, these areas were surveyed with binoculars to the maximum extent feasible from the edge of the project site boundary. The survey included a systematic search for burrows and BUOW sign by walking through potential habitat within the East Well 2 Option 4 site and 500-foot buffer. Survey transects were spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines did not exceed 30 meters (approximately 100 feet) and were reduced to account for differences in terrain, vegetation density, and ground surface visibility. Burrow openings large enough to provide entry for BUOWs were carefully checked for prey remains, cast pellets, white-wash, feathers, or any other indication of BUOW presence. Potential burrows, BUOW individuals, and/or sign (if observed) were recorded and mapped using Global Positions System (GPS) coordinates.

Existing Conditions

Physical Characteristics

The study area is located in arid western Riverside County, which is characterized by long, hot, dry summers and short, relatively wet winters. Average temperatures range from 65 to 96 degrees Fahrenheit (°F) during the summer and 41 to 65°F during the winter. The average annual precipitation in the region is 6-11 inches (United States Climate Data 2020).

Current land use at the East Well 2 Option 3 site consists of developed areas, schools, and public parks. Areas of similar land use are located in the surrounding vicinity. The location of East Well 2 Option 3 is within Pedrorena Park, a public park maintained by the City. The proposed pipeline alignment associated with East Well 2 Option 3 is along the following developed roadways: Iris Avenue, Kitching Street, and Los Cabos Drive.

The East Well 2 Option 4 site is a vacant lot. The surrounding setting is a mixture of residential and commercial land uses. To the west, opposite an approximately six-foot block wall is a shopping center. Val Verde Academy, a public third through twelfth grade school, is also located on the western border of the proposed site. The site is bordered to the east by the back side of one- and two-story residences shielded by six- to eight-foot wooden fences. The well would be located in the northwest corner of the site where the closest residential property lines would be approximately 100 feet from the well drilling site, opposite Iris Avenue. Both associated pipeline alignments are located in developed roadways. The first pipeline alignment option is along Iris Avenue, Wedow Drive, Nan Avenue and Santiago Drive. The second pipeline alignment option is along Iris Avenue and Perris Boulevard.

Watershed and Drainages

The study area is located in the same watershed as described in the original BRA: the Santa Ana River watershed, which is drained by the Santa Ana River and the San Jacinto River. A formal jurisdictional delineation of waters and wetlands was not completed. The East Well 2 Option 3 pipeline alignment crosses a concrete storm channel located along Kitching Street. This channel is potentially subject to the jurisdiction of the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW. The project would use trenchless jack-and-bore construction methods to cross underneath this channel crossing. No drainages, vernal pools or features containing surface water are located in the East Well 2 Option 4 site or associated pipeline alignment options. The California Aqueduct Pipeline, however, is located along the west side of the East Well 2 Option 4 site.

The project sites are underlain by moderately well-drained soils. No areas with standing water were observed within either of the proposed project sites.

Topography and Soils

Topography at the project sites is relatively level. The elevation ranges from 1,500 feet above mean sea level (msl) in the northwest corner of the East Well 2 Option 3 and associated pipeline alignment and gradually decreases to approximately 1,493 feet above msl in the southeast corner. At the East Well 2 Option 4 site and associated pipeline alignment, the elevation ranges from 1,492 feet above msl in the south corner and gradually increases to 1,513 feet above msl at the intersection of Perris Boulevard and Santiago Drive.

The Natural Resources Conservation Service (NRCS) Web Soil Survey identifies six soil map units within the project sites (NRCS 2020a)(Figures 2a and 2b). These six map units can be organized into five soil series, four of which are described in greater detail in the original BRA: Greenfield, Pachappa, Domino and Hanford soils. The fifth soil series underlying the project sites is Exeter soils. Based on Rincon's observations of soil surface conditions during the reconnaissance surveys, the soils on site are generally consistent with those mapped by the NRCS Web Soil Survey with the exception of developed areas that have removed these soils on the ground surface. Exeter sandy loam, 0 to 2 percent slopes is found in the south corner of the East Well 2 Option 4 site. Greenfield sandy loam with 0-2 percent slopes comprises

the majority of the East Well 2 Option 4 site and is also found along Kitching Street and the north portion of Perris Boulevard, a small portion of Wedow Drive and most of Nan Avenue in the study area. Pachappa fine sandy loam with 0-2 percent slopes, eroded is found only on the southwest corner of the study area at the intersection of Kitching Street and Iris Avenue. Hanford coarse sandy loam with 0-2 percent slopes is found in the south portion of Perris Boulevard near its intersection with Iris Avenue. Domino fine sandy loam (eroded) and silt loam (saline-alkali) is mapped within the East Well 2 Option 3 site and in the northwest portion of the pipeline alignment option along Los Cabos Drive. Hanford fine sandy loam, 0 to 2 percent slopes is mapped in the west and northeast portions of the East Well 2 Option 4 site and intermittently along both associated pipeline alignment options. No soils present at the project site are designated as hydric.

Vegetation Communities/Land Cover Types

One vegetation community, non-native annual grassland, and two land cover types, developed land and disturbed areas, occur within the study area (Figures 3a and 3b). A list of plant species observed within the study area is included as Appendix B.

Developed

Developed land cover is the dominant land cover type found in the study area and consists of development such as asphalt roads, graveled access roads, parking areas, storage and residential areas. These areas have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported.

Disturbed

Disturbed areas are found in portions of the East Well 2 Option 4 site and consist of areas which have undergone disking activities and dirt roads. These areas only contain sparse ruderal vegetation, such as prickly lettuce (*Lactuca serriola*), horseweed (*Erigeron canadensis*) and jimson weed (*Datura wrightii*).

Non-Native Annual Grassland (42200)

Non-native annual grassland is the only natural vegetation community found within the project site. This community is typically dominated by a dense cover of annual grasses that usually include wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*). On the project site, non-native annual grassland areas contained these annual grasses and also included Russian thistle (*Salsola tragus*), common fiddleneck (*Amsinckia intermedia*), prickly lettuce and horseweed. This vegetation community consists of approximately 2.8 acres, or approximately 26 percent, of the East Well 2 Option 4 site. It is located in the central portion of the triangular parcel where recent disking had not occurred.

General Wildlife

The study area provides limited habitat for wildlife species that commonly occur within urban communities in Riverside County. Common urban-adapted avian species such as common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), rock pigeon (*Columba livia*), black phoebe (*Sayornis nigricans*), Eurasian collared-dove (*Streptopelia decaocto*), Anna's hummingbird (*Calypte anna*), cliff swallow (*Petrochelidon pyrrhonota*), mourning dove (*Zenaida macroura*), house finch (*Haemorhous*

mexicanus), lesser goldfinch (*Spinus psaltria*), ring-billed gull (*Larus delawarensis*), northern mockingbird (*Mimus polyglottos*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*) and desert cottontail (*Sylvilagus audubonii*) were observed on site during both surveys. No sensitive species were observed within the study area.

Sensitive Biological Resources Impact Analysis and Recommended Measures

Based on review of aerial photographs and the field reconnaissance survey, Rincon evaluated the potential presence of sensitive biological resources on and adjacent to the site.

Special Status Species

For the purposes of this analysis, special status species are defined and their potential to occur analyzed as described in the original BRA. The revised pipeline alignment and extraction well site are located within the original five-mile database search radius described in the original BRA, which identified ten sensitive plant species and 30 sensitive wildlife species. No additional special status species were identified within the revised project locations. No special status species were determined to have potential to occur within the study area. Sensitive plant and wildlife species typically have very specific habitat requirements, which are not found in the study area.

Special Status Plant Species

The new project sites are located within a highly disturbed area and developed urban transportation corridor. Additionally, proposed locations for the extraction well and pipeline alignment contain non-native annual grassland, are disturbed and developed, and surrounded by residential development. Due to the lack of specific habitat types or suitable substrates as well as the high levels of historic and existing developments, sensitive plant species are not expected to occur in the study area. Therefore, impacts to sensitive plant species are not expected. As discussed in the BRA, due to the lack of specific habitat types or suitable substrates as well as the high levels of historic and existing disturbance, sensitive plant species are not expected to occur on the site. The severity of the impact of the revised project components would be equal to that identified in the original BRA and no additional measures are recommended.

Special Status Wildlife Species

The new project sites are located within a highly disturbed area, a developed urban transportation corridor and residential development, though some non-native annual grassland exists in East Well 2 Option 4. Because of the lack of specific habitats as well as high levels of historic and existing disturbance, the sites are not suitable for most special status wildlife species. Special status wildlife species are not expected to occur due to lack of suitable habitat (e.g., riparian, scrub, woodland). No special status wildlife species were observed during the reconnaissance field survey. As discussed in the BRA the literature review identified 30 special status wildlife species recorded within five miles of the site. Twenty-eight of these species are not expected to occur due to lack of suitable habitat (e.g., riparian, scrub, woodland).

No suitable habitat for special-status species is present at the East Well 2 Option 3 components as these areas are comprised of develop land. Low quality or marginal foraging and/or nesting habitat for two sensitive wildlife species, BUOW and California horned lark (*Eremophila alpestris actia*), occurs within and adjacent to the East Well 2 Option 4 components. Undeveloped areas at the East Well 2 Option 4 site that contain marginally suitable habitat are largely dominated by low-growing, non-native ruderal species. California horned lark are typically ground nesters and are capable of nesting on bare ground which is present within the site. Small mammal burrows too small for BUOW use were observed in a small bare area on the north side of Iris Avenue near its intersection with Perris Boulevard. As discussed in the BRA, the potential for these species to occur is low given the low habitat quality, the site's location within a heavily travelled urban transportation corridor, and high levels of existing disturbance which would likely deter individuals from long-term use of the site. No horned larks, BUOW, or signs of either species (e.g., pellets or white wash) were observed during the reconnaissance field survey. Notwithstanding, implementation of a BUOW Preconstruction Clearance Survey and associated measures, as identified in the original BRA and described below, would ensure potential impacts to BUOW remain at a less-than-significant level. The severity of the impact of the revised project components would be equal to that identified in the original BRA.

- **BUOW Preconstruction Clearance Survey.** A qualified wildlife biologist shall conduct a pre-construction survey of the impact areas to confirm presence/absence of BUOW individuals no more than 30 days prior to construction. The survey methodology will be consistent with the methods outlined in the CDFW *Staff Report on Burrowing Owl Mitigation* (2012). If no active breeding or wintering owls are identified, no further mitigation is required.

  If burrowing owls are determined to be occupying the site, the following mitigation measures shall be implemented in accordance with the CDFW *Staff Report on Burrowing Owl Mitigation* (2012):

  - A qualified wildlife biologist shall be onsite during initial ground-disturbing activities in potential BUOW habitat.
  - No ground-disturbing activities shall be permitted within a buffer no less than 200 meters (656 feet) from an active burrow, depending on the level of disturbance, unless otherwise authorized by CDFW. Occupied burrows will not be disturbed during the nesting season (February 1 to August 31), unless a qualified biologist verifies through noninvasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival.
  - During the nonbreeding (winter) season (September 1 to January 31), ground-disturbing work can proceed near active burrows as long as the work occurs no closer than 50 meters (165 feet) from the burrow, depending on the level of disturbance, and the site is not directly affected by the project activity. A smaller buffer may be established in consultation with CDFW. If active winter burrows are found that would be directly affected by ground-disturbing activities, owls can be excluded from winter burrows according to recommendations made in the *Staff Report on Burrowing Owl Mitigation* (2012).
  - BUOW shall not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed based on the recommendations made in the St*aff Report on Burrowing Owl Mitigation* (2012). The plan shall include, at a minimum:
    - Confirmation by site surveillance that the burrow(s) is empty of BUOW and other species
    - Type of scope to be used and appropriate timing of scoping

- Occupancy factors to look for and what shall guide determination of vacancy and excavation timing
- Methods for burrow excavation
- Removal of other potential owl burrow surrogates or refugia onsite
- Methods for photographic documentation of the excavation and closure of the burrow
- Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take
- Methods for assuring the impacted site shall continually be made inhospitable to BUOW and fossorial mammals

- Compensatory mitigation for lost breeding and/or wintering habitat shall be implemented onsite or off-site through implementation of a Mitigation Land Management Plan based on the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) guidance. The plan shall include the following components, at a minimum:
  - Temporarily disturbed habitat on the project site shall be restored, if feasible, to pre-project conditions, including decompacting soil and revegetating;
  - Permanent impacts to nesting, occupied and satellite burrows and/or BUOW habitat shall be mitigated such that the habitat acreage, number of burrows and BUOW impacted are replaced based on a site-specific analysis which includes conservation of similar vegetation communities comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals;
  - Mitigation land acreage shall not exceed the size of the project site;
  - Permanently protect mitigation land through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a CDFW approved BUOW conservation bank, the project operator may purchase available BUOW conservation bank credits.
  - Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment. Mitigation lands shall be on, adjacent or proximate to the impact site where possible and where habitat is sufficient to support BUOW present.

Nesting Birds

Shrubs and trees located within the study area could provide suitable nesting habitat for several common avian species that were observed during the July 1 and August 4, 2020, reconnaissance surveys. Bird nests and eggs are protected by CFGC 3503 and the MBTA. Common species such as mourning dove and house finch have the potential to nest in shrubs, even in highly disturbed settings. No nests or birds exhibiting nesting behaviors were observed during the reconnaissance site visits. Implementation of a Preconstruction Nesting Bird Survey, as identified in the original BRA and described below, would reduce potential impacts to nesting birds to a less-than-significant level. The severity of the impact of the revised project components would be equal to that identified in the original BRA.

- **Preconstruction Nesting Bird Survey.** If project activities must occur during the avian nesting season (February to September), a survey for active nests must be conducted by a qualified biologist, one to two weeks prior to the activities. If active nests are identified and present onsite, clearing and

construction within 50-250 feet of the nest, depending on the species involved (50 feet for common urban-adapted native birds and up to 250 feet for raptors), shall be postponed until the nest is vacated and juveniles have fledged, and there is no evidence of a second attempt at nesting. Limits of construction to avoid a nest site shall be established in the field by a qualified biologist with flagging and stakes or construction fencing. Construction personnel shall be instructed regarding the ecological sensitivity of the fenced area. If construction must occur within this buffer, it shall be conducted at the discretion of a qualified biological monitor to assure that indirect impacts to nesting birds are avoided.

Sensitive Plant Communities

The study area does not contain riparian habitat or other sensitive natural communities. Therefore, no impacts are expected. As discussed in the BRA, sensitive natural communities and riparian habitat are not present in the study area. The severity of the impact of the revised project components is equal to that identified in the original BRA and no additional measures are recommended.

Jurisdictional Waters and Wetlands

The study area consists of non-native annual grassland, disturbed and developed areas. The majority of surrounding land use includes residential and commercially developed areas intermixed with small isolated areas of open space, vacant, and public lands. The NWI identified a single potential jurisdictional feature along the west side of Kitching Street and outside of the East Well 2 Option 3 site; however, this feature is a large trapezoidal concrete channel. The channel crosses under the street at the intersection with Iris Avenue and continues southeast within the residential areas outside of the study area. This feature diverts surface water runoff into underground stormwater channels. This channel is potentially subject to the jurisdiction of the USACE, RWQCB, or CDFW. However, no hydric soils are present within the channel. No riparian vegetation, including trees, shrubs, persistent emergents, emergent mosses, or lichens, were observed in or around the channel. The project would use trenchless jack-and-bore construction methods to cross underneath this channel crossing should the East Well 2 Option 3 site and associated pipeline alignment be selected. Therefore, no impacts to jurisdictional waters and wetlands are expected as a result of the proposed project. No other waters or wetlands potentially subject to the jurisdiction of the USACE, RWQCB, or CDFW are located within the study area. As discussed in the BRA, impacts to jurisdictional waters and wetlands are not expected. The severity of the impact of these additional project components would be equal to that identified in the original BRA and no additional measures are recommended.

Riparian/Riverine, Vernal Pool and Fairy Shrimp Habitat

Based upon the definition of these resources, as described in the BRA, and the findings of Rincon's reconnaissance survey on July 1 and August 4, 2020, no riparian/riverine habitat, vernal pools, or fairy shrimp habitat are present within the study area. Undeveloped portions of the study area are underlain by moderately well-drained soils. The study area is not conducive to supporting riparian/riverine habitat, vernal pools, or vernal pool species. Therefore, no impacts to riparian/riverine habitat, vernal pools, or vernal pool species are expected. As discussed in the BRA, impacts to riparian/riverine habitat, vernal pools, or vernal pool species are not expected. The severity of the impact of the additional project components is equal to that identified in the original BRA and no additional measures are recommended pursuant to the MSHCP.

Wildlife Movement

According to the Regional Conservation Authority (RCA) MSHCP Information App, the study area is not located within an MSHCP Criteria Area, Public-Quasi Public Reserve Lands or within a Core or Linkage (Riverside County 2020). The CDFW BIOS (2020b) does not include any mapped essential habitat connectivity areas in the immediate vicinity of the study area. As discussed in the BRA, the closest mapped essential habitat connectivity areas are located approximately 1.0 mile to the southeast near the Perris Reservoir and approximately 4.8 miles to the northwest in the vicinity of Box Springs Mountain Reserve Park. The proposed project would be confined to the existing developed and disturbed areas, and the non-native annual grassland identified above. Additionally, the study area is separated from these habitat connectivity areas by existing development, residential areas, heavily traveled transportation corridors (including March Air Reserve Base and Interstate 215), and is not expected to serve as a significant wildlife migratory corridor. Therefore, no impacts to wildlife movement are expected. The severity of the impact of the additional project components is equal to that identified in the original BRA and no additional measures are recommended.

Resources Protected by Local Policies and Ordinances

As identified in the BRA, the project site is located within the County of Riverside Stephen's Kangaroo Rat Plan and Fee Area. County of Riverside Ordinance No. 663 (Stephen's Kangaroo Rat Mitigation Fee Ordinance) requires that all proposed development projects located within the fee area are reviewed to determine the most appropriate course of action to ensure the survival of the species through one or more of the following: (1) on-site mitigation of impacts to the Stephens' Kangaroo Rat through the reservation or addition of lands included within or immediately adjacent to a potential habitat reserve site, or (2) payment of the Mitigation Fee or (3) any combination of (1) and (2) consistent with the intent and purpose of the ordinance. The revised project sites lack suitable grassland, coastal scrub and sagebrush habitat to support Stephen's Kangaroo Rat and is located directly adjacent to urban roadways. In addition, vacant areas at the project sites are highly fragmented and surrounded by urban development. Therefore, the revised project components would not result in impacts to or loss of suitable habitat for Stephen's Kangaroo Rat and would not be subject to on-site mitigation or payment of the Mitigation Fee. Furthermore, pursuant to Section 10(d) of Riverside County Amending Ordinance No. 663.10 (Riverside County 1996), project components would likely qualify as exempt from payment of the Mitigation Fee. No other resources protected by local policies or ordinances are present on the site. As discussed in the BRA, payment of the Mitigation Fee and impacts to resources protected by local ordinances are not necessary or expected. The severity of the impact of the additional project components is equal to that identified in the original BRA and no additional measures are recommended.

Conservation Plans

As identified in the BRA, the original study area is located within the boundaries of the Western Riverside MSHCP. A portion of the East Well 2 Option 4 site is located within a habitat assessment/survey area for BUOW, but not within a designated survey area identified for any other MSHCP covered species. The proposed project is not located within a criteria cell or within Public/Quasi Public conserved lands. Public/Quasi-Public conserved lands are located approximately 1.0 mile southeast of the project site in the Lake Perris State Recreation Area (Riverside County 2020). Based on

the study area's distance and separation from Public/Quasi-Public lands and the existing development between them, the revised alignment is not expected to impact these conserved areas. The severity of the impact of the revised project components is equal to that identified in the original BRA and no additional measures are recommended.

Thank you for the opportunity to provide this Biological Resources Assessment Addendum. Please contact the undersigned with any questions.

Sincerely,
Rincon Consultants, Inc.

Jared Reed
Senior Biologist / Project Manager

Steven J. Hongola
Principal Biologist

Attachments

References
Figures
Appendix A Project Site Photographs
Appendix B Observed Plant Species List

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Figure 1a East Well 2 Option 3 Project Location

Imagery provided by Microsoft Bing and its licensors © 2020.

Fig 1 Project Location BIO Addendum

Figure 2b East Well 2 Option 4 Project Location

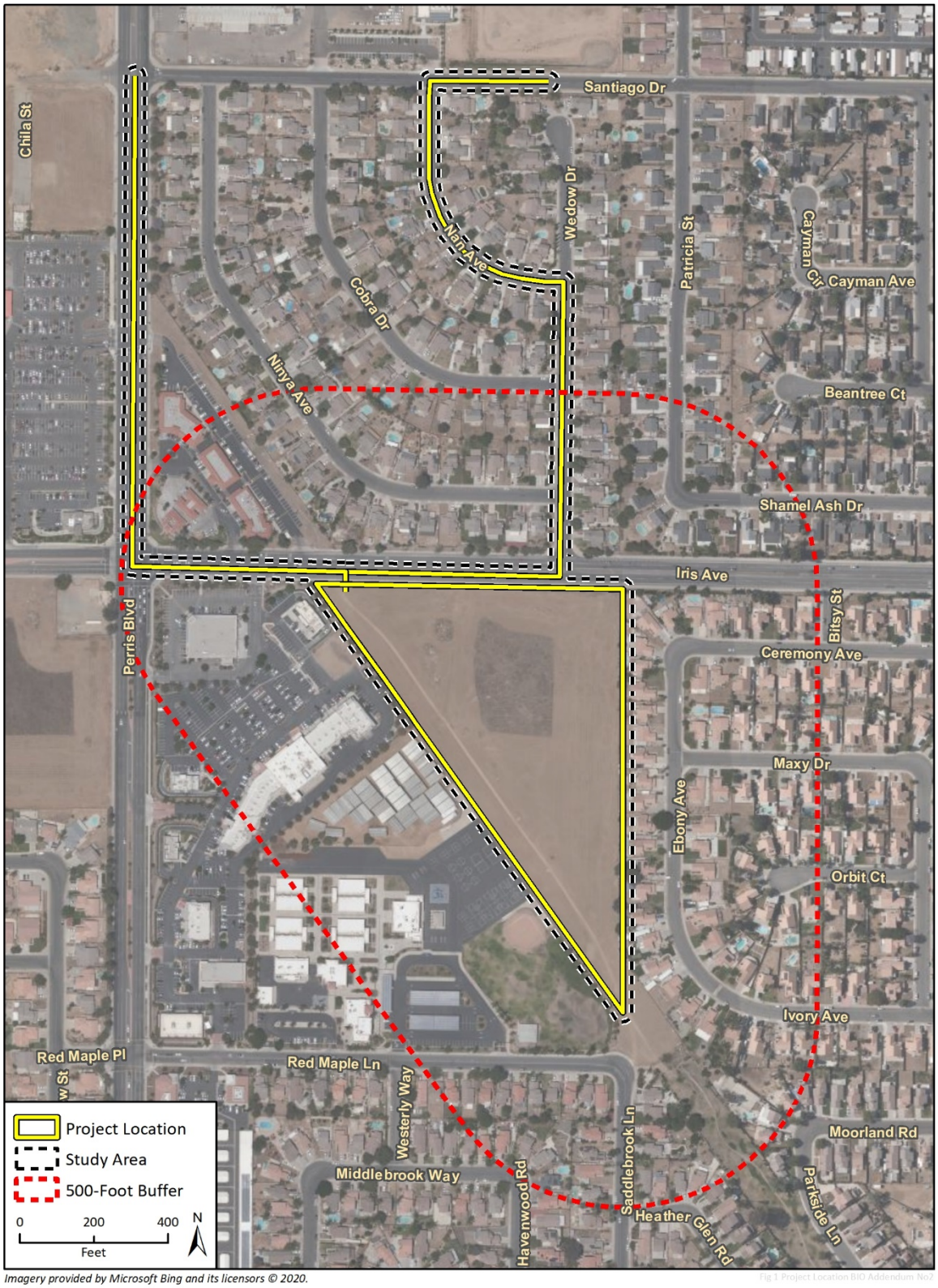

Figure 3a East Well 2 Option 3 Soils Map

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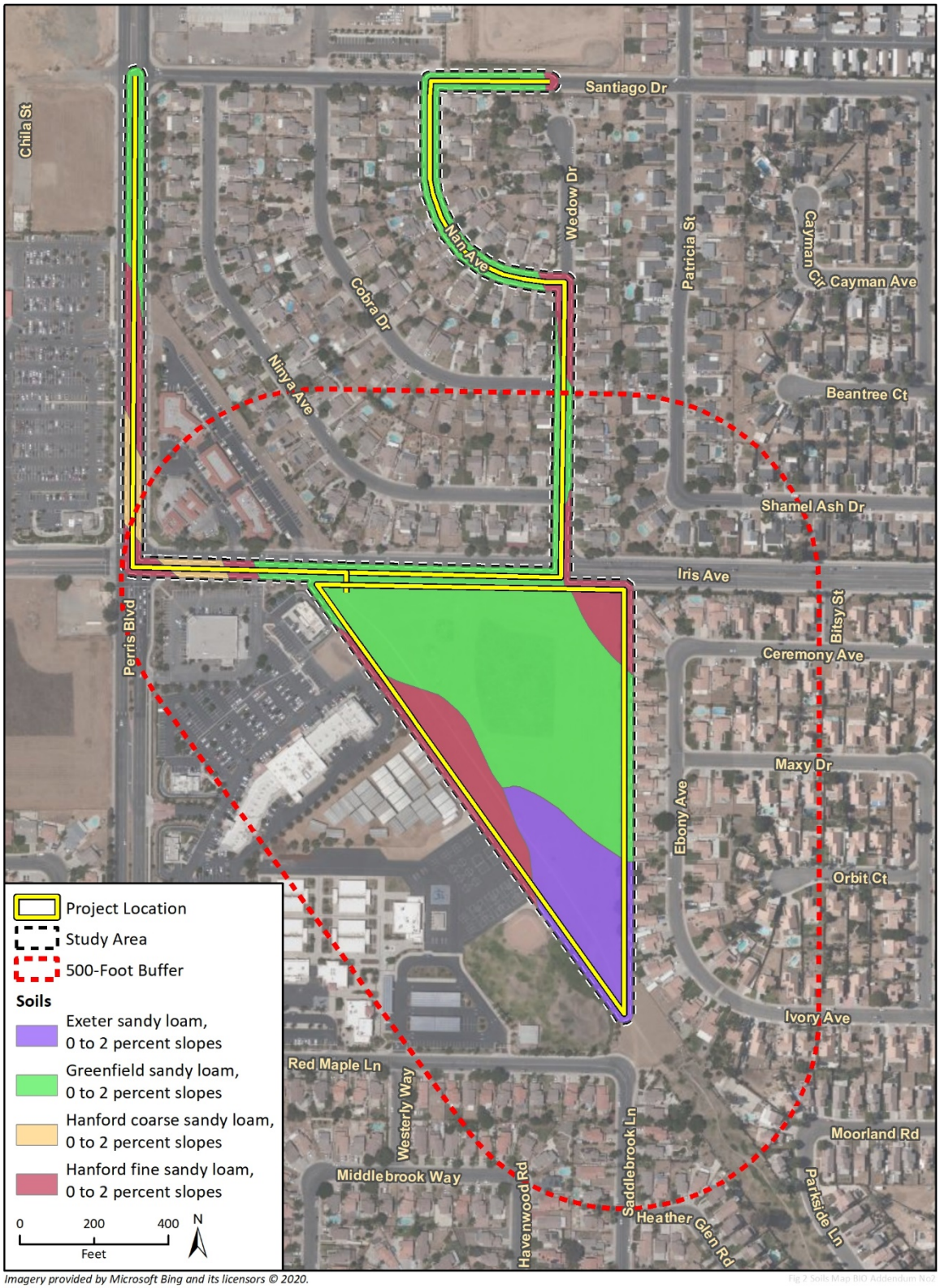
Additional data provided by SSURGO Web Soil Survey, 2019.

Fig 2 Soils Map BIO Addendum

Figure 4b East Well 2 Option 4 Soils Map



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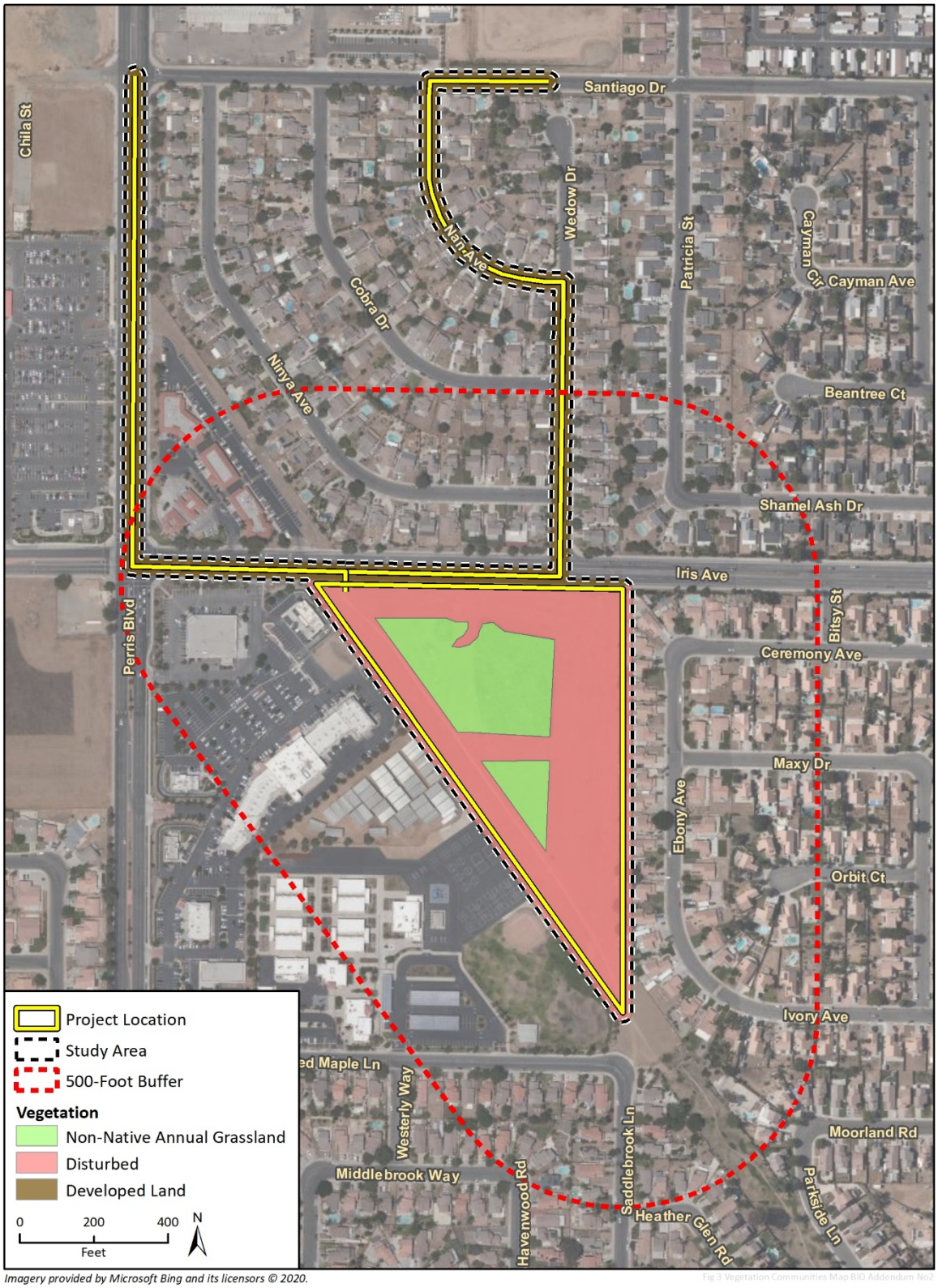
Soils data provided by SSURGO, 2020.

Figure 5a East Well 2 Option 3 Vegetation Communities

Imagery provided by Microsoft Bing and its licensors © 2020.
Additional data provided by SSURGO Web Soil Survey, 2019.

Fig 3 Vegetation Communities Map BIO Addendum

Figure 6b East Well 2 Option 4 Vegetation Communities



Appendix A

Project Site Photographs

Photograph 1. East Well 2 Option 3 site at Pedrorena Park. View to the south.

Photograph 2. Pipeline alignment associated with East Well 2 Option 3 along Iris Avenue. View to the west.

Photograph 3. View of concrete channel at intersection of Iris Avenue and Kitching Street associated with East Well 2 Option 3. View to the northwest.

Photograph 4. View of intersection of Iris Avenue and Kitching Street associated with East Well 2 Option 3. View to the northwest.

Photograph 5. View of intersection of Iris Avenue and Kitching Street associated with East Well 2 Option 3. View to the south. Note channel.

Photograph 6. Disturbed area in south portion of East Well 2 Option 4 site. View to the north.

Photograph 7. Non-native annual grassland in East Well 2 Option 4 site. View facing southwest.

Photograph 8. South view of developed area at Wedow Drive and Iris Avenue intersection associated with East Well 2 Option 4.

Photograph 9. Small mammal burrows in bare area north of Iris Avenue near alternative pipeline alignment associated with East Well 2 Option 4.

Photograph 10. Disturbed area in west portion of East Well 2 Option 4 site. View to the northwest.

Appendix B

Observed Plant Species List

Observed Plant Species List

Scientific Name	Common Name	Native Status
Acacia sp.	acacia	Non-Native
Agonis flexuosa	peppermint tree	Non-Native
Amaranthus albus	tumbleweed	Non-Native
Amsinckia sp.	fiddleneck	Native
Avena sp.	wild oat	Non-Native
Bromus sp.	brome	Non-Native
Centaurea solstitialis	yellow star-thistle	Non-Native
Convolvulus arvensis	bindweed	Non-Native
Croton setiger	doveweed	Native
Datura wrightii	jimson weed	Native
Digitaria sp.	crabgrass	Non-Native
Erigeron canadensis	horseweed	Native
Heliotropium curassavicum	alkali heliotrope	Native
Heterotheca grandiflora	telegraph weed	Native
Hirschfeldia incana	short-pod mustard	Non-Native
Lactuca serriola	prickly lettuce	Non-Native
Lupinus sp.	lupine	Native
Malva parviflora	cheeseweed	Non-Native
Oncosiphon piluliferum	stinknet	Non-Native
Polygonum sp.	knotweed	Non-Native
Pinus canariensis	Canary Island pine	Non-Native
Pinus halepensis	Aleppo pine	Non-Native
Platanus hispanica	London plane sycamore	Non-Native
Portulaca oleracea	common purslane	Non-Native
Salsola tragus	Russian thistle	Non-Native
Schinus molle	Peruvian pepper tree	Non-Native
Sisymbrium sp.	sisymbrium	Non-Native
Sonchus oleraceus	common sow-thistle	Non-Native
Taraxacum officinale	common dandelion	Non-Native
Ulmus parvifolia	Chinese elm	Non-Native
Washingtonia robusta	Mexican fan palm	Non-Native

Appendix C - Cultural Resources Assessment Addendum

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August 18, 2020
Rincon Project No: 19-08223

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Subject: Cultural Resources Assessment Addendum for the Cactus Avenue Corridor Project, City of Moreno Valley, Riverside County, California

Dear Ms. Prickett:

This letter report documents the findings of a revised Cultural Resources Assessment Addendum (CRAA) conducted by Rincon Consultants, Inc. (Rincon), for the Eastern Municipal Water District's (EMWD) proposed Cactus Avenue Corridor Project (project). Rincon prepared a Cultural Resources Assessment (CRA) for the project in March 2020 (Granger and Clark 2020). The original project description, potential impacts to cultural resources, and recommended measures are discussed in the CRA. Since the submittal of the CRA, revised project activities and work locations have been identified, including a new extraction well site option at Pedrorena Park (East Well 2 Option 3) and approximately 3,500 linear feet of associated pipeline, and an additional extraction well site option (East Well 2 Option 4) and approximately 4,400 linear feet of associated 12-inch raw water pipeline alignment alternatives in the City of Moreno Valley (City), California (collectively, "new project sites"). The purpose of this revised CRAA is to document the results of the tasks performed by Rincon following the revision to project components described above, specifically: a secondary review of the cultural resources records search initially performed for the CRA, and a pedestrian field survey of the new well sites and revised pipeline alignments. This study includes an evaluation of project impacts under the California Environmental Quality Act (CEQA), Section 106 of the National Historic Preservation Act (NHPA), and the National Environmental Policy Act in the event a federal nexus is established for the project (i.e., federal funding and/or permitting).

Project Location and Description

The project is located in the city of Moreno Valley in western Riverside County, California The revised project elements include two newly proposed extraction well sites, one at Pedrorena Park (East Well 2 Option 3) and one east of Perris Boulevard and south of the intersection of Iris Avenue and Wedow Drive (East Well 2 Option 4), and interconnecting pipelines spanning approximately 3,500 linear feet of developed area at one location (associated with East Well 2 Option 3) and approximately 4,400 linear feet at another location (associated with East Well 2 Option 4) throughout the city. Figure 1 in Appendix A shows the location of East Well 2 Option 3 components and Figure 2 in Appendix A shows the location of East Well 2 Option 4 components. The modified project site is generally characterized by developed, disturbed and non-native grassland areas with surrounding lands used for residential, recreational,

commercial, educational and light industrial purposes. Descriptions of the additional project elements are provided below.

Extraction Well

East Well 2 Option 3

A new location option for extraction well East Well 2, termed *East Well 2 Option 3*, is proposed for Pedrorena Park and would be constructed as part of the project. The extraction well would be constructed in two phases: a well drilling phase and a well equipping phase. Construction of the extraction well is expected to result in temporary disturbance of 100 percent of the selected parcel site. The well site would be designed to utilize the existing grade of the parcel where applicable. The well would be constructed with an accompanying overflow (i.e., blow-off) pond. Portable, steel liquid container tanks (i.e., Baker Tanks) would be used for onsite dewatering clarification.

East Well 2 Option 4

The triangular, vacant parcel south of the Iris Avenue and Wedow Drive intersection was identified as a new alternative site for Cactus Corridor East Well 2, termed *East Well 2 Option 4*. If selected, a well would be constructed that is consistent in size and depth with Cactus Corridor East Well 2 Option 1 and 2 (at Victoriano Park or Parque Amistad). The well would be located in the northwest corner of the site where the closest residential property lines would be approximately 100 feet from the well drilling site, opposite Iris Avenue. The proposed well option at Iris Avenue and Wedow Drive is referred to as Cactus Corridor East Well 2 Option 4 in this Addendum.

Pipelines

East Well 2 Option 3

Approximately 3,500 linear feet of revised alignment pipelines would be constructed to convey raw water from the extraction well to the proposed treatment plant. This pipeline alignment option would be located primarily within easements, roadway rights of way, and EMWD-owned land. This pipeline alignment option generally extends southeast along Los Cabos Drive south of Victoriano Park (site of East Well 2 Option 1), west along Iris Avenue, and north along Kitching Street as shown on Figure 1 in Appendix A.

East Well 2 Option 4

Two options for another new alignment are currently under consideration. Under the first option, the alignment would run from Cactus Corridor East Well 2 Option 4 east on Iris Avenue, then north along Wedow Drive, then northwest along Nan Avenue to Santiago Drive where it would meet the raw water pipeline corridor that was analyzed by the BRA. Alternatively, under the second option, the alignment would run west from Cactus Corridor East Well 2 Option 4 along Iris Avenue, then north along Perris Boulevard where it would meet the raw water pipeline corridor on Perris Boulevard that was analyzed by the BRA. These two options are shown on Figure 2 in Appendix A.

The revised pipelines would be installed using open cut trench construction, as well as trenchless boring techniques. Open cut excavation would be used in existing roadways, except at crossings of existing facilities, utilities, and storm channels, where trenchless “jack and bore” methods would be used. Pipelines installed using open cut methods would include a trenching depth of up to seven feet. The

estimated trench width would be equal to two feet plus the pipeline diameter, for a width of up to five feet. When trenchless techniques are required, pipelines would be constructed using jack and bore methods. For this construction method, pits would be dug on either side of the surface feature to be avoided (e.g., storm channel or existing utilities). The pits are typically 10-15 feet wide and 10-20 feet long for the receiving pit and up to 50 feet long for the jacking pit. The depth would depend on the feature to be avoided.

Area of Potential Effects

36 Code of Federal Regulations (CFR) 800.16(d) defines a project Area of Potential Effects (APE) as the "geographic area or areas within which a project may directly or indirectly cause changes in the character or use of historic properties if any such property exists." The APE generally depicts all areas expected to be affected by the proposed project, including construction staging areas. For this CRAA, the new APE encompasses the project disturbance footprint associated with the installation of the pipeline, along with a 10-foot-wide buffer on either side of the alignment. The revised APE includes the alternative well extraction sites, East Well 2 Option 3 and East Well 2 Option 4, as shown on Figure 1 and Figure 2 of Appendix A. The APE for the new project components encompasses approximately 20 acres.

The APE must also be considered as a three-dimensional space and includes any ground disturbance associated with the project. Pipelines would be constructed in existing roadways using an open cut method, except at crossings of existing facilities, utilities, and storm channels. Pipelines installed using open cut methods would include trenching to a depth of seven feet. When trenchless techniques are required, pipelines would be constructed using jack and bore technologies, which may reach depths of up to 40 feet below the ground surface. Finally, the vertical depth of the revised APE for the proposed well locations is estimated to reach 1,100 feet below ground surface. Because most of the project elements will be subterranean, no indirect effects (i.e., visual, auditory, or atmospheric) are anticipated for the proposed project.

Cultural Resources Records Search

On January 6, 2020, Rincon conducted a search of the California Historical Resources Information System at the Eastern Information Center (EIC) located at the University of California, Riverside. The search was performed to identify previously recorded cultural resources, as well as previously conducted cultural resources studies within the project site and a 0.5-mile radius. The records search also included a review of the National Register of Historic Places, the California Register of Historical Resources (CRHR), the Office of Historic Preservation Historic Properties Directory, the California Inventory of Historic Resources, and the Archaeological Determinations of Eligibility list.

The EIC records search identified 60 cultural resources studies previously completed within a 0.5-mile radius of the revised APE between 1953 and 2019 (Table 1). Of these, one previous study (RI-01843) intersects the revised APE at the East Well 2 Option 3 site.

Table 1 Cultural Resources Studies Previously Conducted within a 0.5-mile Radius of the APE

Report Number	Author(s)	Year	Title	Relationship to APE
RI-00002	Rogers, Malcom J.	1953	*Miscellaneous Field Notes – Riverside County, San Diego Museum of Man*	Outside
RI-00026	Akin, Margie	1971	*A Survey of the Archaeological Resources of the Santa Ana and San Jacinto River Basins*	Outside
RI-00130	Clough, Helen	1974	*Filed Notes for the Archaeological Survey of PL984 Water Systems Additions*	Outside
RI-00133	King, Thomas F., Marry Brown, Gerrit Fenenge, and Claudia Nissley	1974	*Archaeological Impact Evaluation: Southern California Edison Company's Devers-Vista 220 kV Transmission Line, Riverside County, California*	Outside
RI-00137	O'Conell, James F., Philip J. Wilke, Thomas F. King, and Carol L. Mix	1974	*Perris Reservoir Archaeology, Late Prehistoric Demographic Change in Southeastern California*	Outside
RI-00161	Greenwood, Roberta S.	1975	*Paleontological, Archaeological, Historical, and Cultural Resources, West Coast-Midwest Pipeline Project, Long Beach to Colorado River*	Outside
RI-00182	Weaver, Richard A.	1975	*Environmental Impact Evaluation: Archaeology of Brodiaea Avenue, Pl 984, Water Systems Addition, Riverside County, California*	Outside
RI-00535	Bean, Lowell J., Sylvia Brakke Vane, Matthew C. Hall, Harry Lawton, Richard Logan, Lee Gooding Massey, John Oxendine, Charles Rozaire, and David P. Whistler	1979	*Cultural Resources and the Devers-Mira 500 kV Transmission Line Route (Valley to Mira Loma Section)*	Outside
RI-00742	Wilke, Philip J.	1979	*Environmental Impact Evaluation: An Archaeological Assessment of 17.64 Acres Considered for Change of Zone (CZ 2707), Southeast of Sunnymead, Riverside County, California*	Outside
RI-01312	Meighan, Clement W.	1975	*Historical Resources in Three Southern California Counties*	Outside
RI-01665	Wirth Associates	1983	*Devers-Serrano-Villa Park Transmission System Supplement to the Cultural Resources Technical Report - Public Review Document and Confidential Appendices*	Outside
RI-01843	Scientific Resource Surveys	1984	*Cultural Resource Survey Report on Wolfskill Ranch*	**Within East Well 2 Option 3**
RI-01955	Heller, Rod, Tim Tetherow, and C. White	1977	*An Overview of the Sundesert Nuclear Project Transmission System Cultural Resource Investigation*	Outside

Report Number	Author(s)	Year	Title	Relationship to APE
RI-01978	Brock, James	1985	*Letter Report: Archaeological Field Reconnaissance of Proposed Post Office Site in Sunnymead, California*	Outside
RI-02050	Perault, Gordon	1985	*Preliminary Historic Inventory - March Air Force Base, California*	Outside
RI-02171	McCarthy, Daniel F.	1987	*Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California*	Outside
RI-03490	McIntosh, Beverly C.	1991	*The Juan Bautista De Anza Trail Past, Present and Future, Baja to Riverside, California*	Outside
RI-03604	Jones, Carleton S.	1992	*The Development of Cultural Complexity Among the Luiseno: A Thesis Presented to the Department of Anthropology, California State University, Long Beach in Partial Fulfillment of the Requirements for the Degree, Master of Arts*	Outside
RI-03693	Foster, John M., James J. Schmidt, Carmen A. Weber, Gwendolyn R. Romani, and Roberta S. Greenwood	1991	*Cultural Resource Investigation: Inland Feeder Project, Metropolitan Water District of Southern California*	Outside
RI-03921	Moffit, S.A. and M. C. Hall	1995	*Cultural Resources Survey of Proposed Arco Pipeline Company Rectifier and Block Valve Sites, Located In Riverside and San Bernardino Counties, California*	Outside
RI-04762	Barker, Leo R. and Ann E Huston, Editors	1990	*Death Valley to Deadwood; Kennecott To Cripple Creek. Proceedings of the Historic Mining Conference, January 23-27, 1989, Death Valley National Monument*	Outside
RI-04813	National Park Service	1993	*California Citrus Heritage Recording Project: Photographs, Written Historical and Descriptive Data, Reduced Copies of Measured Drawings For: Arlington Height Citrus Landscape, Gage Irrigation Canal, National Orange Company Packing House, Victoria Bridge, and Union Pacific Railroad Bridge*	Outside
RI-04992	McKenna et al.	2004	*An Architectural Evaluation of Structures Located Within Assessor Parcel Numbers 482-090009-0, -010-0, and 033-0, Within the City of Moreno Valley, Riverside County, California*	Outside
RI-05035	McKenna et al.	2005	*Letter Report: Monitoring at the Site of the Proposed Indian Middle School in the City Of Perris, Riverside County, California*	Outside
RI-05088	Cultural Systems Research, Inc.	2005	*Ethnographic Overview Inland Feeder Pipeline Project*	Outside
RI-05286	Jackson, Adrianna	2000	*Letter Report: Records Search Results for Sprint PCS Facility RV54XC486A (Boxing Club Site), Moreno Valley, Riverside County, California*	Outside

Report Number	Author(s)	Year	Title	Relationship to APE
RI-05294	White, Laurie	2000	*Letter Report: Records Search Results for Sprint PCS Facility RV37XC917C (SCE Alessandro Substation), City of Moreno Valley, Riverside County, California*	Outside
RI-05795	Kyle, Carolyn E.	2004	*Cultural Resource Assessment for AT&T Wireless Facility 950-031029A located at 24899 Alessandro Boulevard, City of Moreno Valley, Riverside County, California*	Outside
RI-06081	Billat, Lorna	2004	*Letter Report: Proposed Cellular Tower Project in Riverside County, California, Site Name/Number: CA-8868A/ Lasselle*	Outside
RI-06269	Alexandrowicz, John S.	2006	*An Historical Resources Identification of Alessandro Pointe Project, Tract 34681, 25817 Alessandro Boulevard, City of Moreno Valley, Riverside County, California*	Outside
RI-06278	Ahmet, Koral and Evelyn N. Chandler	2005	*Cultural Resources Survey for a Proposed Bikeway in Moreno Valley, Riverside County, California*	Outside
RI-07127	Jordan, Stacey C.	2007	*Archaeological Survey Report for Southern California Edison Company: Conversion of Overhead to Underground Project on the Rule 20C, Riverside County, California (WO#65777281, AL#6-7227)*	Outside
RI-07499	Bonner, Wayne H. and Marnie Aislin-Kay	2007	*Letter Report: Cultural Resource Records Search Results and Site Visit for Royal Street Communications, LLC Candidate LA2360B (Motel 7), 23581 Alessandro Boulevard, Moreno Valley, Riverside County, California*	Outside
RI-07573	Sanka, Jennifer M.	2008	*Phase I Cultural Resources Assessment and Paleontological Records Review, APN 486-070-007, Moreno Valley, Riverside County, California*	Adjacent
RI-07645	Rosenberg, Seth A. and Brian F. Smith	2005	*An Archaeological Survey for the Alessandro Plaza Project, City of Moreno Valley, County of Riverside, California*	Outside
RI-08235	Workman, James E.	2001	*Cupules, A Type of Petroglyphic Rock Art. A Study of the Pitted Boulders in the San Jacinto Wildlife Area and the Lake Perris State Recreational Area*	Outside
RI-08244	McKenna, Jeanette A.	2009	*A Phase I Cultural Resources Investigation of the Proposed Moreno Valley Unified School District K-12 School Site at Indian Street and Cactus Avenue, City of Moreno Valley, Riverside County, California.*	Outside
RI-08554	Hogan, Michael, Bai "Tom" Tang, John Goodman, and Daniel Ballester	2011	*California Living Moreno Valley Project*	Outside
RI-08654	Bonner, Wayne H., Sarah A. Williams, and Kathleen A. Crawford	2011	*Cultural Resources Search and Site Visit Results for T-Mobile USA Candidate IE24173B*	Outside
RI-08688	Bonner, Wayne H.	2011	*Letter Report: Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate IE24226-A*	Outside

Report Number	Author(s)	Year	Title	Relationship to APE
RI-08802	Tang, Bai "Tom", Michael Hogan, Deirdre Encarnacion, and Daniel Ballester	2012	*Phase I Archaeological Assessment: Moreno Master Drainage Plan Revision*	Outside
RI-08944	Tang, Bai "Tom" and Michael Hogan	2013	*Historical/Archeological Resources Survey Report, Assessor's Parcel No. 486-280-043, City of Moreno Valley, Riverside County, California*	Outside
RI-08945	Tang, Bai "Tom" and Michael Hogan	2013	*Historical/Archaeological Resources Survey Report, Desilting Basin Site, Boulder Ridge Family Apartments Project, City of Moreno Valley, Riverside County, California*	Outside
RI-09077	McKenna, Jeanette A.	2014	*A Phase I Cultural Resources Survey for the Proposed Walmart Supercenter on Approximately 22.28 Acres of Land in the City of Moreno Valley, Riverside County, California*	Outside
RI-09311	Wills, Carrie D.	2014	*Cultural Resource Records Search and Site Visit Results for Verizon Wireless Candidate 'Gentian', 16015 North Perris Boulevard, Moreno Valley, Riverside County, California*	Outside
RI-09345	McKenna, Jeanette	2015	*Results of an Archaeological/Paleontological Monitoring Program at the Moreno Valley Unified School District's Bayside Charter Campus in the City of Moreno Valley, Riverside County, California*	Outside
RI-09510	Tang, Bai "Tom"	2016	*Update to Historical/Archaeological Resources Survey Assessor's Parcel No. 486-280-043 (Rocas Grandes Project), City of Moreno Valley, Riverside County, California CRM TECH Contract No. 2980*	Outside
RI-09681	Wills, Carrie D. and Sarah A. Williams	2016	*Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate IE95361A (Alessandro Substation), 15901 Kitching Street, Moreno Valley, Riverside County, California*	Outside
RI-09718	Brunzell, David	2016	*Cultural Resources Assessment of the Toby (MCE Design) Project, City of Moreno Valley, Riverside County, California (BCR Consulting Project No. TRF 1608)*	Outside
RI-09828	Wilk, Elizabeth	2015	*Addendum to FCC Form 620: Gogh/Ensite #25674 (284941), 15091 Kitching Street, Moreno Valley, Riverside County, California 92551, EBI Project #6115003214/ E-106 File Number 0006967049, FCC_2015_1005_009*	Outside
RI-10018	Belcourt, Tria	2016	*Re: Letter Report for Cultural and Paleontological Records Searches for the Brodiaea Site, located in the City of Moreno Valley, Riverside County, California*	Outside
RI-10095	Dooley, Colleen	2002	*Cingular Wireless Cultural Resource Assessment*	Outside
RI-10150	Brunzell, David	2016	*Cultural Resources Assessment the Alessandro Apartments Project, City of Moreno Valley, Riverside County, California*	Outside

Report Number	Author(s)	Year	Title	Relationship to APE
RI-10273	Garrison, Andrew J. and Brian F. Smith	2014	*Phase I Cultural Resources Survey for the Brodiaea Commerce Center Project, City of Moreno Valley, County of Riverside*	Outside
RI-10445	Clark, Fatima and Kyle Garcia	2014	*Cultural Resources Assessment for the Proposed Isla Verde Residential Project, City of Moreno Valley, County of Riverside, California*	Outside
RI-10498	Brunzell, David	2018	*Cultural Resources Assessment Moreno Valley Storage Project, City of Moreno Valley, Riverside County, California*	Outside
RI-10691	Curl, Alan	1979	*Phase I Survey of the City of Riverside Final Report*	Outside
RI-10700	Perez, Don	2015	*Cultural Resources Survey Gogh / Ensite #25674 (284941)*	Outside
RI-10827	Williams, Sarah A. and Carrie D. Wills	2019	*Cultural Resource Records Search and Site Visit Results for AT&T Mobility Candidate CSL02876 (Iris Plaza), 16110 Perris Boulevard, Moreno Valley, Riverside County, California (EBI Project Number 6119000825)*	Outside

Source: Eastern Information Center January 2020

Sixteen cultural resources have been documented within a 0.5-mile radius of the revised APE (Table 2). These include five prehistoric archaeological sites, two prehistoric isolated artifacts or features, three historic-period archaeological sites, and six historic-period built-environment (buildings and structures) resources. The prehistoric sites, most of which represent bedrock milling features, are clustered at the base of a set of unnamed hills lying northeast of the new project APE. None of the previously recorded cultural resources are located in the revised APE.

Table 2 Previously Identified Cultural Resources within a 0.5-mile Radius of the Revised APE

Resource Number	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status[1]	Relationship to Revised APE
P-33-000857 (CA-RIV-857)	Prehistoric Site	Seven bedrock milling features	2013 (D. Ballester and D. Perez), 1975 (R. Weaver), 1987 (C. Prior, M. Conroy, B. Neiditch)	Not evaluated for CRHR or NRHP	Outside
P-33-002994 (CA-RIV-2994)	Prehistoric Site	Ten bedrock milling features with an associated hand stone	1984 (Roger Mason)	Not evaluated for CRHR or NRHP	Outside
P-33-003159 (CA-RIV-3159)	Prehistoric Site	Three bedrock milling features	2015 (D. Ballester), 2013 (D. Ballester and D. Perez), 1987 (C. Prior, M. Conroy, B. Neiditch)	Not evaluated for CRHR or NRHP	Outside
P-33-003341 (CA-RIV-3341)	Prehistoric Site	Three bedrock milling features	2013 (D. Ballester and D. Perez), 1987 (C. Prior, M. Conroy, B. Neiditch)	Not evaluated for CRHR or NRHP	Outside
P-33-003342 (CA-RIV-3342)	Prehistoric Site	One bedrock milling feature (no longer extant)	2013 (D. Ballester and D. Perez), 1987 (Barry R. Neiditch)	Not evaluated for CRHR or NRHP	Outside

Resource Number	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status[1]	Relationship to Revised APE
P-33-007276	Historic Building	25780 Alessandro Blvd (single-family residence)	1983 (J. Warner)	Appears eligible for the CRHR and/or NRHP	Outside
P-33-007279	Historic Building	24771 Bay Avenue, (single-family residence with associated outbuildings)	1983 (J. Warner)	Appears eligible for the CRHR and/or NRHP	Outside
P-33-007280	Historic Building	24685 Cottonwood Avenue (single family residence)	1983 (J. Warner)	Recommended ineligible for the CRHR and NRHP	Outside
P-33-007290	Historic Building	15168 Perris Boulevard (single-family residence with associated outbuildings)	1983 (J. Warner)	Property recognized as historically significant by local government	Outside
P-33-015301	Prehistoric Isolate (artifact)	Pestle fragment	2005 (Evelyn Chandler)	Not evaluated for CRHR or NRHP	Outside
P-33-015454 (CA-RIV-8149)	Historic Site	Building foundations, septic tank, and refuse scatter	2006 (John Alexandrowicz)	Not evaluated for CRHR or NRHP	Outside
P-33-016788	Prehistoric Isolate (feature)	Four prehistoric milling features (out of context)	2007 (J. Sanka)	Not evaluated for CRHR or NRHP	Outside
P-33-023936	Historic Structure	Barron/Lanz Holdings (Ranch/Farm, Loading Dock)	2014 (Jeanette McKenna)	Recommended ineligible for the CRHR and NRHP	Outside
P-33-024195 (CA-RIV-11896)	Historic Site	Multi-family property	2015 (Jeanette McKenna)	Not evaluated for CRHR or NRHP	Outside
P-33-028200	Historic Structure	Canal/Aqueduct	2018 (Salvadore Z. Boites)	Recommended ineligible for the CRHR and NRHP	Outside
P-33-028824 (CA-RIV-12934)	Historic Site	Building foundation, power pole, and isolated glass	2019 (Riordan Goodwin)	Not evaluated for CRHR or NRHP	Outside

[1]NRHP = National Register of Historic Places; CRHR = California Register of Historical Resources

Source: Eastern Information Center, January 2020

Historical Imagery Review

An aerial photograph of East Well 2 Option 3 from 1966 depicts the area as being dominated by agricultural fields with sparse areas of residential development to the northwest (NETRonline 2020). At that time, the runway and buildings associated with March Field are present west of the APE near the East Well 2 Option 3 site. Aerial imagery and topographic maps also indicate much of the land surrounding the East Well 2 Option 3 site transitioned from agricultural land to residential development

in the 1980s and 1990s. Based on analysis of available aerial photographs and topographic maps, Pedrorena Park and the surrounding roadways that comprised the APE near the East Well 2 Option 3 site were constructed sometime between 1985 and 1997 (NETRonline 2020).

Aerial imagery of the East Well 2 Option 4 site from 1966 through 2016 depicts the area as being vacant with much of the surrounding land being developed between 1978 and 2005 (NETRonline 2020). A residential development is visible east of the site in the 1978 aerial imagery. A school was constructed to the southwest of the East Well 2 Option 4 site sometime between 2002 and 2005.

Pedestrian Field Survey

Rincon Archaeologist Lindsay Porras, MA, RPA, conducted a pedestrian field survey of the East Well 2 Option 3 APE (including proposed pipeline alignment) on July 3, 2020 and the East Well 2 Option 4 APE (including proposed pipeline alignments) on August 7, 2020. Areas of exposed ground surface were inspected for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic-era debris (e.g., metal, glass, ceramics).

The East Well 2 Option 3 site is located within Pedrorena Park and consists of landscaped turf areas for sport fields, ornamental plantings, paved walkways, play equipment, tennis courts, and picnic areas (Figures 3 and 4, Appendix A). The roadways are paved, include curb and gutter, and landscaped parkways (Figure 5, Appendix A). Ground visibility was poor (less than 5%) as the park is a developed recreational area the proposed pipeline alignment associated with East Well 3 Option 3 is located entirely within paved roadways. No cultural resources were observed.

The East Well 2 Option 4 site is located within a relatively flat, undeveloped, and cleared field with dry grasses, sparse scrub and invasive weeds (Figure 6, Appendix A). Ground visibility varied from excellent (100%) to poor (less than 5%). A dirt access roads travels through the well site from the access point in the southern end and extends north to Iris Ave. Underground utilities observed include an EMWD sewer line and a State of California Santa Ana Valley water pipeline. These utilities are adjacent to the dirt access road. Several modern and non-diagnostic concrete and building material refuse piles exist in the northwest and north central portion of the well site. The proposed pipeline alignments associated with East Well 2 Option 4 are located entirely within paved roadways. No cultural resources were observed.

Findings and Recommendations

Based on the results of the cultural resources records search and pedestrian field survey, no cultural resources were identified within the APE. Consistent with the findings of the previously prepared CRA, Rincon recommends a finding of ***no impact to historical and archaeological resources*** under CEQA and ***no historic properties affected*** under Section 106 of NHPA. The following best management practices are provided in the event of an unanticipated discovery of cultural resources during project development. The project is also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

Unanticipated Discovery of Archaeological Resources

If archaeological resources are encountered during ground-disturbing activities, work in the immediate area should be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983) should be contacted immediately

to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for CRHR eligibility. If the discovery proves to be significant under CEQA and cannot be avoided by the project, additional work, such as data recovery excavation, may be warranted to mitigate any significant impacts to historical resources.

Unanticipated Discovery of Human Remains

The discovery of human remains is always a possibility during ground-disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site and provide recommendations for treatment to the landowner within 48 hours of being granted access.

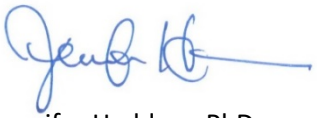
Please do not hesitate to contact Rincon with any questions regarding this cultural resources assessment amendment.

Sincerely,

Rincon Consultants, Inc.

Breana Campbell-King, MA, RPA
Principal Investigator

Mark Strother, MA, RPA
Archaeologist



Jennifer Haddow, PhD
Principal

Attachments

Appendix A Figures

References

Granger, Gena and Tiffany Clark

2020 Cactus Avenue Corridor Project, Cultural Resources Assessment, Riverside County, California. Rincon Consultants Project No. 19-08223. Report on file at the Eastern Information Center, University of California, Riverside.

National Park Service

1983 Archaeological and Historic Preservation: Secretary of the Interior's Standards and Guidelines. Electronic document, online at http://www.nps.gov/history/local-law-Arch_Standards.html

NETRonline

2020 Historical Aerial Photographs and Topographic Maps by NETRonline of the new APE. Electronic document, online at https://www.historicaerials.com/viewer, accessed July 10, 2020.

Appendix A

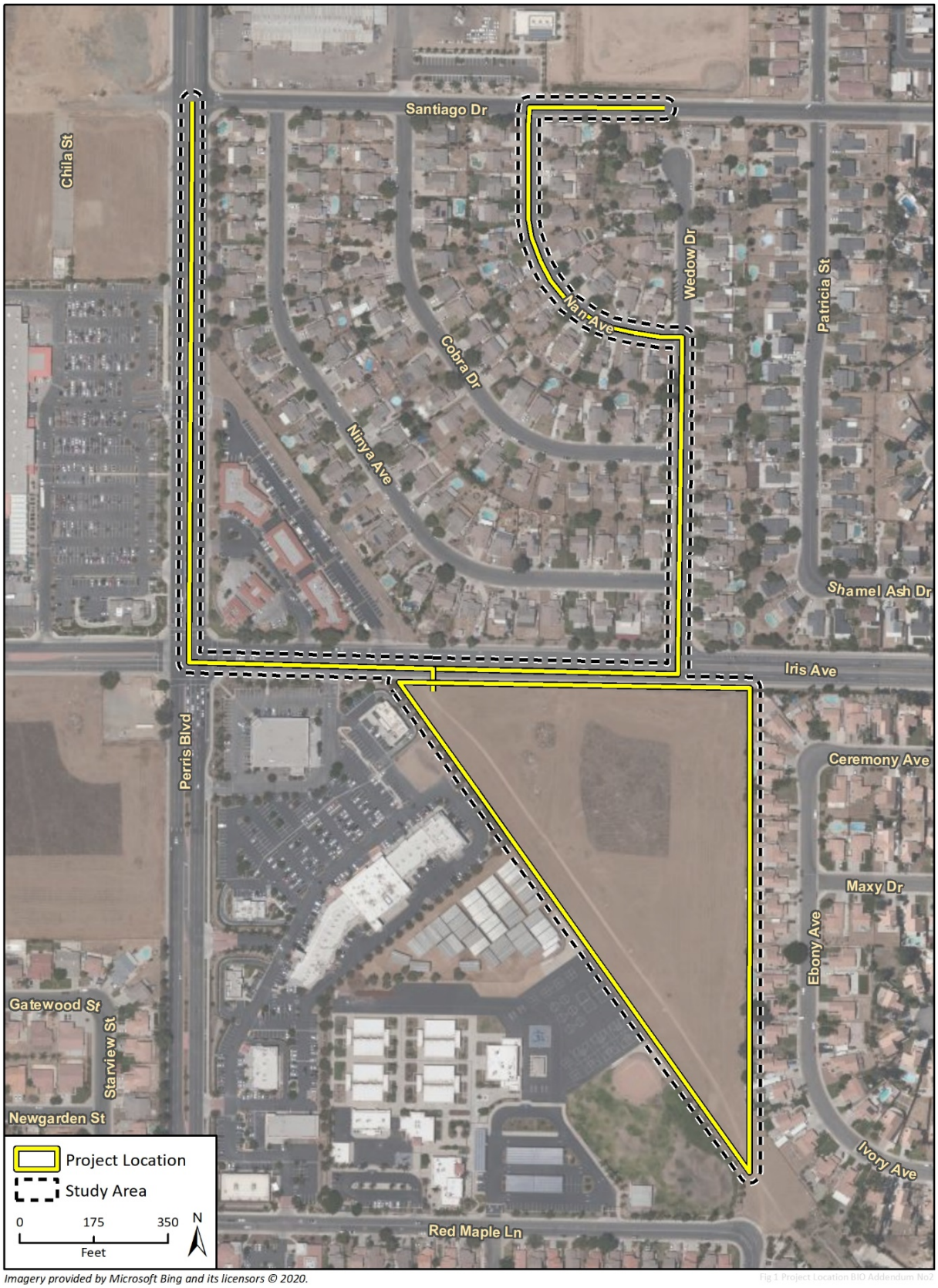
Figures

Figure 1 New Area of Potential Effects – East Well 2 Option 3

Imagery provided by Microsoft Bing and its licensors © 2020.

Fig 1 Project Location BIO Addendum

Figure 2 New Area of Potential Effects – East Well 2 Option 4



Imagery provided by Microsoft Bing and its licensors © 2020.

Fig 1 Project Location BIO Addendum No2

Figure 3 East Well 2 Option 3 Northwest Portion of Pedrorena Park, View East

Figure 4 East Well 2 Option 3 Eastern Boundary of Pedrorena Park, View West

Figure 5 East Well 2 Option 3 Northeast Corner of Iris Avenue and Kitching Street Intersection, View North

Figure 6 Overview of East Well 2 Option 4, View Northwest

Print Form

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☒ County Clerk
County of: Riverside
Address: 2724 Gateway Drive
Riverside, CA 92507

From:
Public Agency: Eastern Municipal Water District
Address: 2270 Trumble Road
P.O. Box 8300, Perris, CA 92570
Contact: Joseph Broadhead
Phone: 951-928-3777 ext 4545

Lead Agency (if different from above):
Address:
Contact:
Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2020030267

Project Title: Cactus Avenue Corridor Groundwater Wells Project Phase 3 Pipelines

Project Applicant: Eastern Municipal Water District

Project Location (include county): City of Moreno Valley, Western portion of Riverside County

Project Description:
The project would result in the construction of a 12,500 linear foot, 18-inch diameter raw water transmission pipeline with appurtenances from Well 66 located off Indian Avenue south to a new central treatment facility located off Perris Boulevard.

This is to advise that the Eastern Municipal Water District (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on March 15, 2023 (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☐ were ☒ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
Eastern Municipal Water District, 2270 Trumble Road, Perris, CA 92572

Signature (Public Agency): Joe Broadhead Title: Principal Water Resources Specialist

Date: March 15, 2023 Date Received for filing at OPR:

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2011

State of California – Department of Fish and Wildlife

2023 ENVIRONMENTAL DOCUMENT FILING FEE CASH RECEIPT

DFW 753.5a (REV. 01/01/23) Previously DFG 753.5a

RECEIPT NUMBER: 23-70440

STATE CLEARINGHOUSE NUMBER *(If applicable)*: 2020030267

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY.

LEAD AGENCY	LEADAGENCY EMAIL	DATE
EASTERN MUNICIPAL WATER DISTRICT	STRATTONH@EMWD.ORG	03/15/2023

COUNTY/STATE AGENCY OF FILING	DOCUMENT NUMBER
RIVERSIDE	E-202300297

PROJECT TITLE

CACTUS AVENUE CORRIDOR GROUNDWATER WELLS PROJECT PHASE 3 PIPELINES

PROJECT APPLICANT NAME	PROJECT APPLICANT EMAIL	PHONE NUMBER
EASTERN MUNICIPAL WATER DISTRICT	STRATTONH@EMWD.ORG	(951) 928-3777

PROJECT APPLICANT ADDRESS	CITY	STATE	ZIP CODE
2270 TRUMBLE ROAD,	PERRIS	CALI	92570

PROJECT APPLICANT *(Check appropriate box)*

☐ Local Public Agency ☐ School District ☒ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$3,839.25	$	
☒ Mitigated/Negative Declaration (MND)(ND)	$2,764.00	$	$2,764.00
☐ Certified Regulatory Program (CRP) document - payment due directly to CDFW	$1,305.25	$	

☐ Exempt from fee

- ☐ Notice of Exemption (attach)
- ☐ CDFW No Effect Determination (attach)

☐ Fee previously paid (attach previously issued cash receipt copy)

☐ Water Right Application or Petition Fee (State Water Resources Control Board only)	$850.00	$	
☒ County documentary handling fee		$	$50.00
☐ Other		$	

PAYMENT METHOD:

☐ Cash ☒ Credit ☐ Check ☐ Other **TOTAL RECEIVED** $ $2,814.00

SIGNATURE	AGENCY OF FILING PRINTED NAME AND TITLE
X C. Sandoval	Deputy Cassandra Sandoval

ORIGINAL - PROJECT APPLICANT COPY - CDFW/ASB COPY - LEAD AGENCY COPY - COUNTY CLERK DFW 753.5a (Rev. 01/01/2023)

Lead Agency: EASTERN MUNICIPAL WATER DIST.
ATTN: JOSEPH BROADHEAD
Address: 2270 TRUMBLE ROAD
PERRIS, CA, 92570

FILED / POSTED
County of Riverside
Peter Aldana
Assessor-County Clerk-Recorder
E-202300297
03/15/2023 03:22 PM Fee: $ 2814.00
Page 1 of 2
Removed: 4/17/23 By: DRodriguez Deputy

Project Title

CACTUS AVENUE CORRIDOR GROUNDWATER WELLS PROJECT PHASE 3 PIPELINES

Filing Type

- ☐ Environmental Impact Report
- ☑ Mitigated/Negative Declaration
- ☐ Notice of Exemption
- ☐ Other:

Notes

Final Subsequent Initial Study and Mitigated Negative Declaration

Cactus Avenue Corridor Groundwater Wells Project

State Clearinghouse # 2020030267

Prepared by:

Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92572-8300

With Assistance From:

Woodard & Curran

9665 Chesapeake Drive, Suite 320
San Diego, CA 92123
858.875.7400

February 2023

TABLE OF CONTENTS

Figures

Tables

Appendices

Acronyms

Acronym	Definition
AB	Assembly bill
AFY	Acre-feet per year
AHPA	Archaeological and Historic Preservation Act
Basin Plan	Santa Ana Basin Water Quality Control Plan
BMPs	Best Management Practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalFire	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act

Acronym	Definition
CFR	Code of Federal Regulations
CMP	Congestion Management Plan
COCs	Contaminants of Concern
CZMA	Coastal Zone Management Act
DDW	State Water Resources Control Board Division of Drinking Water
DFA	State Water Resources Control Board Division of Financial Assistance
DWSAP	Drinking Water Source Assessment Program
DWSRF	Drinking Water State Revolving Fund
DTSC	California Department of Toxic Substances Control
EIR	Environmental Impact Report
EMWD	Eastern Municipal Water District
EOP	Emergency Operations Plan
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FWCA	Fish and Wildlife Coordination Act
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
IS	Initial Study
IS/MND	Initial Study/Mitigated Negative Declaration
LHMP	Local Hazard Mitigation Plan
LOS	level of service
LRA	Local Responsibility Area
MARB	March Air Reserve Base
MND	Mitigated Negative Declaration
MMRP	Mitigation Monitoring and Reporting Program
MRZ	Mineral Resource Zone
MSHCP	Multiple Species Habitat Conservation Plan

Acronym	Definition
NAAQS	National Ambient Air Quality Standards
ND	Negative Declaration
NHMLAC	Natural History Museum of Los Angeles County
NHPA	National Historic Preservation Act
NOD	Notice of Determination
NPDES	National Pollutant Discharge Elimination System
O&M	operations and maintenance
OPR	California Governor's Office of Planning and Research
PRC	Public Resources Code
PVC	polyvinyl chloride
PCE	perchloroethylene
RCTC	Riverside County Transportation Commission
RCFCWCD	Riverside County Flood Control and Water Conservation District
RTA	Riverside Transit Agency
RWQCB	Regional Water Quality Control Board
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SGMA	Sustainable Groundwater Management Act
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TDS	total dissolved solids
US EPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
VHFHSZ	very high fire hazard severity zone
VMT	vehicle miles traveled

Acronym	Definition
VOC	volatile organic compound

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COMMENT LETTERS AND RESPONSES

A comment letter was received from the State Water Resources Control Board (SWRCB) Division of Financial Assistance (DFA) and Division of Drinking Water (DDW) during the public review period (December 7, 2022 – January 6, 2023) of the Draft Subsequent Initial Study and Mitigated Negative Declaration (IS/MND) for the Cactus Avenue Corridor Groundwater Wells Project Raw Water Conveyance Pipeline Phase III. The comments letter received on the Draft Subsequent MND has been numbered and Eastern Municipal Water District (EMWD) has provided a written response to each numbered comment. The responses have been based on the CEQA Guidelines, Section 15088 – Evaluation of and Response to Comments. The comment letters and responses are provided on the following pages in side-by-side format. The numbered comments are provided on the left side of the page and EMWD's response is provided on the right of the page opposite each comment. Comments received during the public review period did not result in changes to the Subsequent Mitigated Negative Declaration.

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Comments

Responses

State Water Resources Control Board

January 4, 2023

Eastern Municipal Water District
Attention: Joseph Broadhead
PO Box 8300
Perris, CA 92572

EASTERN MUNICIPAL WATER DISTRICT (DISTRICT), MITIGATED NEGATIVE DECLARATION FOR THE SUBSEQUENT INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION- CACTUS AVENUE CORRIDOR GROUNDWATER WELLS PROJECT (PROJECT); STATE CLEARINGHOUSE NO. 2020030267

A-1

Dear Mr. Joseph Broadhead:

We understand that the District is pursuing Drinking Water State Revolving Fund (DWSRF) financing for this Project. As a state funding agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing the following information on the MND to be prepared for the Project.

The State Water Board, Division of Financial Assistance, is responsible for administering the DWSRF Program (Program). The primary purpose for the Program is to implement the Safe Drinking Water Act and various state laws by providing financial assistance for facilities improvements to provide clean potable water, and thereby protect and promote health, safety, and welfare of the inhabitants of the state.

The Program is partially funded by the United States Environmental Protection Agency (USEPA) and requires compliance with some of the federal environmental laws. Three enclosures are included that illustrate the Program's environmental review process including the additional federal environmental requirements. For the complete environmental application package and instructions please visit: https://www.waterboards.ca.gov/drinking_water/services/funding/SRFForms.html

The State Water Board is required to consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to the State Water Board's approval of a DWSRF financing commitment for your proposed Project. For further information on the Program, please contact Mrs. Bridget Binning at (916) 449-5641.

E. JOAQUIN ESQUIVEL, CHAIR | EILEEN SOBECK, EXECUTIVE DIRECTOR

1001 I Street, Sacramento, CA 95814 | Mailing Address: P.O. Box 100, Sacramento, CA 95812-0100 | www.waterboards.ca.gov

A-1 EMWD appreciates the State Water Resources Control Board (SWRCB) providing information regarding environmental requirements for pursuing Drinking Water State Revolving Fund (DWSRF) financing. The Subsequent IS/MND includes analysis pertinent to federal regulations (also referred to as federal cross-cutters, Tier 2, or CEQA-Plus), in the event the project pursues funding programs in the future that have a federal cost-share component. Federal environmental programs addressed in the Subsequent IS/MND can be found in Section 4 Federal Cross-Cutting Environmental Regulations Evaluation and include the Federal Endangered Species Act, Section 106 of the National Historic Preservation Act, and an analysis of environmental alternatives. At this time, EMWD is not pursuing DWSRF funding for the project.

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Comments | Responses

A-1 cont.

It is important to note that prior to a DWSRF financing commitment, projects subject to provisions of the Federal Endangered Species Act (ESA), must obtain ESA, Section 7 clearance from the United States Department of the Interior, Fish and Wildlife Service (USFWS), and/or the United States Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) specific to any potential effects to special-status species.

Please be advised that the State Water Board will coordinate with the USEPA to consult with the USFWS, and/or the NMFS regarding all federal special-status species that the Project has the potential to affect if the Project is to be financed by the Program. The District will need to identify whether the Project will involve any direct effects from construction activities, or indirect effects such as growth inducement, that may affect federally listed threatened, endangered, or candidate species that are known, or have a potential to occur in the Project site, in the surrounding areas, or in the service area, and to identify applicable conservation measures to reduce such effects.

In addition, DWSRF projects must comply with federal laws pertaining to historic properties, specifically Section 106 of the National Historic Preservation Act (Section 106). The State Water Board is responsible for ensuring compliance with Section 106 and is required to consult directly with the California State Historic Preservation Officer (SHPO). The SHPO consultation is initiated once sufficient information is provided by the DWSRF applicant. If the District decides to pursues DWSRF financing, please retain a consultant that meets the Secretary of the Interior's Professional Qualifications Standards (https://www.nps.gov/articles/sec-standards-prof-quals.htm) to prepare a Section 106 compliance report.

Note, the content requirements of the Section 106 compliance report are more stringent that what is needed for California Environmental Quality Act (CEQA) compliance. The content requirements of the Historic Properties Identification Report, needed to support the SHPO consultation, are detailed on the State Water Board's website at https://www.waterboards.ca.gov/water_issues/programs/grants_loans/docs/cultural_resources_report_prep.pdf.

Other federal environmental requirements pertinent to the Project under the Program include the following (for a complete list of all federal requirements and instructions please visit: https://www.waterboards.ca.gov/drinking_water/services/funding/dwsrf_requirements.html

The DWSRF environmental review process regulations, 40 Code of Federal Regulations (CFR) § 35.3580, require some steps that are not part of the normal CEQA process. Some of these are below:

A. An analysis of environmental alternatives discussing environmental impacts of the Project.

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Comments

A-1 cont.

B. A public hearing or meeting for adoption/certification of all CEQA documents except for those with little or no environmental impacts.

A-2

Please also note: The State Water Resources Control Board, Division of Drinking Water (State Water Board, DDW) is also responsible for issuing water supply permits pursuant to the Safe Drinking Water Act. The Project is within the jurisdiction of DDW Riverside District. DDW Riverside District issues domestic water supply permit amendments to the public water systems serviced with a modified source of domestic water supply or new domestic water system components pursuant to Waterworks Standards (Title 22 CCR chapter 16 et. Seq.). A public water system requires a new water supply permit amendment for changes to a water supply source, storage, treatment; or a waiver of water works standards; and for the operation of new water system components including new distribution tanks equal to or over 100,000 gallons, new wells, and treatment systems. The Eastern Municipal Water District will need to apply for a water supply permit amendment for this Project.

Following are specific comments on the District's draft MND:

1. Please identify the need for the pipeline separation waiver and actions that will be taken to ensure the protection of public health. Please make sure to discuss any concerns regarding the installation of the pipeline within and/or near; the decommissioned underground storage tanks, the Federal Emergency Management Agency 100-year floodplain, storm drains, and other possible contamination sources.

A-3

If an application for funding will be submitted, please upload to Financial Assistance Application Submittal Tool the following applicable documents for the proposed Project, according to the District's CEQA process: (1) one copy of the draft and final MND with the Mitigation Monitoring and Reporting Program (MMRP), (2) the resolution adopting the MND and MMRP, (3) all comments received during the review period and the District's response to those comments, and (4) the Notice of Determination filed with the Riverside County Clerk and the Governor's Office of Planning and Research, State Clearinghouse. In addition, we would appreciate notices of any hearings or meetings held regarding environmental review of any projects to be funded by the State Water Board. If funding will not be perused, please forward the final above documents with your permit amendment application to the State Water Board, DDW Riverside District Office at DWPDIST20@waterboards.ca.gov

A-4

Thank you for the opportunity to review the District's draft MND. If you have any questions or concerns, please feel free to contact me at (916) 449-5285, or by email at Lori.Schmitz@waterboards.ca.gov, or contact Mrs. Bridget Binning at (916) 449-5641, or by email at Bridget.Binning@waterboards.ca.gov.

Sincerely,

Lori Schmitz

Digitally signed by Lori Schmitz
Date: 2023.01.04 16:20:08 -08'00'

Water Boards

Responses

A-2 The potential for the proposed project facilities to be impacted by environmental risks is not within the scope of a CEQA analysis (California Building Industry Association v. Bay Area Air Quality Management District [2015], Cal.4th, [Case No. S213478]). However, EMWD has provided the following response as a courtesy.

The need for a pipeline separation waiver is identified in Table 2-2 of this Subsequent IS/MND. The waiver will identify possible contamination sources such as decommissioned underground storage tanks, the Federal Emergency Management Agency 100-year floodplain, storm drains, and sewer pipelines. The waiver will identify where the proposed project may not conform to separation requirements in the California Code of Regulations. The location of the proposed project facilities in relation to possible contamination sources will be determined during final design. The waiver will identify design and operating conditions that will protect public health equivalent to the setback distances stipulated in the code. Proposed protective measures are expected to be similar to those in the pipeline separation waiver for EMWD's Raw Water Conveyance Pipeline Phase I and Phase II, and may include:

- At crossings where the proposed water pipeline crosses under existing utilities, maximize the vertical separation between the water pipeline and the existing utility, and align and install the segment of water pipeline such that there are no joints in the water pipeline on either side of the existing utility.
- Where the proposed water line parallels an existing utility, maximize the horizontal separation between the water

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Comments	Responses

Mr. Joseph Broadhead - 4 - January 4, 2023

Lori Schmitz
Environmental Scientist
Division of Financial Assistance
Special Project Review Unit
1001 I Street, 16th floor
Sacramento, CA 95814

Attachments (3):
1. Division of Financial Assistance CEQA Requirements
2. Drinking Water State Revolving Fund Environmental Review Requirements
3. Cultural Resources Report Preparation

cc: State Clearinghouse

Mrs. Bridget Binning, Division of Financial Assistance

Ms. Chun Huang, Division of Drinking Water

A-2 cont.

pipeline and the existing utility, and align and install the segment of water pipeline such that there are no joints in the water pipeline on either side of the existing utility.

- Use upgraded material for the proposed water pipeline with fused joints, welded joints, or restrained joints.
- Install the water pipeline within a steel casing or separate trench.

By complying with the pipeline separation waiver, EMWD will ensure protection of public health.

A-3 A DWSRF application is not being submitted for the Project and environmental materials are not being submitted to DFA at this time.

A-4 Following certification of the Subsequent IS/MND, all environmental documents will be submitted to DDW with a permit amendment application.

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Comments Responses

STATE WATER RESOURCES CONTROL BOARD,

DIVISION OF FINANCIAL ASSISTANCE

California Environmental Quality Act Requirements

The State Water Resources Control Board (State Water Board) Division of Financial Assistance (DFA) funds wastewater, recycled water, and drinking water infrastructure projects as well as water quality improvement projects using resources from various state grant programs. All applicants seeking grant funds must comply with the California Environmental Quality Act (CEQA) and provide appropriate documents to the State Water Board so that it can fulfill its CEQA responsibilities.

LEAD AGENCY

The applicant is usually the **Lead Agency** and must prepare and circulate an environmental document before approving a project. Only a public agency, such as a local, regional or state government, may be the Lead Agency under CEQA. If a project will be completed by a non-governmental organization, Lead Agency responsibility goes to the first public agency providing discretionary approval for the project. In this situation, the State Water Board may serve as Lead Agency.

RESPONSIBLE AGENCY

Typically, the State Water Board is a **Responsible Agency**. As a Responsible Agency, the State Water Board must make its own findings using information provided by the Lead Agency before funding a project.

STATE WATER BOARD RESPONSIBILITIES

The State Water Board's mission is to preserve, enhance, and restore the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure their proper allocation and efficient use for the benefit of present and future generations. To fulfill this responsibility, and to carry out obligations as a Responsible Agency under CEQA, the State Water Board must consider the Lead Agency's environmental document before funding a project.

ENVIRONMENTAL REVIEW

The State Water Board's environmental review process must be completed before the State Water Board can approve a project for funding and the project can begin construction.

DOCUMENT REVIEW

The State Water Board would like to review CEQA documents as early as possible. Applicants are encouraged to consult with agency staff during development of CEQA documents if considering applying for funding from DFA. Potential applicants should consider sending their environmental documents to DFA, Environmental Section during the CEQA public review period. This way, any environmental concerns the State Water Board has about the project can be addressed early in the process.

REQUIRED DOCUMENTS

The Environmental Section within DFA requires the documents listed below to complete the environmental review:

1. **Draft and Final Environmental Documents** – Environmental Impact Reports, Negative Declarations, Mitigated Negative Declarations, Notice of Exemptions, as appropriate for the project;

2. **All comments** – that were received during the public review period and the Lead Agency's responses to those comments;

3. **Adopted Mitigation Monitoring and Reporting Plan** – this is separate from, and in addition to, the identification of mitigation measures in the CEQA document;

4. **Resolution/Minutes** – these document that the applicant adopted or certified the CEQA document, made CEQA findings, and approved the project;

5. **Date-stamped copy of the Notice of Determination or Notice of Exemption** – these result after filing of the document with the County Clerk and the Governor's Office of Planning and Research; and

6. **Completed Environmental Package** – this is a component of the Funding Application.

Once the State Water Board receives all the required documents and determines them to be adequate to make its own findings, the environmental review for the funding application will be completed.

CONTACT INFORMATION

For more information about the State Water Board's environmental review process, please visit our website: *https://www.waterboards.ca.gov/water_issues/programs/grants_loans/environmental_requirements.html*

CALIFORNIA Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

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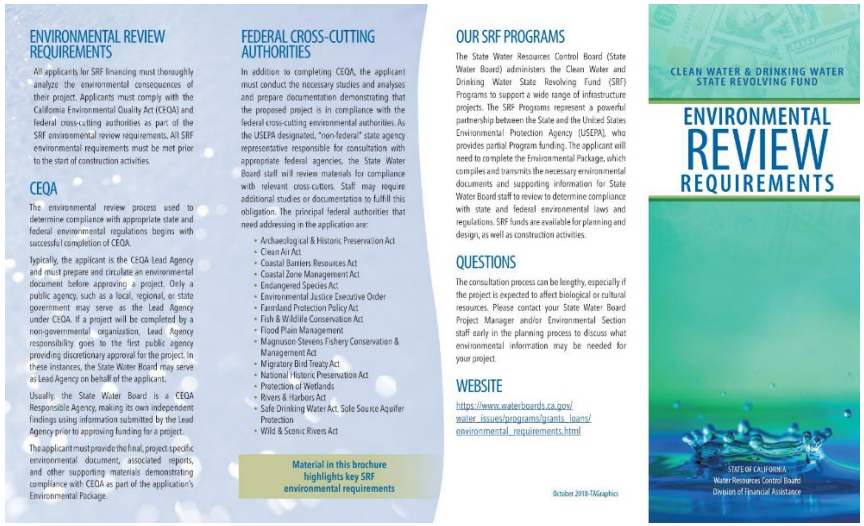
Comments

Responses



ENVIRONMENTAL REVIEW REQUIREMENTS

All applicants for SRF financing must thoroughly analyze the environmental consequences of their project. Applicants must comply with the California Environmental Quality Act (CEQA) and federal cross-cutting authorities as part of the SRF environmental review requirements. All SRF environmental requirements must be met prior to the start of construction activities.

CEQA

The environmental review process used to determine compliance with appropriate state and federal environmental regulations begins with successful completion of CEQA.

Typically, the applicant is the CEQA Lead Agency and must prepare and circulate an environmental document before approving a project. Only a public agency, such as a local, regional, or state government may serve as the Lead Agency under CEQA. If a project will be completed by a non-governmental organization, Lead Agency responsibility goes to the first public agency providing discretionary approval for the project. In these instances, the State Water Board may serve as Lead Agency on behalf of the applicant.

Usually, the State Water Board is a CEQA Responsible Agency, making its own independent findings using information submitted by the Lead Agency prior to approving funding for a project.

The applicant must provide the final, project specific environmental document, associated reports, and other supporting materials demonstrating compliance with CEQA as part of the application's Environmental Package.

FEDERAL CROSS-CUTTING AUTHORITIES

In addition to completing CEQA, the applicant must conduct the necessary studies and analyses and prepare documentation demonstrating that the proposed project is in compliance with the federal cross-cutting environmental authorities. As the USEPA designated, "non-federal" state agency representative responsible for consultation with appropriate federal agencies, the State Water Board staff will review materials for compliance with relevant cross-cutters. Staff may require additional studies or documentation to fulfill this obligation. The principal federal authorities that need addressing in the application are:

- Archaeological & Historic Preservation Act
- Clean Air Act
- Coastal Barriers Resources Act
- Coastal Zone Management Act
- Endangered Species Act
- Environmental Justice Executive Order
- Farmland Protection Policy Act
- Fish & Wildlife Conservation Act
- Flood Plain Management
- Magnuson-Stevens Fishery Conservation & Management Act
- Migratory Bird Treaty Act
- National Historic Preservation Act
- Protection of Wetlands
- Rivers & Harbors Act
- Safe Drinking Water Act, Sole Source Aquifer Protection
- Wild & Scenic Rivers Act

Material in this brochure highlights key SRF environmental requirements

OUR SRF PROGRAMS

The State Water Resources Control Board (State Water Board) administers the Clean Water and Drinking Water State Revolving Fund (SRF) Programs to support a wide range of infrastructure projects. The SRF Programs represent a powerful partnership between the State and the United States Environmental Protection Agency (USEPA), who provides partial Program funding. The applicant will need to complete the Environmental Package, which compiles and transmits the necessary environmental documents and supporting information for State Water Board staff to review to determine compliance with state and federal environmental laws and regulations. SRF funds are available for planning and design, as well as construction activities.

QUESTIONS

The consultation process can be lengthy, especially if the project is expected to affect biological or cultural resources. Please contact your State Water Board Project Manager and/or Environmental Section staff early in the planning process to discuss what environmental information may be needed for your project.

WEBSITE

https://www.waterboards.ca.gov/water_issues/programs/grants_loans/environmental_requirements.html

October 2018-TAGraphics

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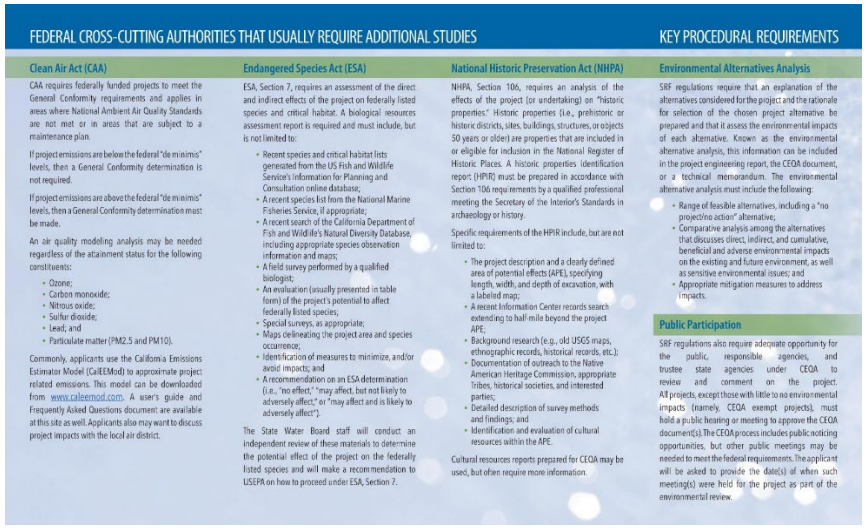
Comments Responses



FEDERAL CROSS-CUTTING AUTHORITIES THAT USUALLY REQUIRE ADDITIONAL STUDIES

Clean Air Act (CAA)

CAA requires federally funded projects to meet the General Conformity requirements and applies in areas where National Ambient Air Quality Standards are not met or in areas that are subject to a maintenance plan.

If project emissions are below the federal "de minimis" levels, then a General Conformity determination is not required.

If project emissions are above the federal "de minimis" levels, then a General Conformity determination must be made.

An air quality modeling analysis may be needed regardless of the attainment status for the following constituents:

- Ozone;
- Carbon monoxide;
- Nitrous oxide;
- Sulfur dioxide;
- Lead; and
- Particulate matter (PM2.5 and PM10).

Commonly, applicants use the California Emissions Estimator Model (CalEEMod) to approximate project related emissions. This model can be downloaded from www.caleemod.com. A user's guide and Frequently Asked Questions document are available at this site as well. Applicants also may want to discuss project impacts with the local air district.

Endangered Species Act (ESA)

ESA, Section 7, requires an assessment of the direct and indirect effects of the project on federally listed species and critical habitat. A biological resources assessment report is required and must include, but is not limited to:

- Recent species and critical habitat lists generated from the US Fish and Wildlife Service's Information for Planning and Consultation online database;
- A recent species list from the National Marine Fisheries Service, if appropriate;
- A recent search of the California Department of Fish and Wildlife's Natural Diversity Database, including appropriate species observation information and maps;
- A field survey performed by a qualified biologist;
- An evaluation (usually presented in table form) of the project's potential to affect federally listed species;
- Special surveys, as appropriate;
- Maps delineating the project area and species occurrence;
- Identification of measures to minimize, and/or avoid impacts; and
- A recommendation on an ESA determination (i.e., "no effect," "may affect, but not likely to adversely affect," or "may affect and is likely to adversely affect").

The State Water Board staff will conduct an independent review of these materials to determine the potential effect of the project on the federally listed species and will make a recommendation to USEPA on how to proceed under ESA, Section 7.

National Historic Preservation Act (NHPA)

NHPA, Section 106, requires an analysis of the effects of the project (or undertaking) on "historic properties." Historic properties (i.e., prehistoric or historic districts, sites, buildings, structures, or objects 50 years or older) are properties that are included in or eligible for inclusion in the National Register of Historic Places. A historic properties identification report (HPIR) must be prepared in accordance with Section 106 requirements by a qualified professional meeting the Secretary of the Interior's Standards in archaeology or history.

Specific requirements of the HPIR include, but are not limited to:

- The project description and a clearly defined area of potential effects (APE), specifying length, width, and depth of excavation, with a labeled map;
- A recent Information Center records search extending to half-mile beyond the project APE;
- Background research (e.g., old USGS maps, ethnographic records, historical records, etc.);
- Documentation of outreach to the Native American Heritage Commission, appropriate Tribes, historical societies, and interested parties;
- Detailed description of survey methods and findings; and
- Identification and evaluation of cultural resources within the APE.

Cultural resources reports prepared for CEQA may be used, but often require more information.

KEY PROCEDURAL REQUIREMENTS

Environmental Alternatives Analysis

SRF regulations require that an explanation of the alternatives considered for the project and the rationale for selection of the chosen project alternative be prepared and that it assess the environmental impacts of each alternative. Known as the environmental alternative analysis, this information can be included in the project engineering report, the CEQA document, or a technical memorandum. The environmental alternative analysis must include the following:

- Range of feasible alternatives, including a "no project/no action" alternative;
- Comparative analysis among the alternatives that discusses direct, indirect, and cumulative, beneficial and adverse environmental impacts on the existing and future environment, as well as sensitive environmental issues; and
- Appropriate mitigation measures to address impacts.

Public Participation

SRF regulations also require adequate opportunity for the public, responsible agencies, and trustee state agencies under CEQA to review and comment on the project. All projects, except those with little to no environmental impacts (namely, CEQA exempt projects), must hold a public hearing or meeting to approve the CEQA document(s). The CEQA process includes public noticing opportunities, but other public meetings may be needed to meet the federal requirements. The applicant will be asked to provide the date(s) of when such meeting(s) were held for the project as part of the environmental review.

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Comments

Responses

GUIDELINES FOR APPLICANTS AND THEIR CONSULTANTS ON PREPARING HISTORIC PROPERTY IDENTIFICATION REPORTS FOR THE CLEAN AND DRINKING WATER STATE REVOLVING FUND (SRF) PROGRAMS

All applicants seeking Clean Water or Drinking Water SRF financing for construction projects from the State Water Resources Control Board (State Water Board), Division of Financial Assistance (DFA), must comply with both California Environmental Quality Act (CEQA) and the federal cross-cutting regulations. CEQA requires public agencies to assess the impacts of their projects on historical resources. In addition to CEQA, Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (Section 106), requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. (Tip: "undertaking" is a NHPA term equivalent to "project" in CEQA). A historic property is a prehistoric or historic district, site, building, structure, or object that is eligible for or listed on the National Register of Historic Places (NRHP).

The State Water Board administers the SRF Programs. The SRF Programs are partially funded by annual capitalization grants from the United States Environmental Protection Agency (USEPA). Issuance of SRF funds by the State Water Board is considered equivalent to a federal action, thereby necessitating compliance with Section 106. The USEPA has delegated lead agency responsibility to the State Water Board for carrying out the requirements of Section 106.

The State Water Board requires the applicant to provide a complete environmental package with their financial assistance application. The Historic Property Identification Report (HPIR) is key to showing a reasonable and good faith effort was made to identify historic properties. The State Water Board uses this report to make NRHP eligibility determinations and to support the State Water Board's finding of effect for the undertaking. Documentation of concluded consultation with the State Historic Preservation Officer (SHPO) is required to illustrate compliance with NHPA. The HPIR is part of the State Water Board's submittal to the SHPO.

SHPO CONSULTATION

The State Water Board is responsible for SHPO consultation. Submit two hard copies of the final HPIR to the State Water Board. One hard copy of the report will be submitted to the SHPO as part of the State Water Board's consultation package and one will be kept on file.

BEFORE HIRING A CULTURAL RESOURCES CONSULTANT

If you think your project is the type of activity that does not have the potential to cause effects on historic properties, contact DFA, Senior Cultural Resources Officer (CRO)

Comments | Responses

before contracting a cultural resources consultant. This decision is based on the nature of the undertaking, not on the presence or absence of cultural resources. If the State Water Board determines the undertaking does not have the potential to cause effects, no further study is required. Projects like this would likely involve no ground disturbance, no modification of buildings, and be exempt under CEQA (e.g. replacing standard meters with AMR meters or re-coating tank interiors).

If the CRO determines that the undertaking is a type of activity that has the potential to cause effects, an HPIR will be required, even if the project is exempt from CEQA. Many applicants may have already had a cultural resources report completed for CEQA compliance. Those reports may be used to partially fulfill the requirements of Section 106. Be aware that cultural resources reports written for CEQA assessments often need to be revised or supplemented with additional information to meet NHPA requirements, especially when resources are present in the project footprint (called the area of potential effects [APE] in NHPA).

PROFESSIONAL QUALIFICATION STANDARDS

The HPIR must be prepared by a Principal Investigator(s) who meets the Secretary of the Interior's Standards for Professional Qualifications (SIPQS; 62 FR 33708-33723) in the discipline most relevant to the resource types likely to be in the study area. For example, if the undertaking is located in a city center, a qualified architectural historian may be most appropriate. On the other hand, if an undertaking is located in an area that may have Native American archaeological sites, a qualified archaeologist should be employed. Some undertakings may require more than one expertise. The SIPQS is available at https://www.gpo.gov/fdsys/pkg/FR-1997-06-20/pdf/97-16168.pdf.

The report must be attributed to an author and the author must summarize their SIPQS in the report. It is important to note that a graduate degree in the appropriate field and a year full-time experience as a supervisor is required (62 FR 33708-33723). Using unqualified personnel for fieldwork is not acceptable unless accompanied in the field by a SIPQS supervisor.

HISTORIC PROPERTIES IDENTIFICATION REPORT CONTENTS

To comply with NHPA and assist applicants and their consultants, the DFA has prepared these guidelines to help expedite the review and consultation process. Reports not meeting these guidelines will delay the environmental review process.

The HPIR should be a stand-alone document that includes all supporting documentation in the appendices. If the applicant is using information from more than one cultural report, there should be an accompanying explanation of how they relate. A new map showing the APE with resources from all the reports may need to be produced to tie it all together as one submittal.

The State Water Board is responsible for the finding of effect. The HPIR only needs to identify historic properties.

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Comments | Responses

The following is an outline of topics that should be included in the HPIR:

Summary of Findings – This is a succinct synopsis of the report findings, located before the Table of Contents. It is an abstract of the report.

Table of Contents and Table and Figure lists- This allows the reviewer to quickly find information they seek and helps speed up the review process.

Undertaking Description – The undertaking description should include the basic purpose and need and a description and location of the work. It does not need to have technical specifications.

Undertaking Vicinity Map – A map showing the undertaking vicinity or an inset map showing the undertaking location in relation to cities and known landmarks should be included in the report.

Area of Potential Effects – The APE must be described in both horizontal and vertical terms (belowground and aboveground elevation) and should include all components of the undertaking that have the potential to effect cultural resources, such as, construction footprint, staging areas, borrow areas, spoils locations, utility tie-ins, new access roads, vibrations, and visual effects, if applicable. The APE can be contiguous or discontinuous (Tip: If the undertaking is in the early design phase and the exact footprint isn't known, you should start by delineating a "study area", the largest area where work may be done. It is more time efficient to scale a study area down to an APE rather than to add new areas later.)

NOTE – When the APE crosses a historic property, the entire property should be included in the APE, because if part of the property is affected, all of the property, either directly or indirectly, is also affected. See OHP guidance on the APE http://ohp.parks.ca.gov/pages/1071/files/106Checklist_2018_Apr.pdf.

APE Map(s) – The APE map is one of the most important pieces of the HPIR. Provide a map showing the whole APE in an appropriate scale. If there are resources in or near the APE, the APE map should also show all identified resources from both the records search and the survey. The APE and resources should be depicted on one map and additional detail maps may be appropriate when there are resources in or adjacent to the APE. APE detail maps should be depicted at a more detailed scale on an aerial background clearly labeled with APE elements, primary numbers, and street names if appropriate. The entire APE doesn't need to be depicted that way, only the areas that are in or close to resources. At a minimum, maps must have a north arrow, scale bar, scale text, legend, figure number, and title. Resources should also be labeled. Maps produced in GIS are highly encouraged as are digital record search results.

Woodard & Curran

Comments

Responses

Natural and Cultural Context – A discussion of the undertaking's prehistoric and historic context should be proportionate to the resources identified. Context aids in identification and is also necessary for evaluation. Provide context that is applicable to the study area and resources identified.

Literature Review – At a minimum, the literature review should include a records search from the appropriate regional Information Center of the California Historical Resources Information System with GIS maps of resources and reports (Hand-drawn records search maps are strongly discouraged). Pre-field research should also include a review of historic-era maps (e.g. General Land Office Survey Plats, USGS topographic quadrangles, Rancho maps, Sanborn Fire Maps, official county maps etc. as appropriate).

Tribal and Additional Consulting Party Coordination – Contact the Native American Heritage Commission and request a Sacred Lands File search of the study area or APE and a Native American contact list. Send letters to the tribes and other interested parties, such as local historical societies, with the undertaking description, map, and contact information. Use the State Water Board provided Applicant 106 Template https://www.waterboards.ca.gov/water_issues/programs/grants_loans/docs/nahc_letter_template_tribal_info.docx) for tribal notification letters if possible. Follow-up all letters with a phone call or email to make sure the parties received the information and to answer questions and receive comments. Document all correspondence in a tracking table, like the one provided on our website, and include all correspondence in an appendix to the report. Lack of responses must also be documented.

Field Inspection Methods and Results– Tailor the field methodology to the APE conditions and kinds of resources that may be present. Describe the ground visibility, kind of survey, and transect intervals if used. If only part of the APE was surveyed either provide a map of the portion that was surveyed or describe it accurately enough for someone else to map it. Document all potential historic properties on the appropriate Department of Parks Recreation 523 forms.

NRHP Eligibility– Evaluate all prehistoric and historic-era sites, districts, buildings, structures, objects, and sites of religious and cultural significance in the APE that are 50 years old or older, that have not already had a consensus determination and are potentially significant for the NRHP. A cultural resource is a prehistoric or historic district, site, structure, or object that is at least 50 years old, regardless of historical significance. To qualify as a historic property, it must meet at least one of the four eligibility criteria listed in 36 CFR Section 60.4 and retain sufficient integrity. https://www.nps.gov/nr/publications/bulletins/nrb15/

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Comments | Responses

Evaluations by qualified individuals in the appropriate fields must address each of the four criteria for each resource. If one of the criteria or more apply, the seven characteristics of integrity should also be discussed. A concise and rational argument for or against eligibility must be made for each resource. Recommendations without justification or an appropriate level of research are not acceptable.

NOTE: You must evaluate the entire resource, even if only a part of it is in the APE. If that is not feasible for reasons including, lack of access to private property or the scope of the resource is outside the scope of the undertaking, estimated boundaries may be used to set reasonable limits. Boundaries should be based on historic maps or other documentation, and the reasoning behind the estimations explained. Discuss possible solutions with the CRO.

Appendices – Records Search Appendix: All records search data should be provided, including record search letter, maps of previously recorded resources and surveys, all site records from the record search that are in or adjacent to the APE, and Office of Historic Preservation Archaeological Determinations of Eligibility and Historic Properties Directory printouts. Tribal Outreach Appendix: Include the NAHC Sacred Lands File Search request and NAHC response, letters to and from tribes, copies of email responses from tribes, and a communications log detailing all correspondence including follow-up phone calls.

PRECAUTIONS

The following are common areas where cultural resources reports prepared for CEQA fall short of what is required under Section 106.

- A potential historic property is identified in the APE, but not evaluated. A cultural resource is not a historic property until it has been evaluated and found to be historically significant. If a resource is evaluated, it must also be documented on DPR forms.
- Evaluating a portion of a site or district is not acceptable. If an undertaking effects part of a historic property, it affects the whole property. The whole property must be evaluated. There are a few exceptions. If evaluation of a large property isn't feasible, discuss with the CRO.
- The APE is deemed "highly sensitive for buried archaeological sites" and monitoring is recommended as a mitigation. If the APE is highly sensitive for buried sites, additional analysis including sub-surface testing will likely be required. Monitoring may not be used as a substitute for thorough identification efforts.

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- "The area has already been disturbed by previous construction" is not a sufficient basis for a "No historic properties affected" recommendation. Disturbance may affect the integrity of a portion of a site, but it doesn't mean the whole site has been destroyed or is not eligible for the NRHP. Documentation is still required to demonstrate that the proposed undertaking will not affect historic properties or other sensitive resources, such as human remains.

- Recommendations are made for Inadvertent discovery procedures pursuant to CEQA instead of Section 106 post-review discovery procedures (See 36 CFR Section 800.13[b]).

CONFIDENTIALITY

HPIRs often contain confidential information about the location of archaeological sites. The Applicant or their consultant must provide the confidential version of the report to the State Water Board. Please do not upload confidential HPIRs to the State Water Board Financial Assistance Applications Submittal Tool (FAAST). Instead, send HPIRs directly to one of the cultural resources staff listed below that work in the Division of Financial Assistance. Hard copies can be mailed to State Water Resources Control Board, Division of Financial Assistance (Attn: <insert name>) P.O. Box 100 Sacramento CA 95812-0100.

•Wendy Pierce, Senior Environmental Scientist, at (916) 449-5178, or Wendy.Pierce@Waterboards.ca.gov

•Lisa Machado, Senior Cultural Resources Officer (Senior Environmental Planner) at (916) 323-0626, or Lisa.Machado@Waterboards.ca.gov

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1. INTRODUCTION

This document is an Initial Study (IS) and Subsequent Mitigated Negative Declaration (MND) for the Raw Water Conveyance Pipeline Phase III, a component of the Cactus Avenue Corridor Groundwater Wells Project. An IS/MND for the Cactus Avenue Corridor Groundwater Wells Project was adopted in May 2020 and an Addendum to the MND was adopted in February 2021 (State Clearinghouse # 2020030267), which are referred to hereafter as the "2020 IS/MND and Addendum" or "original approved project". This Subsequent IS/MND has been prepared pursuant to the California Environmental Quality Act (CEQA), Public Resources Code (PRC) Section 15162.

1.1 Project Background

The EMWD Board of Directors adopted the IS/MND for the Cactus Avenue Corridor Groundwater Wells Project in May 2020, and Addendum Number 1 to the MND in February 2021. Later in 2021, EMWD identified the need to include additional facilities, referred to as the Raw Water Conveyance Pipeline Phase III, in the project analyzed under the 2020 IS/MND and Addendum. A Subsequent IS/MND has been identified as the appropriate CEQA document to address the proposed changes to the original approved project (see discussion in *Section 1.5* regarding CEQA Guidelines for a Subsequent MND).

1.2 Original Approved Project and Addendum

The 2020 IS/MND and Addendum evaluated the environmental impacts associated with construction and operation of groundwater extraction, treatment and distribution facilities in the Perris North Groundwater Management Zone. The project included construction and operation of extraction wells, raw water pipelines, a water treatment and blending facility, and treated water pipelines. EMWD considered several optional sites for the extraction wells and treatment facilities. Up to six extraction wells would be constructed, but the locations of the wells were not yet finalized (with the exception of the East Sub-Area well that would be located on Santiago Drive). As such, EMWD identified seven potential locations for the four North Sub-Area wells and four potential locations for the second East Sub-Area well. EMWD analyzed the environmental impacts that could be associated with all 11 of the site options in the 2020 IS/MND and Addendum. The 2020 IS/MND also evaluated construction and operation of a central treatment facility at three potential locations. In addition, the 2020 IS/MND and Addendum evaluated environmental impacts associated with construction of up to 35,000 linear feet of pipeline to convey raw water from the extraction wells to the treatment facility, and to convey treated water from the treatment facility to the distribution system.

The overall goal of the original approved project is to increase EMWD potable supplies while also cleaning up contamination areas of concern in the Perris North Groundwater Basin. The original approved project is expected to produce approximately 3,700 acre feet per year (AFY), which equates to approximately 2.5 percent of EMWD's total demand. The project is described in further detail on the EMWD website at: https://www.emwd.org/moreno-valley-projects.

1.3 Proposed Raw Water Conveyance Pipeline Phase III

EMWD identified the need to add approximately 12,500 linear feet of new pipeline to convey water to the proposed central treatment facility from Well 66[1]. The 18-inch transmission pipeline would be installed along Ironwood Avenue from approximately the intersection with Kevin Street east to the intersection with Perris Boulevard, then along Perris Boulevard from the intersection with Ironwood Avenue south to the site of the central treatment facility located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane (**Figure 2-2**). The new pipeline would involve open trench construction within City of Moreno Valley right-of-way in Ironwood Avenue and Perris Boulevard, and California Department of Transportation (Caltrans) right-of-way in Perris Boulevard, with a Caltrans undercrossing at California State Route 60/Moreno Valley Freeway.

1.4 Purpose of this Subsequent Document

This Subsequent IS/MND addresses potential environmental effects of construction and operation of the Raw Water Conveyance Pipeline Phase III segment of the Cactus Avenue Corridor Groundwater Wells Project. The 2020 IS/MND and Addendum and the Subsequent IS/MND, together with other project-related documents, incorporated by reference herein, serve as the environmental review of the proposed project, pursuant to the provisions of CEQA and the CEQA Guidelines, 14 California Code of Regulations (CCR) Section 15162 et seq. EMWD is the lead agency under CEQA for the proposed project. CEQA requires that the lead agency prepare an IS to determine whether an Environmental Impact Report (EIR), Negative Declaration (ND), or MND is needed. EMWD has prepared this IS to evaluate the potential environmental consequences associated with the Raw Water Conveyance Pipeline Phase III project, and to disclose to the public and decision

[1] Well 66 was not part of the original approved project; the environmental impacts of Well 66 were addressed in an MND adopted by EMWD in 2014 (State Clearinghouse # 2014051001).

makers the potential environmental effects of the proposed project. Based on the analysis presented herein, an MND is the appropriate level of environmental documentation for the proposed project. EMWD's review of the Raw Water Conveyance Pipeline Phase III Subsequent IS/MND is limited to the scope of the Raw Water Conveyance Pipeline Phase III and does not include reconsideration of the findings of the 2020 IS/MND and Addendum.

1.5 Rationale for a Subsequent Mitigated Negative Declaration

The basis for preparation of the Subsequent document is based on the CEQA Guidelines, Section 15162 which states:

(a) When…a negative declaration [has been] adopted for a project, no subsequent [negative declaration] may be required for the project unless the lead agency determines, on the basis of substantial evidence in light of the whole record, one or more of the following:

(1) Substantial changes are proposed in the project which would require major revisions of the previous…negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which would require major revisions of the previous…negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous…negative declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous…negative declaration;

(B) Significant effects previously examined would be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

(b) If changes to a project or its circumstances occur or new information becomes available after adoption of a negative declaration, the lead agency shall prepare a subsequent EIR if required under subdivision (a). Otherwise, the lead agency shall determine whether to prepare a subsequent negative declaration, an addendum, or no further documentation.

(c) Once a project has been approved, the lead agency's role in project approval is completed, unless further discretionary approval on that project is required. Information appearing after an approval does not require reopening of that approval. If after the project is approved, any of the conditions described in subdivision (a) occurs, a subsequent EIR or negative declaration shall only be prepared by the public agency which grants the next discretionary approval for the project, if any. In this situation no other responsible agency shall grant an approval for the project until the subsequent EIR has been certified or subsequent negative declaration adopted.

EMWD has assessed the proposed project in light of the requirements defined under Section 15162 of the CEQA Guidelines and determined that the addition of up to approximately 12,500 linear feet of new pipeline including a crossing under California State Route 60/Moreno Valley Freeway constitutes a "substantial change to the proposed project which would require major revisions of the MND due to the involvement of new potentially significant environmental effects" per Section 15162(a)(1). As a result, a Subsequent IS/MND is the appropriate CEQA document for analysis and consideration of the Raw Water Conveyance Pipeline Phase III.

1.6 Scope of this Document

This Subsequent IS/MND has been prepared in accordance with CEQA (as amended) (Public Resources Code §§21000 et. seq.), and the 2022 State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, §§15000 et. seq.). Where appropriate, this document makes reference to either the CEQA Statute or State CEQA Guidelines.

This Subsequent IS/MND for the Raw Water Conveyance Pipeline Phase III contains all of the contents required by CEQA, which includes a project description, a description of the environmental setting, potential environmental impacts, mitigation measures for any significant effects, consistency with plans and policies, and names of preparers.

This Subsequent IS/MND evaluates the potential for environmental impacts to resource areas identified in Appendix G of the State CEQA Guidelines (as amended in December 2018). The environmental resource areas analyzed in this document include:

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

To support compliance with the federal environmental review requirements of potential funding programs, this document includes analysis pertinent to federal regulations (also referred to as federal cross-cutters or CEQA-Plus). Guidelines for complying with cross-cutting federal authorities can be found in the Drinking Water State Revolving Fund (DWSRF) regulations at 40 Code of Federal Regulations (CFR) Section 35.3575.

The federal cross-cutters analyzed in this document include:

- Archaeological and Historic Preservation Act (AHPA)
- Clean Air Act (CAA)
- Coastal Zone Management Act (CZMA)
- Federal Endangered Species Act (FESA)
- Environmental Justice
- Farmland Protection Policy Act
- Magnuson-Stevens Fishery Conservation and Management Act
- Migratory Bird Treaty Act
- National Historic Preservation Act (NHPA)
- Protection of Wetlands
- Rivers and Harbors Act, Section 10
- Safe Drinking Water Act, Sole Source Aquifer Protection

- Fish and Wildlife Coordination Act (FWCA)
- Floodplain Management: Executive Orders 11988, 12148, and 13690
- Wild and Scenic Rivers Act
- Environmental Alternative Analysis

1.7 Impact Terminology

The level of significance for each resource area uses CEQA terminology as specified below:

No Impact. No adverse environmental consequences have been identified for the resource or the consequences are negligible or undetectable.

Less than Significant Impact. Potential adverse environmental consequences have been identified. However, they are not adverse enough to meet the significance threshold criteria for that resource. No mitigation measures are required.

Less than Significant with Mitigation Incorporated. Adverse environmental consequences that have the potential to be significant but can be reduced to less than significant levels through the application of identified mitigation strategies that have not already been incorporated into the proposed project.

Potentially Significant. Adverse environmental consequences that have the potential to be significant according to the threshold criteria identified for the resource, even after mitigation strategies are applied and/or an adverse effect that could be significant and for which no mitigation has been identified. If any potentially significant impacts are identified, an EIR must be prepared to meet the requirements of CEQA.

1.8 CEQA Process

In accordance with CEQA Guidelines Section 15073, the Draft Subsequent IS/MND was circulated for a 30-day public review period (December 7, 2022 – January 6, 2023) to local and state agencies, and to interested organizations and individuals who may wish to review and comment on the report. EMWD circulated the Draft Subsequent IS/MND to the State Clearinghouse for distribution to State agencies. In addition, EMWD circulated a Notice of Intent to Adopt a Mitigated Negative Declaration to the Riverside County Clerk, responsible agencies, and interested entities, as well as published the Notice in the local newspaper, the Press Enterprise. A copy of the Draft Subsequent IS/MND was available for review at: https://www.emwd.org/emwd-construction-updates.

Written comments were to be submitted to EMWD by 5:00 p.m. on January 6, 2023 and addressed to:

Joseph Broadhead, Principal Water Resources Specialist – CEQA/NEPA
Eastern Municipal Water District
2270 Trumble Road
P.O. Box 8300
Perris, CA 92572-8300
broadhej@emwd.org

Following the 30-day public review period, EMWD evaluated all comments received on the Draft Subsequent IS/MND and incorporated any substantial evidence that the proposed project could have an impact on the environment into the Final Subsequent IS/MND. Additionally, EMWD prepared a Mitigation Monitoring and Reporting Program (MMRP) for the Raw Water Conveyance Pipeline Phase III project.

The Subsequent IS/MND and MMRP will be considered for adoption by the EMWD Board of Directors in compliance with CEQA at a future publicly noticed hearing, which are held on the 1st and 3rd Wednesday of each month at EMWD's headquarters.

1.9 Summary of Findings

Original Approved Project

The 2020 IS/MND and Addendum analyzed all resource topics in accordance with CEQA and the State CEQA Guidelines and found the original approved project would result in no impacts, less than significant impacts, or less than significant impacts with mitigation incorporated. Consequently, the original approved project was found to not result in any environmental effects that would cause substantial adverse effects, directly or indirectly. The majority of the original approved project would be located within roadway rights-of-way and previously developed or disturbed areas. The 2020 IS/MND and Addendum concluded that with implementation of mitigation measures, the original approved project would not have the potential to substantially degrade the quality of the environment, reduce wildlife habitat, result in adverse impacts to wildlife populations or communities, eliminate important examples of major periods of California history or prehistory, or cause substantial adverse effects on human beings. The 2020 IS/MND and Addendum also analyzed pertinent federal cross-cutting regulations to meet grant funding requirements and found that the original approved project would be in compliance with all applicable federal cross-cutting regulations.

Raw Water Conveyance Pipeline Phase III

The environmental analysis in this Subsequent IS/MND has concluded that, although the Raw Water Conveyance Pipeline Phase III segment constitutes a substantial change to the original approved project which would require major revisions of the 2020 IS/MND due to the involvement of new significant environmental effects, those effects would be less than significant with mitigation incorporated. All mitigation measures identified in the 2020 IS/MND and Addendum plus new mitigation measures in this Subsequent IS/MND would be required to minimize or reduce potential environmental impacts to less than significant levels. New mitigation measures would be required to minimize potential impacts from construction activities on protected species of reptiles and mammals that have a low potential to occur at the project site.

2. PROJECT DESCRIPTION

2.1 Project Overview

The Raw Water Conveyance Pipeline Phase III ("project" or "proposed project") involves construction and operation of approximately 12,500 linear feet of 18-inch diameter polyvinyl chloride (PVC) raw water transmission pipeline with air release valves within Ironwood Avenue and Perris Boulevard. The proposed project would convey raw groundwater from the Well 66 site, located on the south side of Ironwood Avenue at approximately the intersection with Kevin Street. Water from Well 65 is conveyed to the Well 66 site through an existing pipeline in Ironwood Avenue, then the combined flows would be conveyed to the proposed central treatment facility on Perris Boulevard between Bay Avenue and St. Christopher Lane via the proposed project. Please refer to *Section 2.5 Proposed Project Description* for a detailed description of the project components.

2.2 Project Purpose

The proposed project, together with the other facilities of the Cactus Avenue Corridor Groundwater Wells Project, is part of the Perris North Basin Contamination Prevention and Remediation Program, which has an overall goal of cleaning up contamination areas of concern in the Perris North Groundwater Basin while also increasing EMWD local potable supplies. Currently, groundwater in the Perris North Groundwater Management Zone is contaminated. Contaminants of Concern (COCs) include perchloroethylene (PCE), volatile organic compounds (VOCs), nitrate, perchlorate, total dissolved solids (TDS), fluoride, and manganese (co-mingled VOC-Nitrate Plume). Potential contamination sources were identified by EMWD through implementation of the Drinking Water Source Assessment Program (DWSAP), as well as the State Water Resources Control Board (SWRCB)'s GeoTracker and Department of Toxic Substances Control (DTSC)'s EnviroStor database research, in developing a map of the comingled plume. The project would convey extracted contaminated groundwater to a central facility for treatment.

The project, together with the other facilities of the Cactus Corridor Groundwater Wells Project, would also augment local water supply in the EMWD service area. In doing so, it would reduce EMWD's need to purchase additional imported water. Currently, approximately 75 percent of EMWD's potable water demand is supplied by imported water from MWD through its connections to the Colorado River Aqueduct and its connections to the State Water Project, while approximately 25 percent of EMWD's drinking water comes from local EMWD groundwater wells. The majority of the groundwater produced by EMWD comes from its wells in the Hemet and San Jacinto

areas. EMWD also has existing wells in the Moreno Valley, Perris Valley, and Murrieta areas. In 2025, EMWD's potable and raw water demands were estimated to be approximately 100,000 AFY, according to its latest Urban Water Management Plan (EMWD 2021). The entire Perris North Program is expected to convey approximately 3,500 AFY from a total of six extraction wells; the two wells that will produce water to be conveyed by the Raw Water Conveyance Pipeline Phase III (Wells 65 and 66) will generate approximately 970 AFY, assuming a 90 percent online factor. This equates to approximately one percent of the total demand, off-setting the equivalent volume of imported supply.

2.3 Project Location

The proposed project is located in the City of Moreno Valley, in the western portion of Riverside County, California (see **Figure 2-1**). The project would be constructed entirely within the existing Ironwood Avenue and Perris Boulevard rights-of-way. The proposed raw water pipeline would extend east from Well 66 on Ironwood Avenue, at approximately the intersection with Kevin Street, then turn south and extend along Perris Boulevard until it reaches the planned central treatment facility located between Bay Avenue and St. Christopher Lane (see **Figure 2-2**).

2.4 Environmental Setting

The project area setting is generally built-out. Surrounding land uses include commercial, light industrial, churches, single and multi-family residential, and public facilities including parks and schools.

2.4.1 Sensitive Receptors

Sensitive receptors adjacent to the proposed pipeline alignment include single-family residences, multi-family residences, churches, day care centers, and a public park. Ramona Elementary School, Sunnymead Montessori School, and the Riverside Academy are located within one-quarter mile of the project. Ramona Elementary and Sunnymead Montessori are on Bay Avenue, 0.12 mile west of the intersection with Perris Boulevard. Riverside Academy is located south of the central treatment facility site, on the adjacent parcel. St Christopher Parish, which houses the St. Christopher preschool, is located on the southeast corner of Perris Boulevard and Cottonwood Avenue. Faith-based facilities are located on the southwest corner of Perris Boulevard and Eucalyptus Avenue, and on the south side of Ironwood Avenue, east of Indian Street, although it is unclear if they currently house a preschool. An in-home day care center may be present along Perris Boulevard at 12152 Odessa Drive. Sunnymead Park is located on the west side of Perris Boulevard, north of Fir Avenue. Both the Riverside County Regional Medical Center and

Kaiser Permanente Moreno Valley Medical Center are farther than one mile from the proposed project alignment.

2.4.2 Utilities

Electrical service and natural gas service in the proposed project area is provided by Southern California Edison (SCE) and the Southern California Gas Company, respectively. EMWD provides water and wastewater services in the project area. Solid waste services are provided by Waste Management of Inland Valley. Existing facilities for these utilities are located throughout the vicinity of the proposed project.

Drainage facilities within the project alignment include underground storm drains along Ironwood Avenue and Perris Boulevard. The proposed project alignment on Perris Boulevard parallels a Riverside County Flood Control and Water Conservation District (RCFCWCD) storm drain in Perris Boulevard and crosses RCFCWCD storm drains at Fir Avenue, Eucalyptus Avenue, Dracaea Avenue, and Cottonwood Avenue. The proposed project alignment would also cross the Sunnymead stormwater channel where the channel intersects Perris Boulevard north of the Highway 60/Moreno Valley Freeway. Other utilities in Perris Boulevard include two to three water pipelines, and one to two sewer pipelines, depending on the location. In Ironwood Avenue, the proposed project alignment crosses RCFCWCD storm drains at Indian Street and Hubbard Street. Other existing utilities in Ironwood Avenue include a water pipeline, sewer pipeline, gas pipeline, and fiber optic cable. There is also an existing storm drain in Ironwood Avenue.

2.4.3 Transportation

The project site is roughly 3.5 miles east of Interstate (I)-215 and intersects Highway 60/Moreno Valley Freeway along Perris Boulevard. The proposed alignment is located along the major roadways of Ironwood Avenue and Perris Boulevard, which are classified as a minor arterial and mixed-use boulevard, respectively. The proposed alignment is also entirely within the City of Moreno Valley's designated truck routes, which run east-west along Ironwood Avenue and north-south along Perris Boulevard (City of Moreno Valley 2019). In addition, Ironwood Avenue is also classified as a Class II bike lane (City of Moreno Valley, 2021). The nearest state-designated scenic highway is State Route 243, approximately 20 miles east of the project area (Caltrans 2018).

Active bus routes along the project alignment are operated by Riverside Transit Agency (RTA) and include Route 11 Moreno Valley Mapp – March ARB Loop Route and Route 19 Moreno Valley Mall to Perris Station Transit Center (RTA 2021).

The Riverside County Transportation Commission (RCTC) owns a rail line located west of the City, parallel to I-215 (roughly four miles west of the project site), which carries commuter rail service and a low volume of freight trains.

2.4.4 Airports

The March Air Reserve Base (MARB) is located southwest of the City of Moreno Valley. It is currently active as a center for military reserve activities and as a military communication center. The runways at the base are located along the western edge of the base, approximately 3.5 miles from the project alignment. The nearest municipal airport is the San Bernardino International Airport which is located over 10 miles north of the project area.

2.4.5 Air Quality and Water Quality

The project is located within the jurisdiction of the South Coast Air Quality Management District (SCAQMD) within the South Coast Air Basin (SCAB). Under the National Ambient Air Quality Standards (NAAQS), the SCAB is in nonattainment status for ozone (1-hour and 8-hour) and particulate matter 2.5 (24-hour and annual). Under the California Ambient Air Quality Standards (CAAQS), the SCAB is in nonattainment status for ozone (1-hour and 8-hour), particulate matter 2.5 (annual), and particulate matter 10 (24-hour and annual) (SCAQMD 2022).

The project alignment lies within the San Jacinto River watershed of the Santa Ana River Basin. Water quality in the Santa Ana River Basin is regulated by the Santa Ana Regional Water Quality Control Board (Santa Ana RWQCB) through the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan).

2.4.6 Geology

The project alignment is located within the north-central portion of the Perris Block region of the Peninsular Ranges Geomorphic Province of Southern California. The Perris Block is a relatively stable structural block bounded by the active Elsinore and San Jacinto fault zones to the west and east, and the Chino and Temecula basins to the north and south, respectively. The San Jacinto Fault zone is the closest fault zone, located four miles east of the project area and has been known to be active up to present day. The majority of the project alignment is underlain by very old alluvial fan deposits of consolidated silt, sand, gravel, and conglomerate; however, some portions (the northern and southern sections of Perris Boulevard and the eastern portion of Ironwood Avenue) are underlain by young alluvial fan deposits of silt, sand, pebbly cobbly sand, and boulders (Converse Consultants 2022).

2.4.7 Habitat Conservation Plan

The project area is within the boundaries of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP was developed by Riverside County to aid in maintaining biological and ecological diversity within the region, while addressing requirements of the California Endangered Species Act and Federal Endangered Species Act. The MSHCP defines a reserve system that includes existing and proposed core habitat blocks and habitat linkages to accommodate the needs of wildlife and plant species. The Plan was completed in 2003, and associated permits were issued in 2004. EMWD is not a signatory to the MSHCP. None of the project alignment is located within existing or proposed reserve or criteria areas of the MSHCP (RCA 2022).

Figure 2-1: Regional Location

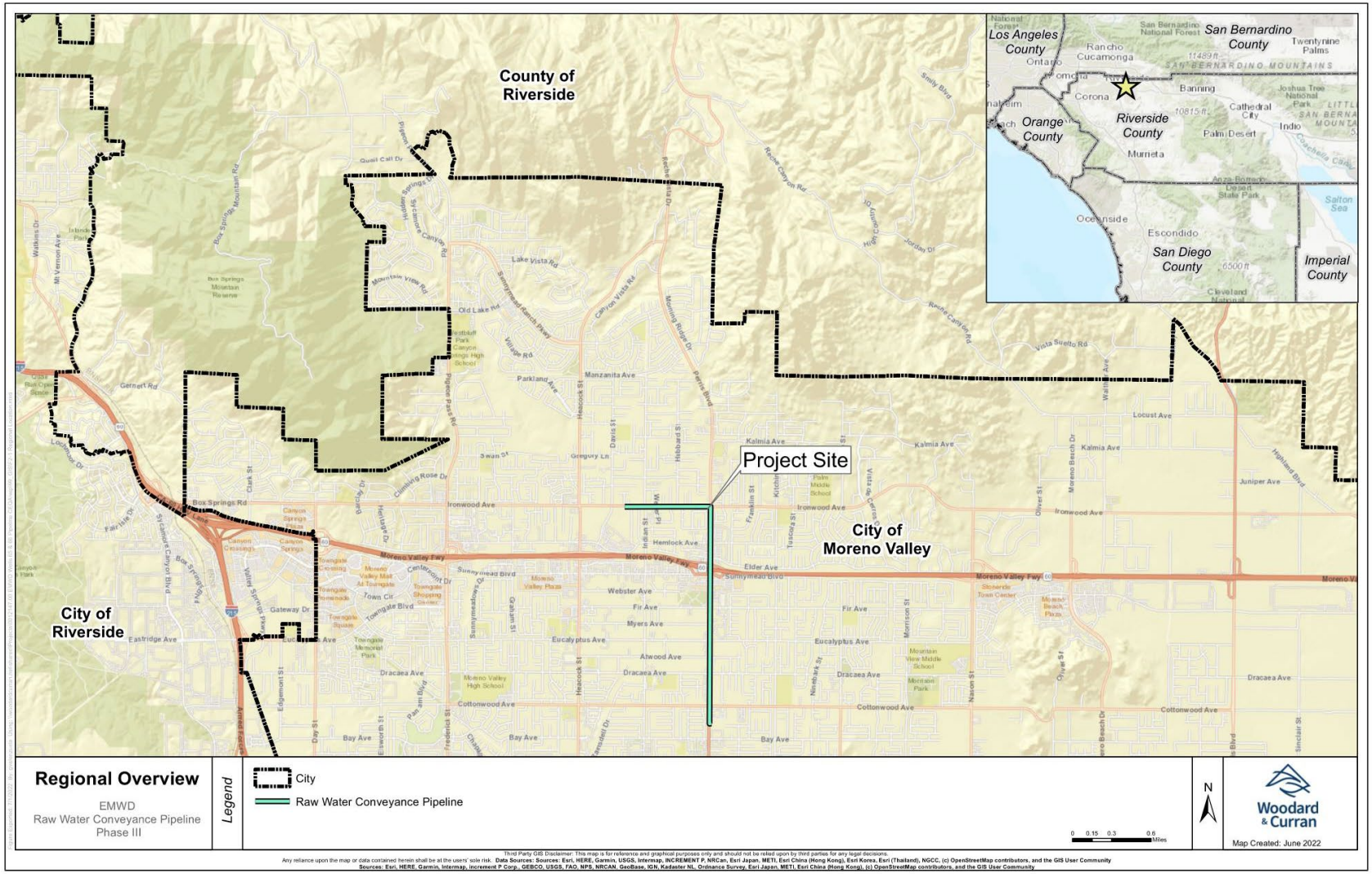
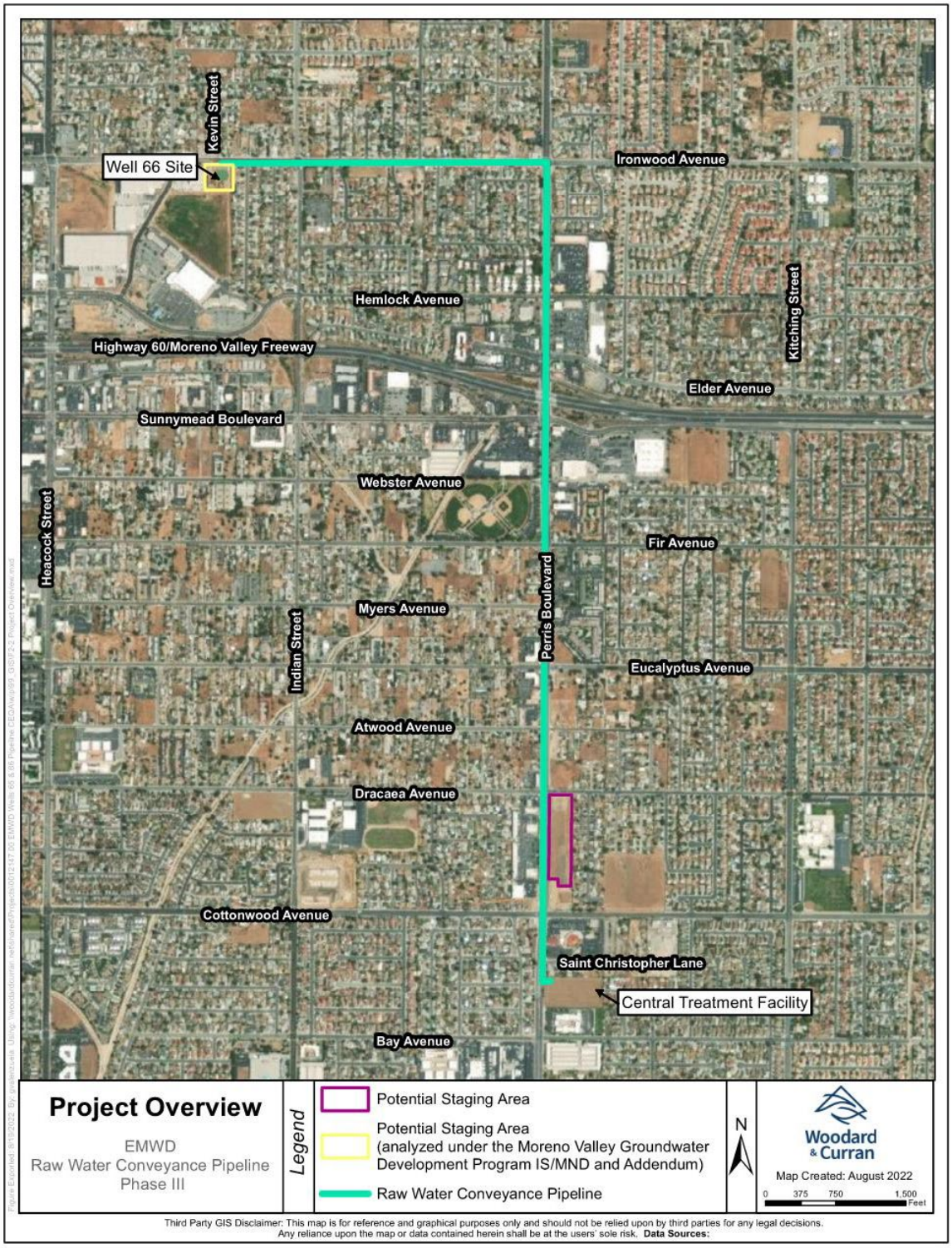


Figure 2-2: Project Overview



2.4.8 Existing Site Conditions

At the northwestern portion of the proposed project alignment, Ironwood Avenue consists of four lanes for vehicular traffic and a central turn lane. Ironwood Avenue has a bicycle lane on either side of the road, defined by pavement striping. Bus stops are located along the roadway. Pedestrian access consists of a sidewalk on both sides of the street. Ironwood Avenue is bordered by residential development on both sides. Several homes along Ironwood Avenue have driveway access to Ironwood Avenue. Many homes on Ironwood Avenue have fences or concrete masonry walls abutting Ironwood Avenue; however, many do not. **Figure 2-3** shows a representative photo of the existing conditions along Ironwood Avenue.

Figure 2-3: Ironwood Avenue at Marigold Avenue, view looking Northeast

The intersection of Ironwood Avenue and Perris Boulevard is surrounded by existing residential development. At the intersection, traffic is controlled by stoplights. Pedestrian crossings and sidewalks are present at all four crossings.
Figure 2-4 shows a representative photo of the existing conditions at the intersection.

Figure 2-4: Ironwood Avenue at Perris Boulevard, view looking southwest

Perris Boulevard consists of four lanes of vehicular traffic with a central turn lane and occasional raised median. Sidewalks are present on both sides of Perris Boulevard. California State Route 60 crosses Perris Boulevard via an overpass. The surrounding existing vicinity consists of commercial developments. **Figure 2-5** shows a representative photo of the existing conditions along Perris Boulevard.

Figure 2-5: Perris Boulevard at State Route 60, view looking south

Along the southern portion of the proposed project alignment, Perris Boulevard is bordered by residential and commercial development. Perris Boulevard has four lanes for vehicular traffic, a central turn lane and occasional raised median. Many homes and businesses have driveway access onto Perris Boulevard; however, some residences have concrete masonry walls along their property boundaries with Perris Boulevard. There are sidewalks and bus stops along Perris Boulevard. **Figure 2-6** shows a representative photo of the existing conditions along Perris Boulevard.

Figure 2-6: Perris Boulevard at St. Christopher Lane, view looking north

2.5 Proposed Project Description

The project would construct an 18-inch transmission pipeline and air release valves to convey raw, extracted groundwater to a central treatment facility. Details are provided in the following subsections.

2.5.1 Pipeline Construction

The proposed 12,500 linear foot pipeline would be installed within the paved Ironwood Avenue and Perris Boulevard roadway right of way using open-trench construction. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6-10 feet. The pipeline alignment would be designed to avoid conflict with existing utilities. The trenching cross section would resemble a "T" (see **Figure 2-7**) with the pipeline trench at the center being up to 42 inches wide and 6-10 feet deep. As required

by the City of Moreno Valley, the paving restoration area would be 12 inches wide and 8 inches deep on either side of the trench using a grind and overlay paving process (see **Figure 2-7**). The construction contractor would grind and overlay the equivalent of one lane width, or more, depending on the exact location where the alignment is positioned within the street. The width of resurfacing would be up to the nearest lane line or gutter in accordance with the City of Moreno Valley Trench Backfill and Roadway Repair Standard Plans.

The pipe under California State Route 60/Moreno Valley Freeway would be installed using an open cut trench technique within a casing. However, trenchless techniques may be required where the pipeline crosses under RCFCWCD storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. "Bore and Jack" employs a non-steerable system that drives an open-ended pipe laterally using a percussive hammer, thereby resulting in the displacement of soil limited to the wall thickness of the pipe. For this construction method, pits would be dug on either side of the surface feature to be avoided (e. g. storm channel or existing utilities). The pits would be 10-15 feet wide and 10-20 feet long for the receiving pit and up to 50 feet long for the jacking pit. The depth would depend on the feature to be avoided. At utility crossings, the depth is estimated to be 15 feet; however, for the purposes of this analysis, it is assumed bore and jack depth could be up to 40 feet. The boring equipment and pipe would be lowered into the pit and aligned at the appropriate depth and angle to achieve the desired exit location. A compressor would supply air to the pneumatic ramming tool to thrust the pipe forward. A cutting shoe may be welded to the front of the lead pipe to help reduce friction and cut through the soil. Depending on the size of the installation, spoil from inside the pipe would be removed with an auger, compressed air, water, or a combination of techniques. A seal cap would be installed on the starter pit side of the installation and spoil would be discharged into the receiver pit. Using this technique, ground surface disturbance would not occur, except at the pits.

2.5.2 Pipeline Appurtenances

Valve and blowoff assemblies would be installed to control flow as desired based on system operations. The proposed pipeline would be constructed with the following appurtenances. For safety and protection, appurtenances would be located a practicable distance from traffic lanes.

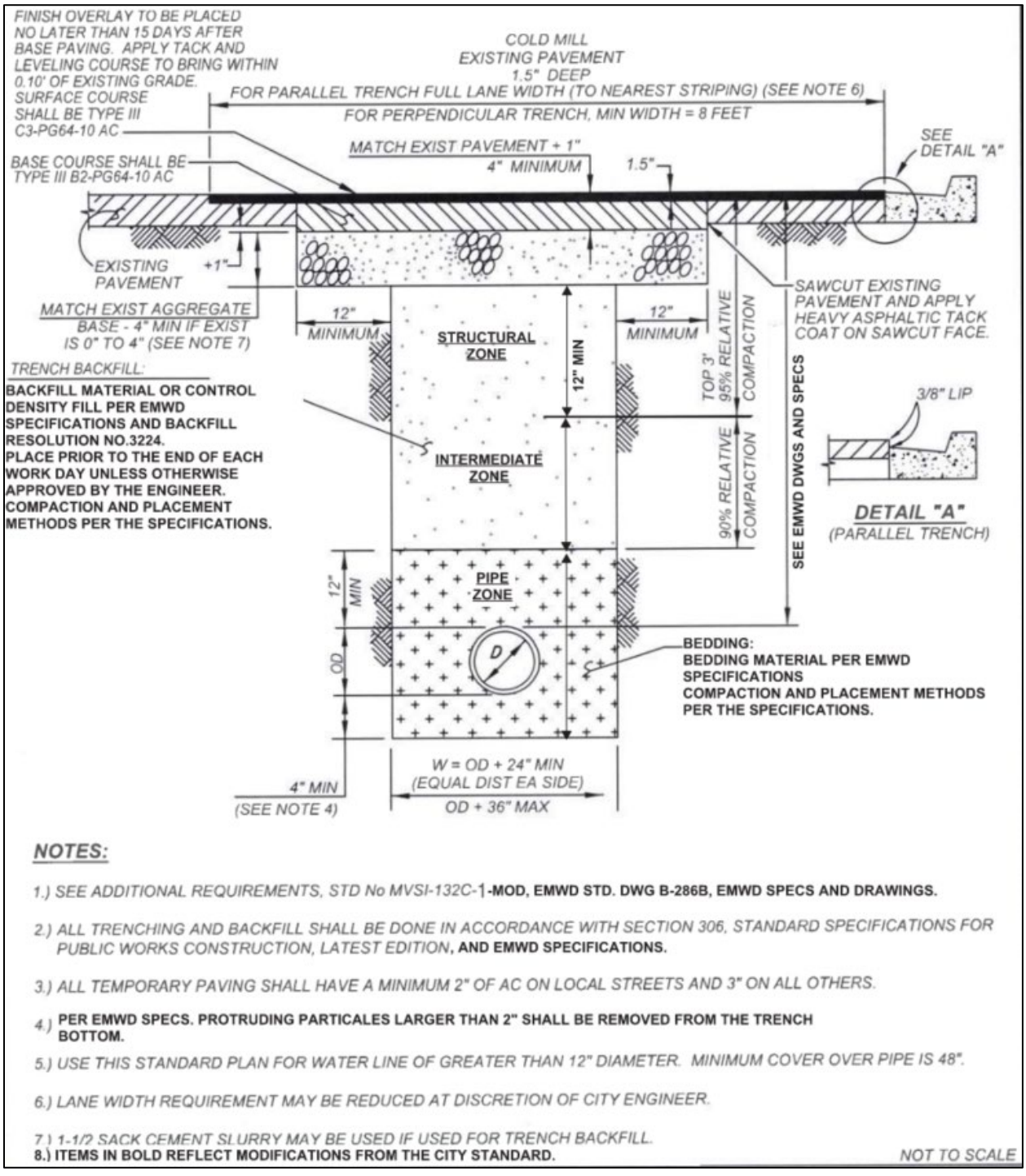
- Valves. Isolation valves would be placed below-ground within the paved roadway, at a minimum every 2,500 feet along the transmission pipeline. Isolation valves are anticipated to be located within Ironwood Avenue and Perris Boulevard at the ends of the proposed pipeline. The isolation valves would be fitted with a riser and

removable valve cover, flush with the paved road for maintenance access. Isolation valves serve to isolate a section of the pipeline should a leak occur or should routine maintenance require the pipeline be shut down.

- Air release and vacuum valve assemblies. Combination air release and vacuum valve assemblies would be installed at high points of the pipeline segments and at the upgradient side of each valve. The above grade portion of the facilities would be enclosed in 18-inch-wide by 30-inch-tall valve enclosures painted and labeled to match the existing air release and vacuum valve assemblies and would be located approximately 20 feet east of the edge of the pavement in existing landscaped areas adjacent to the off-street sidewalk. Air release and vacuum valve assemblies serve to allow air to exit the pipe while the pipe is being filled, allow air to enter the pipe when the pipe is being emptied, allow air entrained in the water that collects at high points to exit the pipe to allow efficient pipe flow, and to protect the pipeline from damage due to surge pressures in the case of sudden valve closure or pump failure.

- Blowoff assemblies. The precise location and number of blowoff assemblies and hydrants would be determined in final design. Standard EMWD blowoff assemblies include an above-ground blow-off head, cap with chain ring, pipe, and flange that totals 26 inches above grade and is painted approved yellow. Standard EMWD blowoff assemblies are placed at a distance of 1.5 feet to 7.5 feet from the curb, depending on the size of the existing sidewalk. Blowoff assemblies and hydrants serve to drain the pipe when the pipeline needs maintenance by discharging water from the pipe, and, while the pipe is active, help remove sediment that may accumulate at low points within the pipe.

Figure 2-7: Proposed Alignment Representative Cross-Section



Source: City of Moreno Valley, Water Line (larger than 12" diameter) Trench Backfill and Roadway Repair – Modified MVSI-132F-1, December 3, 1984.

Construction of the pipeline would require the estimated construction equipment shown in **Table 2-1**.

Table 2-1: Construction Vehicle Fleet for Pipelines

Equipment	Number Required for Pipelines
Backhoe/Loader	1
Hydraulic Excavator	1
Crane	1
Bore Drill Rig	1
Utility Truck	1
Water Truck	1
Welder	1
Compressor	1
Pump	1
Pick-up Trucks	2
Dump Truck	2
Concrete Saw	1
Pavement Breaker	1
Sweeper	1
Paver	1
Generator	1

The total volume of material to be excavated from construction of the pipeline was estimated to be approximately 16,200 cubic yards (42-inch pipeline trench width x 10 feet pipeline trench depth x 12,500 feet long + 12 inch paving restoration area width x 8 inch paving restoration area depth x 12,500 feet long x 2 paving restoration areas on either side of trench). This total volume is conservative in that it assumes open trench construciton methods would be used along the entire alignment. Trenchless techniques would be required to cross the California State Route 60/Moreno Valley Freeway at Perris Boulevard. Trenchless techniques may also be required where the pipeline crosses under RCFCWCD storm drains and other utilities. The amount of pipeline that would be constructed using trenchless techniques would be determined in final design. Trenchless techniques, in which a pit is excavated and then only the amount of soil required for the pipe is displaced, require much less material excavation, hauling, and fill than open trench methods. Excavated material may be reused onsite as trench backfill; however, this would not be determined until excavation starts. Therefore, it is conservatively assumed that all excavated material would be hauled offsite for disposal and all fill material would be imported onsite. After construction is complete, all pipeline construction areas would be

restored to pre-construction conditions (i.e., no permanent disturbance footprint). The width of resurfacing would be up to the nearest lane line or gutter in accordance with the City of Moreno Valley Trench Backfill and Roadway Repair Standard Plans.

2.5.3 Construction Schedule

Project construction is anticipated to begin in approximately April 2023 and continue until October 2024 (approximately 380 days). Construction would include the following phases:

- Mobilization/utility potholing – April 2023 to June 2023
- Trenching/Pipeline installation – June 2023 to June 2024. The pipelines would be constructed at an average rate of 50 to 100 linear feet per day, depending on the conditions, extent of existing utilities and traffic control, and permitted work hours.
- Appurtenance installation – July 2024
- Final paving/restoration – August 2024
- Demobilization – September-October 2024

Construction would take place Monday through Friday during daytime hours in accordance with the City of Moreno Valley Municipal Code. Construction activities would not be scheduled during nighttime hours (5:00 p.m. to 8:00 a.m.) or on weekends for the majority of the pipeline alignment. However, to avoid conflicts with transportation in the area around California State Route 60/Moreno Valley Freeway, construction activities are expected to be scheduled during nighttime hours (7:00 p.m. to 5:00 a.m.) on Perris Boulevard between Elder Avenue and Sunnymead Boulevard, with the possibility of extending 200 yards to the north and south beyond Elder Avenue and Sunnymead Boulevard on Perris Boulevard.

2.5.4 Equipment Staging Areas

The size, location, and number of staging areas would be finalized at a later project stage. The Well 66 site, which was evaluated under the Moreno Valley Groundwater Development Program IS/MND (SCH#2014051001), may be used for construction staging. The Well 66 site is heavily disturbed, with portions of it currently under construction. Additionally, vacant parcels along Perris Boulevard could be used for potential staging areas, including vacant parcels on the southeast corner of Perris Boulevard and Dracaea Avenue, extending along the east side of Perris Boulevard. If the identified staging area options cannot accommodate all equipment storage/staging for the proposed project, the construction contractor may use the Ironwood Avenue and

Perris Boulevard rights-of-way for the purposes of equipment storage, staging, and/or pipe stringing. Other existing EMWD property would be utilized as necessary for staging and intermediate storage for the installation of the water pipelines, or the contractor would be responsible for securing suitable temporary equipment storage/staging site(s) prior to construction and implementing applicable environmental commitments (see *Section 2.6*) at the staging area(s).

2.5.5 Operations

The pipeline and appurtenances would not be associated with long-term energy usage or additional EMWD operations and maintenance (O&M) activities. Project O&M activities would include inspection and repair, as necessary, of air vacuum valves and blowoff valves; valve exercising; and possible flushing and sampling of water quality. Inspection of the above ground appurtenances and exercise of the valves would be incorporated into EMWD's existing O&M activities.

2.6 Environmental Commitments

The following measures are EMWD construction best management practices (BMPs) that would be implemented as part of the project:

- The design and construction of the facilities would be based on the geotechnical investigation report (Converse Consultants 2022) to minimize geological risk.
- According to the geotechnical investigation report (Converse Consultants 2022), historical high groundwater along the pipeline alignment is not known with certainty but is anticipated to be deeper than approximately 18.70 feet below the existing ground surface. However, if groundwater is encountered during construction, it would be discharged to EMWD's sanitary sewer instead of the storm drains for treatment and reuse and to minimize chlorination of the potable water.
- Open trenches would be covered with recessed trench plates during non-construction periods in accordance with encroachment permits.
- Construction would comply with SCAQMD Rule 403 Fugitive Dust Control requirements.
- Specifications would require the contractor to prepare a Stormwater Pollution Prevention Plan (SWPPP). Construction would implement BMPs to control water quality of stormwater discharges offsite, according to the SWPPP, such as site management "housekeeping," erosion control, sediment control, tracking control and wind erosion control.

- Specifications would require the contractor to implement standard fire prevention measures. EMWD Specifications Detailed Provisions Section 02201 – Construction Methods & Earthwork of the Standard Detailed Provisions (EMWD 2015) include the entire work and site, including storage areas, is inspected at frequent intervals to verify that fire prevention measures are constantly enforced; fully charged fire extinguishers of the appropriate type, supplemented with temporary fire hoses wherever an adequate water supply exists, are furnished and maintained; and flammable materials are stored in a manner that prevents spontaneous combustion or dispersion.

2.7 Required Permits and Approvals

Anticipated permits and approvals are identified in **Table 2-2**.

Table 2-2: Permits and Approvals

Agency	Permit/Approval
City of Moreno Valley	Encroachment permit for work in public road right-of-way Approval of Traffic Control Plan
Riverside County Flood Control and Water Conservation District	Encroachment Permit for crossing storm drains Encroachment Permit for Sunnymead Channel
California Department of Transportation (Caltrans)	Encroachment Permit for work in Caltrans right-of-way
California Occupational Safety and Health Administration Mining and Tunneling Unit	Underground Classification (Jack & Bore Locations) and Trenching/Shoring Permit
State Water Resources Control Board (SWRCB)	National Pollutant Discharge Elimination System (NPDES) Construction General Permit for Storm Water Discharges
SWRCB California Division of Drinking Water	Pipeline separation waiver for compliance with California Waterworks Standards

3. ENVIRONMENTAL CHECKLIST FORM

1. **Project title:** Raw Water Conveyance Pipeline Phase III

2. **Lead agency name and address:** Eastern Municipal Water District
   2270 Trumble Road
   P.O. Box 8300
   Perris, CA 92572-8300

3. **Contact person and phone number:** Joseph Broadhead,
   Principal Water Resources Specialist
   broadhej@emwd
   (951) 928-3777 ext. 4545

4. **Project location:** City of Moreno Valley,
   Riverside County, California

5. **Project sponsor's name and address:** Same as Lead Agency

6. **General plan designations:** Ironwood Avenue and Perris Boulevard roadway rights-of-way, Corridor Mixed Use

7. **Zoning:** Ironwood Avenue and Perris Boulevard roadway rights-of-way, Office

8. **Description of project:** The Raw Water Conveyance Pipeline Phase III project involves construction and operation of approximately 12,500 linear feet of 18-inch diameter PVC raw water transmission pipeline with air release valves within Ironwood Avenue and Perris Boulevard. The proposed project would convey raw groundwater from the Well 66 site, located on the south side of Ironwood Avenue at approximately the intersection with Kevin Street to the proposed central treatment facility on Perris Boulevard between Bay Avenue and St. Christopher Lane. The proposed project is part of the Perris North Basin Contamination Prevention and Remediation Program, which has an overall goal of cleaning up contamination areas of concern in the Perris North Groundwater Basin while also increasing EMWD's local potable supplies.

9. **Surrounding land uses and setting:** The project would be constructed entirely within the existing Ironwood Avenue and Perris Boulevard rights-of-way. The project area setting is generally built-out. Surrounding land uses include commercial, light

industrial, churches, single and multi-family residential, and public facilities including parks and schools.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

- City of Moreno Valley: Encroachment Permit; Traffic Control Plan approval
- Riverside County Flood Control and Water Conservation District: Encroachment Permit(s)
- California Department of Transportation: Encroachment Permit
- California Occupational Safety and Health Administration: Underground Classification (Jack & Bore Locations), Trenching/Shoring Permit
- State Water Resources Control Board: NPDES Construction General Permit for Storm Water Discharges, Pipeline separation waiver for compliance with California Waterworks Standards

11. Have California Native American tribes traditionally and culturally affiliated with the Project area requested consultation pursuant to Public Resources Code section 2180.3.1? 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.?

EMWD has previously consulted with Native American tribal representatives, based on a contact list of tribes who indicated to EMWD that they are interested in receiving notification. Tribes previously consulted included Pechanga Band of Luiseno Indians, Soboba Band of Luiseno Indians, Rincon Band of Luiseno Indians and Agua Caliente Band of Cahuilla Indians. EMWD sent out re-initiation letters on 8/19/22 to tribes that previously consulted on the Cactus Avenue Corridor Groundwater Wells Project. EMWD has not received a response to the re-initiation letters.

Environmental Factors Potentially Affected

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

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

DETERMINATION: (To be completed by Lead Agency)

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.

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

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

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

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

Woodard & Curran

_____ _____

Signature Date

_____ _____

Printed Name For

3.1 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?	[ ]	[ ]	[X]	[ ]
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	[ ]	[ ]	[ ]	[X]
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	[ ]	[ ]	[X]	[ ]
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	[ ]	[ ]	[X]	[ ]

Discussion

The 2020 IS/MND and Addendum describe the applicable aesthetic background, environmental setting, and regulatory setting. No background or setting information has changed since the 2020 IS/MND and Addendum were adopted.

The proposed project area is disturbed and generally built-out. The project would be constructed entirely within existing rights-of-way and primarily visible to immediately adjacent areas. There are no designated state scenic highways within the project area; the nearest state-designated scenic highway is State Route 243, approximately 20 miles east of the project area (Caltrans 2018). No other new information or changed circumstances have arisen since the 2020 IS/MND and Addendum were adopted.

a) Less than Significant

Similar to the original approved project, construction of the proposed project would cause temporary short-term impacts to scenic vistas near the project alignment through placement of construction equipment such as cranes and excavators along and adjacent to roadways. However, once constructed, the pipeline would be underground, and the area of temporary disturbance would be restored to its original condition. While the pipeline appurtenances would be installed above ground, they would be painted and labeled in standard EMWD colors to match the existing appurtenances in the project vicinity and would not block views. Thus, the proposed project would have a less than significant impact on scenic vistas.

b) No Impact

Similar to the original approved project, none of the proposed project alignment would be located within the viewshed of a state scenic highway. Therefore, there would be no impact.

c) Less than Significant

Similar to the original approved project, the proposed project is located within a built-out area of Moreno Valley and would temporarily impact the visual character and quality of the project area during construction activities. Public views of project construction include those from adjacent roadways, sidewalks, and parks. Public views of the project from roadways and sidewalks would be fleeting – on the order of seconds or minutes – while public views from parks would be longer lasting. However, once construction is complete, all construction related visual impacts would be removed. The pipelines would be constructed underground within existing roadways and appurtenances would be located away from traffic lanes. The above ground appurtenances would be visible from public vantage points of the project area, but would be painted and labeled standard in EMWD colors to match the existing visual character of appurtenances in the project vicinity, and the impact on visual quality would be minimal. The project would have a less than significant impact on the visual quality of public views in the project area.

d) Less than Significant

Similar to the original approved project, while most of the construction for the proposed project would occur during the day and not require lighting, nighttime construction may be used when the project alignment is located in commercial land use areas to avoid conflicts with transportation. During these nighttime construction activities, lights would be required for equipment and security. However, this impact would be temporary and

would cease upon completion of construction. No permanent exterior lights would be installed for the above ground pipeline appurtenances. Therefore, the proposed project would not create a new permanent source of light or glare that would adversely affect day or nighttime views within the project area. Impacts would be less than significant.

Mitigation Measures: None required or recommended.

3.2 Agriculture and Forestry Resources

	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?	[ ]	[ ]	[ ]	[X]
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	[ ]	[ ]	[ ]	[X]
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))?	[ ]	[ ]	[ ]	[X]
d) Result in the loss of forest land or conversion of forest land to non-forest use?	[ ]	[ ]	[ ]	[X]

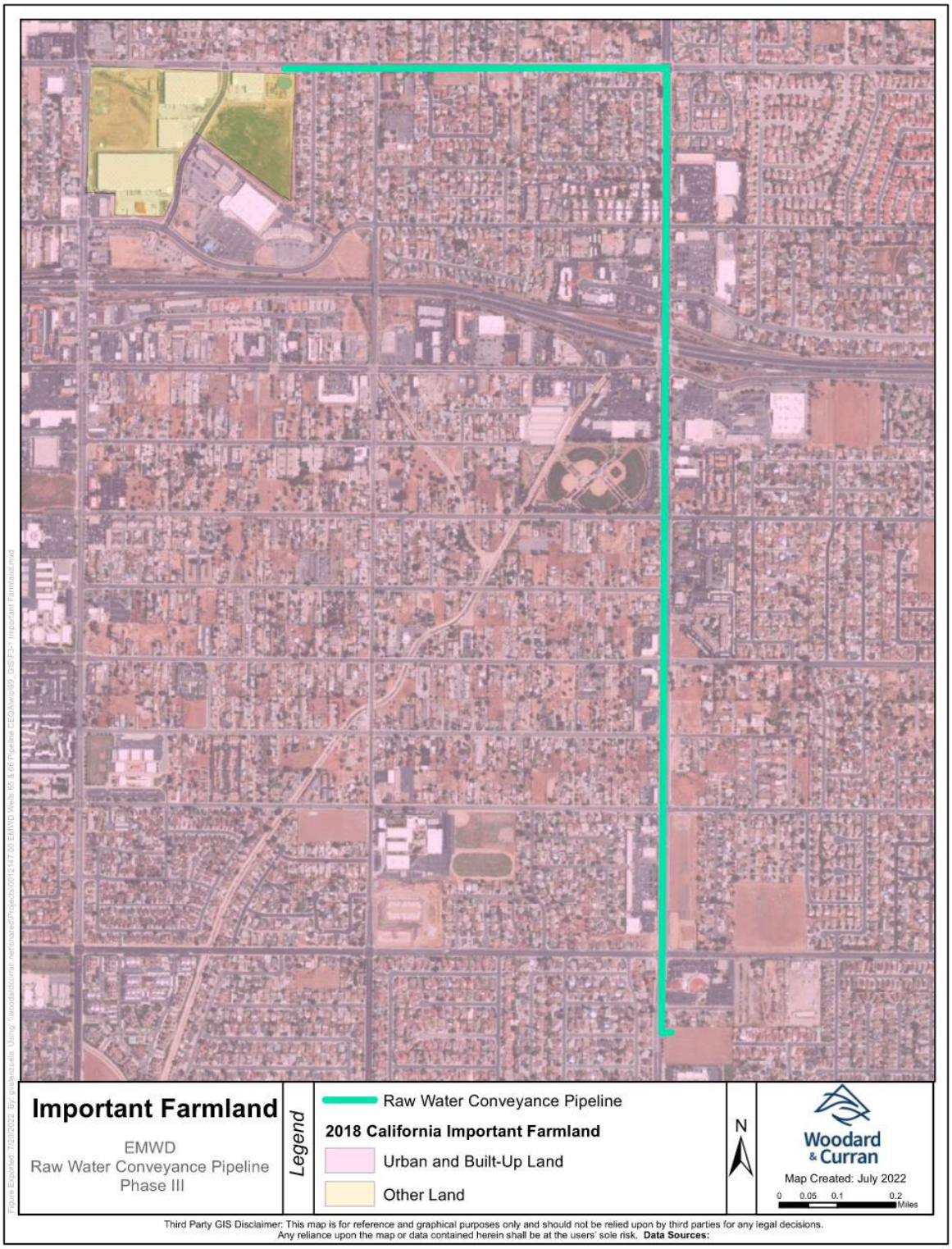
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	[ ]	[ ]	[X]	[ ]

Discussion

The 2020 IS/MND and Addendum describe the applicable agricultural and forestry background, environmental setting, and regulatory setting. Since the 2020 IS/MND and Addendum were approved, the West San Jacinto Groundwater Basin Groundwater Sustainability Plan (GSP) was adopted by the EMWD Board of Directors, acting as the West San Jacinto Groundwater Sustainability Agency Board of Directors, on September 15, 2021. No other background or setting information has changed since the 2020 IS/MND and Addendum were adopted.

As shown in **Figure 3-1**, the proposed project area is entirely composed of built-up, urban, and other land. There are no exclusive agricultural zones, Williamson Act contract lands, designated forest lands, or timberland within the project area. No other new information or changed circumstances have arisen since the 2020 IS/MND and Addendum were adopted.

Figure 3-1: Farmland Mapping and Monitoring Program Map



a) No Impact

The proposed project pipeline would be installed within City of Moreno Valley rights-of-way, and potential staging areas would include vacant City of Moreno Valley and EMWD owned land. None of the project alignment, above ground appurtenances, or staging areas are within land classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

Similar to the original approved project, the proposed project would install below-grade pipelines and would restore all surfaces to pre-construction conditions. Above ground appurtenances would be installed within disturbed and vacant land. The project would not result in land use changes and would not convert important farmland to a nonagricultural use, conflict with zoning regulations, or result in other changes that would indirectly result in conversion of nearby farmland to non-agricultural use. Therefore, there would be no impact to important farmland.

b) No Impact

Similar to the original approved project, none of the proposed project alignment, above ground appurtenances, or staging areas are located on land zoned for agricultural use or protected by a Williamson Act Contract (City of Moreno Valley 2019b; City of Moreno Valley 2021a). Therefore, the project would have no impact.

c) No Impact

Similar to the original approved project, there is no land zoned for forest land or timberland within the proposed project area. Therefore, the proposed project would have no impact.

d) No Impact

Similar to the original approved project, there is no designated forest land within the proposed project area. Therefore, the proposed project would have no impact related to the loss of forest land or conversion of forest land to non-forest use.

e) Less Than Significant Impact

The 2020 IS/MND and Addendum found that the original approved project, which would produce an estimated 4,113 AFY of groundwater, would be conducted in a manner consistent with the EMWD Groundwater Sustainability Plan (GSP), and thus would not substantially decrease groundwater supplies for private wells or impede the ability of farmers to pump groundwater for irrigation use. Since the 2020 IS/MND and Addendum

were adopted, the GSP was adopted by the EMWD Board of Directors, acting as the West San Jacinto Groundwater Sustainability Agency Board of Directors, on September 15, 2021. Adoption and implementation of the West San Jacinto Groundwater Basin GSP will ensure sustainable use of groundwater supplies in the Perris North Groundwater Basin, the basin from which the original approved project produces groundwater. The West San Jacinto Groundwater Basin GSP accounted for the Perris North Basin Contamination Prevention and Remediation Program, of which the original approved project and proposed project are components.

Although the proposed project, which is a transmission pipeline, would not directly result in groundwater extraction, the proposed project would allow for conveyance and eventual treatment of groundwater production.

Groundwater extraction and conveyance associated with the original approved project and the proposed project would be conducted in a manner consistent with the West San Jacinto Groundwater Basin GSP, which took into account the Perris North Basin Contamination Prevention and Remediation Program. Therefore, similar to the original approved project, the proposed project would not substantially decrease groundwater supplies or induce other changes in the environment that would result in conversion of agricultural land to non-agricultural use. The proposed project would have a less-than-significant impact.

Mitigation Measures: None required or recommended.

3.3 Air Quality

	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?	[ ]	[ ]	[X]	[ ]

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?	[ ]	[ ]	[X]	[ ]
c)	Expose sensitive receptors to substantial pollutant concentrations?	[ ]	[ ]	[X]	[ ]
d)	Result in other emissions (such as those leading to odors or adversely affecting a substantial number of people?	[ ]	[ ]	[X]	[ ]

Discussion

The 2020 IS/MND and Addendum describe the applicable air quality background, environmental setting, and regulatory setting. The SCAQMD is in the process of updating the 2022 Air Quality Management Plan (AQMP) as of the writing of this Initial Study. The 2022 AQMP focuses on strategies to meet the United States Environmental Protection Agency's (US EPA) primary and secondary NAAQS for ground-level ozone (O_3), which was revised to 70 parts per billion on October 1, 2015. The 2022 AQMP is currently in draft form; however, it is relevant to the environmental and regulatory setting of the proposed project because it incorporates the most recent information on regional growth and population from the Southern California Association of Governments (SCAG), the California Air Resources Board (CARB), and the US EPA. No other background or setting information has changed since the 2020 IS/MND and Addendum were adopted.

a) Less than Significant Impact

The SCAQMD's 2022 AQMP, which assesses the attainment status of the Moreno Valley and EMWD area of the SCAB and provides a strategy for attainment of state and federal air quality standards, is the applicable air quality plan. The AQMP strategies are developed based on population, housing, and employment growth forecasts anticipated under local city general plans and regional transportation plans.

A project would conflict with or obstruct an applicable air quality plan if it would lead to population, housing or employment growth that exceeds the forecasts used in the development of the applicable air quality plan. The proposed project would construct 12,500 linear feet of pipeline to augment EMWD's water portfolio with additional groundwater production to service existing customers currently connected to EMWD water, as well as future customers from planned growth in the area as identified in local

general plans. Therefore, the proposed project would not lead to unplanned population, housing or employment growth that exceeds the forecasts used in the development of the AQMP. Potential for conflicts with the AQMP would be less than significant.

b) Less than Significant Impact

Similar to the original project, the proposed project would result in emissions of criteria pollutants from short-term construction activities. The pipeline and appurtenances would not be associated with long-term energy usage or additional EMWD O&M activities. Inspection of the pipeline, above ground appurtenances and exercise of the valves would be incorporated into EMWD's existing O&M activities. Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) 2020.4.0, which was developed by the California Air Pollution Control Officers Association and is used throughout California to quantify criteria pollutants and greenhouse gas emissions (GHGs).

The CalEEMod emissions scenarios were based on project-specific information, found in *Section 2 Project Description*. In instances where project-specific information was not available (e.g., construction equipment horsepower, length of worker trips, soil moisture content), the analysis relied on CalEEMod default values for construction activities. As explained in *Section 2 Project Description*, it is assumed that construction would begin in April 2023 and have a duration of 18 months. SCAQMD's Rule 403 (Fugitive Dust) requires construction projects to implement measures to suppress fugitive dust emissions, such as watering of exposed soils and the preparation of a Fugitive Dust Control Plan. The construction contractor would be required to have a Fugitive Dust Control Plan approved by either the SCAQMD or Riverside County prior to grading or excavation activities. As such, dust control measures were incorporated into the modeling of the proposed project's emissions.

Construction Emissions

Similar to the original approved project, air emissions of criteria pollutants during construction of the proposed project would result from the use of construction equipment with internal combustion engines, and offsite vehicles to transport workers, deliver materials to the site, and haul import and export material to and from the site. Project construction would also result in fugitive dust emissions, which would be lessened through the implementation of the fugitive dust control measures required by SCAQMD Rule 403 (Fugitive Dust). **Table 3-1** summarizes the maximum daily pollutant emissions during construction of the proposed project. As shown in **Table 3-1**, project construction would not exceed SCAQMD regional thresholds for any criteria pollutant.

Table 3-1: Proposed Project Maximum Mass Daily Construction Emissions (pounds/day)

Emissions Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Construction Equipment	4	31	36	<1	1.4	1.3
Offsite emissions	<1	1	2	<1	0.6	0.2
Onsite fugitive dust (with required fugitive dust controls)	--	--	--	--	0.6	0.2
Total Maximum Mass Daily Emissions	**4**	**32**	**38**	**<1**	**2**	**1.5**
SCAQMD Regional Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Note: In CalEEMod, environmental commitments, including measures to comply with required SCAQMD fugitive dust controls, must be added as "mitigation measures." Therefore, these results reflect the mitigated scenario in the output tables in Appendix A.

Additionally, while the use of SCAQMD Local Significance Thresholds (LSTs) is voluntary, the proposed project emissions were compared to LSTs for the project area and are provided in **Table 3-2**. LSTs are only applicable to emissions within a fixed, stationary location, such as construction sites, and vary based on project site size. **Table 3-2** provides LSTs that are applicable to the onsite construction activities, including pipeline trenching, installation of pipeline and appurtenances, and roadway resurfacing. Because the proposed project would disturb less than one acre per day during construction, as the construction fleet moves along the alignment at a rate of 50 to 100 linear feet of pipe per day, the LST for construction of a one acre project was used.

Table 3-2: Proposed Project Maximum Mass Daily Emissions Compared to Localized Significance Thresholds (pounds/day)

Emissions Source	NO_x	CO	PM_{10}	$PM_{2.5}$
On-site construction equipment	31	36	1.4	1.3
LST (one-acre LST)	*118*	*602*	*4*	*3*
Threshold exceeded?	**No**	**No**	**No**	**No**

Operational Emissions

The proposed project would not be associated with long-term energy usage or additional EMWD O&M activities. Inspection and maintenance of the pipeline and above ground appurtenances, and exercise of the valves would be incorporated into EMWD's existing O&M activities. Thus, no new emissions would be associated with operation of the proposed project.

c) Less than Significant Impact

Sensitive receptors are typically defined as schools (preschool–12th grade), hospitals, resident care facilities, senior housing facilities, day care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. Sensitive receptors near the project alignment are described in *Section 2.4.1 Sensitive Receptors*. As discussed under "b" above, the proposed project's construction and operational emissions would not exceed SCAQMD regional thresholds or LSTs. Therefore, sensitive receptors would not be subjected to substantial pollutant concentrations and impacts would be less than significant.

d) Less than Significant Impact

Similar to the original approved project, the proposed project would involve emissions of sulfur compounds from use of oil and diesel fuel during construction, which would potentially result in unpleasant odors. Construction would be temporary and odorous emissions from construction equipment tend to dissipate quickly within short distances from construction sites. Once the proposed project is operational, the pipeline would not be associated with odors. Impacts would be less than significant.

Mitigation Measures: None required or recommended.

3.4 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?	[ ]	[X]	[ ]	[ ]

b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	[ ]	[ ]	[ ]	[X]
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?	[ ]	[ ]	[ ]	[X]
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?	[ ]	[ ]	[ ]	[X]
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	[ ]	[ ]	[ ]	[X]
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?	[ ]	[X]	[ ]	[ ]

Discussion

A Biological Resources Technical Study (BRTS) was conducted in August 2022 for the proposed project. The BRTS included a desktop analysis and field survey to assess the biological resources of the proposed project area. The analysis included the project site plus a 100-foot buffer, referred to as the "study area," totaling 16.54 acres (11.34-acre proposed pipeline construction area, plus 5.2-acre staging area) as shown in **Figure 2-2.** The complete report is provided in **Appendix B** and is relied upon for the analysis in this Subsequent IS/MND.

Regulated or sensitive resources studied and analyzed included special status plant and wildlife species, nesting birds and raptors, wildlife movement corridors and habitat linkages, sensitive plant communities, jurisdictional waters and wetlands, and locally

protected resources (i.e., heritage trees). Potential impacts to biological resources were analyzed based on the following statutes:

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (FESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- City of Moreno Valley Municipal Code
- Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)

The literature review consisted of publicly available spatial data from a variety of public agencies, geospatial warehouses, aerial imagery, and previously written reports related to the proposed project area and surrounding U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles (**Appendix B**). A field reconnaissance survey was performed in July 2022 to assess and document existing site conditions and the potential presence of sensitive biological resources such as plants, wildlife, nesting birds, and jurisdictional waters and wetlands. A formal jurisdictional delineation of waters and wetlands was not performed because no potentially jurisdictional features were present within the project area.

a) Less than Significant with Mitigation Incorporated

The proposed project would be located in an urban, built-out setting with the proposed alignment located within existing rights-of-way and surrounded by existing development. According to the BRTS (**Appendix B**), 45 sensitive plant species and 34 sensitive wildlife species are known to occur or have potential to occur within the five-mile radius of the study area. Similar to the original approved project, sensitive plant species are not expected to occur within the proposed project area due to the lack of suitable habitat as well as historical and existing disturbances.

Seven sensitive wildlife species were determined to have a low potential to occur within the study area: Cooper's hawk (*Accipiter cooperii*) and California horned lark (*Eremophila alpestris actia*), which are listed on the CDFW Watch List; and coastal whiptail lizard

(*Aspidoscelis tigris stejnegeri*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), western yellow bat (*Lasiurus xanthinus*), loggerhead shrike (*Lanius ludovicianus*), and burrowing owl (*Athene cunicularia*), which are listed as CDFW Species of Special Concern. These seven species were determined to have a low potential to occur in the study area due to the observation of small pockets of open habitat with sparse vegetation in the adjacent parcels and within the staging area.

Nonetheless, similar to the original approved project, construction of the proposed project adjacent to low quality habitat could potentially interfere with or deter these species from nesting, roosting, or foraging in the study area through increased noise and human presence. In order to avoid and minimize the potential for impacts to these sensitive species, **Mitigation Measures BIO-1, BIO-2,** and **BIO-3** would be implemented. **Mitigation Measure BIO-1** would avoid direct impacts to burrowing owls and was also a condition of the original approved project in the 2020 IS/MND and Addendum. To avoid direct or indirect impacts to nesting birds, implementation of **Mitigation Measure BIO-2** would require pre-construction surveys to minimize all impacts to nesting birds to less than significant. The original approved project also required pre-construction nesting bird surveys; however, the measure in this Subsequent IS/MND has been revised from the measure in the 2020 IS/MND and Addendum to reflect recent CDFW guidance. **Mitigation Measure BIO-3** would require a pre-construction clearance survey and implementation of a Worker Environmental Awareness Program (WEAP) prior to construction to address potential impacts to coastal whiptail, western yellow bat, and Los Angeles pocket mouse. Such a measure was not applicable to the original approved project because the original approved project's biological resources assessment did not identify any suitable habitat for the coastal whiptail, western yellow bat, or Los Angeles pocket mouse in or adjacent to the original approved project area. The WEAP required by **Mitigation Measure BIO-3** would mitigate potential impacts to the sensitive reptile and mammal species that have low potential to occur at the project site, while the nesting bird surveys required by **Mitigation Measure BIO-2** would mitigate potential impacts to the sensitive bird species that have low potential to occur at the project site. These species have a low potential to occur on small pockets of open habitat with sparse vegetation in the parcels adjacent to the proposed pipeline alignment and within the staging areas.

Construction activities would primarily occur within highly disturbed roadways that are surrounded by development. No sensitive plant species are anticipated within the proposed project alignment or staging area, and the existing high levels of disturbance and lack of habitat would likely deter wildlife from using the proposed project alignment long-term. Nonetheless, **Mitigation Measure BIO-1** would be implemented to ensure avoidance of direct impacts to burrowing owls, **Mitigation Measure BIO-2** would be

implemented to avoid impacts to nesting birds, and **Mitigation Measure BIO-3** would be implemented to minimize impacts to special status reptiles and mammals that have a low potential to be present in small pockets of open habitat with sparse vegetation in the parcels adjacent to the proposed pipeline alignment and within the staging areas. With implementation of **Mitigation Measures BIO-1, BIO-2,** and **BIO-3**, impacts would be less than significant.

b) No Impact

Based upon the findings in the 2022 BRTS, no sensitive plant communities, riparian habitat, or sage scrub are present within the study area. The study area is highly disturbed. Therefore, the proposed project would have no impact on any riparian habitat or other sensitive natural community.

c) No Impact

Based upon the findings in the 2022 BRTS, no hydric soils, vernal pools, fairy shrimp habitat, or jurisdictional features under the jurisdiction of the US Army Corps of Engineers, Regional Water Quality Control Board, or California Department of Fish and Wildlife are within or adjacent to the proposed project study area, including the pipeline alignment and staging area. No riparian/riverine habitat occurs within the proposed project site or staging area. No impact would occur.

d) No Impact

Based upon the findings in the 2022 BRTS, there are no mapped essential habitat connectivity areas in the immediate vicinity of the proposed project alignment. The proposed project would be located within existing roadways and vacant, disturbed land, with surrounding sites consisting of parks, disturbed lots, developed areas, and sites undergoing residential and industrial development. The study area is not located within an MSHCP Criteria Area, Public-Quasi Public Reserve Lands or within a Core or Linkage, which provide habitat connectivity. Therefore, the proposed project would have no impacts on wildlife movement.

e) No Impact

Similar to the original approved project, the proposed project would be located in the County of Riverside Stephen's Kangaroo Rat Plan and Fee Area (County of Riverside Ordinance No. 663). The County Ordinance requires all proposed development projects that are located within the fee area to be reviewed to assess the appropriate course of action to protect the survival of the species. Preparation of the BRTS (**Appendix B**) fulfills the requirements of the ordinance that the proposed project be reviewed. The

BRTS determined the proposed project study area, including the proposed pipeline alignment and staging areas, does not have the suitable grassland, costal scrub and sagebrush habitat needed to support the Stephen's Kangaroo Rat. Therefore, the proposed project would not impact, or result is the loss of suitable habitat for the Stephan's Kangaroo Rat and no mitigation would be required.

The City of Moreno Valley Municipal Code protects heritage trees, defined as those with a 15" diameter (measured at 24 inches above ground level). According to the 2022 BRTS, the City of Moreno Valley Tree Management Policy (Ord. 923 § 1, 2017) within the City's Municipal Code, Chapter 14.40 Tree Care covers the project area. EMWD is not subject to the Tree Management Policy, although it may voluntarily comply. No city tree or heritage tree removal is proposed and therefore no City-protected trees would be impacted by the project.

f) Less than Significant with Mitigation Incorporated

Similar to the original approved project, the proposed project would be located in the Western Riverside MSHCP. None of the project area, including the proposed pipeline alignment and staging areas, is located within existing or proposed reserve or criteria areas of the MSHCP, or within Public/Quasi Public conserved lands. Throughout the proposed staging area, the potential for burrowing owl, a listed species protected under the MSHCP, to occur is low, given that the site is located within highly disturbed areas surrounded by urban development which would normally deter individuals from long-term use of the site. Indirect impacts are not expected with the implementation of **Mitigation Measure BIO-1**. Therefore, the proposed project would have a less than significant impact with the implementation of **Mitigation Measure BIO-1**.

Mitigation Measures:

The following mitigation measures shall be implemented to avoid direct impacts to burrowing owls, protected migratory nesting birds, and to address potential impacts to coastal whiptail, western yellow bat, and Los Angeles pocket mouse. With these mitigation measures incorporated, the proposed project impacts are considered less than significant.

> **BIO-1: Burrowing Owl Preconstruction Clearance Survey.** A qualified wildlife biologist shall conduct a pre-construction survey of the impact areas to confirm presence/absence of burrowing owl individuals no more than 14 days prior to construction. The survey methodology will be consistent with the methods outlined in the CDFW Staff Report on Burrowing Owl Mitigation (2012). If no active breeding or wintering owls are identified, no further action is required.

If burrowing owls are detected onsite, the following actions shall be implemented in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (2012):

- A qualified wildlife biologist shall be onsite during initial ground-disturbing activities in potential burrowing owl habitat identified in the biological resources assessment.
- No ground-disturbing activities shall be permitted within a buffer no less than 200 meters (656 feet) from an active burrow, depending on the level of disturbance, as defined by the Canadian Wildlife Service Environment (CWSE) (2009), unless the qualified biologist determines a reduced buffer would not adversely affect the burrowing owl(s).
- Active burrows will not be disturbed during the nesting season (February 1 to August 31).
- During the nonbreeding (winter) season (September 1 to January 31), ground-disturbing work can proceed near active burrows as long as the work occurs no closer than 50 meters (165 feet) from the burrow, depending on whether the level of disturbance is low, such as surveying, drive by, lowline 2" or less, plowed in (CWSE 2009), and if the active burrow is not directly affected by the project activity. A smaller/larger buffer may be established by the qualified biologist following monitoring and assessments of the project's effects on the burrowing owls. If active winter burrows are found that would be directly affected by ground-disturbing activities, owls can be excluded from winter burrows according to recommendations made in the Staff Report on Burrowing Owl Mitigation (2012). Additionally, if burrowing owls are found on-site, a qualified biologist shall prepare and submit a passive relocation program in accordance with Appendix E (i.e., Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans) of the Staff Report on Burrowing Owl Mitigation (2012) for CDFW review and approval prior to the commencement of disturbance activities on-site.
- Burrowing owls shall not be excluded from burrows until a Burrowing Owl Exclusion Plan is developed based on the recommendations made in Appendix E, Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans, of the Staff Report on Burrowing Owl Mitigation (2012). The Burrowing Owl Exclusion Plan shall be submitted to CDFW for review and approval prior to the commencement of disturbance activities on-site.

- Prior to passive relocation, the EMWD shall be responsible for acquiring compensatory mitigation at a ratio of 1:1 for lost breeding and/or wintering habitat to be implemented on- or off-site, including permanent conservation and management of burrowing owl habitat through the recordation of a conservation easement, funding of a non-wasting endowment, and implementation of a Mitigation Land Management Plan based on the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012) and CDFW guidance. Mitigation lands would be identified through coordination with CDFW and on adjacent, or proximate to the impact site where feasible and where habitat is suitable to support burrowing owl. If required by CDFW, compensatory mitigation shall be completed prior to passive relocation of owls and completion of construction.

- When a qualified biologist determines that burrowing owls are no longer occupying the project site and passive relocation is complete, construction activities may begin. A final letter shall be prepared by the qualified biologist documenting the results of the passive relocation. The letter shall be submitted to CDFW.

BIO-2 Preconstruction Nesting Bird Survey

To avoid impacts to nesting birds, activities associated with vegetation removal, construction, and/ or grading shall be conducted September 16 and January 14, which is outside the peak nesting/ breeding bird season. If vegetation removal, construction, and/or grading must occur during the peak nesting/breeding season (January 15 through September 15), EMWD shall ensure that impacts to nesting/breeding birds are avoided through the implementation of preconstruction surveys, establishment of an exclusionary buffer zone, and ongoing monitoring, if necessary. EMWD shall designate a qualified biologist experienced in identifying local and migratory bird species; conducting bird surveys using appropriate survey methodology (such as CDFW-accepted species-specific survey protocols, available here: https://www.wildlife.ca.gov/conservation/survey-protocols); nesting surveying techniques; recognizing breeding and nesting behaviors; locating nests and breeding territories; identifying nesting stages and nest success; determining/establishing appropriate avoidance and minimization measures; and monitoring the efficacy of implemented avoidance and minimization measures.

- Prior to activities associated with vegetation removal, construction, and/ or grading during the peak bird nesting/breeding season (January 15 through September 15), the biologist shall conduct surveys for active nests.

Preconstruction nesting bird surveys should be conducted no more than three days prior to the start of clearance/construction work. If ground-disturbing activities are delayed, additional preconstruction surveys should be conducted so that no more than three days have elapsed between the survey and ground-disturbing activities.

- Surveys shall encompass all suitable areas within 100 feet of the construction zone, including trees, shrubs, bare ground, burrows, cavities, and structures. Survey duration shall take into consideration the size of the site; density, and complexity of the land cover type; number of survey participants; survey techniques employed; and shall be sufficient to ensure the data collected are complete and accurate. Preconstruction surveys shall focus on both direct and indirect evidence of nesting, including nest locations and nesting behavior (e.g., copulation, carrying of food or nest materials, nest building, removal of fecal sacks, flushing suddenly from atypically close range, agitation, aggressive interactions, feigning injury or distraction displays, or other behaviors).

- Active nests found within 100 feet of the construction zone shall be delineated with highly visible construction fencing or other exclusionary material that would inhibit entry by personnel or equipment into the buffer zone. Installation of the exclusionary material shall be completed by the qualified biologist prior to initiation of construction activities. The biologist shall identify an appropriate protective buffer zone around the nest depending on the sensitivity of the species, the nature of the construction activity, and the amount of existing disturbance in the vicinity. In general, the qualified biologist should designate a buffer of 50 to 200 feet for common nesting birds and 200 to 500 feet for special status nesting birds and nesting raptors. If excluding work activities from any established buffers is not feasible, the biologist may establish a modified buffer exclusion utilizing specific biological and/or ecological attributes of the project location and avian species. The buffer zone shall remain intact and maintained while the nest is active (i.e., occupied or being constructed by at least one adult bird) and until young birds have fledged and no continued use of the nest is observed, as determined by the biologist. No construction activities shall be allowed within the buffer until nesting activity has ended to ensure protection of nesting birds. If the biologist determines nesting activities could fail as a result of work activities, all work shall cease within the buffer exclusion, and no entry into the buffer will occur. Construction activities within the no-work buffer may proceed after the biologist determines the nest is no longer active due to natural causes (e.g., young have fledged, predation, or

other non-human causes of nest failure). The barrier shall be removed by construction personnel at the direction of the biologist.

BIO-3 Coastal Whiptail, Yellow Bat, and Los Angeles Pocket Mouse WEAP Training and Pre-construction Survey

Because there is marginal habitat present within small pockets of open habitat with sparse vegetation in the adjacent parcels to the study area and within the staging area to support the presence of coastal whiptail, western yellow bat, and Los Angeles pocket mouse, a pre-construction survey prior to ground disturbance activity shall be carried out by a qualified biologist. Worker Environmental Awareness Program (WEAP) training shall also be conducted prior to any ground disturbance activities, to address the potential for these species to occur within the project area. The training will address best management practices (BMPs) prior to, during, and after construction, including appropriate protocol to follow if any special-status species are identified. All participants in construction activities will be required to attend this training prior to ground disturbance, and a signature from each participant will be required at the conclusion of the training.

3.5 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 Section 15064.5?	[ ]	[X]	[ ]	[ ]
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	[ ]	[X]	[ ]	[ ]
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	[ ]	[X]	[ ]	[ ]

Discussion

A Historic Properties Identification Report (HPIR) was prepared in September 2022 for the Raw Water Conveyance Pipeline Phase III project. The HPIR includes the results of a Sacred Lands File (SLF) search, outreach to Native American tribes and local historical groups, and a pedestrian field survey conducted on July 22, 2022. The HPIR relied on a cultural resources records search of the California Historical Resources Information System (CHRIS) conducted in July 2021 for the EMWD Perris North Groundwater Monitoring Project which provides analytical coverage for the proposed project area. The complete HPIR is provided in **Appendix C**.

In July 2021, a search of the CHRIS was conducted by Eastern Information Center (EIC) staff at the University of California, Riverside. The CHRIS records search identified nine previously recorded cultural resources within 0.5-mile of the proposed project Area of Potential Effects (APE). The recorded boundary of one resource (P-33-028824) is located 75 feet north of the APE across an adjacent roadway. P-33-028824 consists of an historic-period 15-foot by 6-foot foundation slab, a utility pole with 1930 and 1947 inspection nails, and a single clear glass bottle fragment. The July 2022 pedestrian field survey of the proposed project APE did not identify any new archaeological or built environment resources. The project archaeologist attempted to relocate the previously recorded resource documented 75 feet north of the project APE (P-33-028824); however, the resource is located on a private plot of land with fencing blocking access. As this site is outside of the APE and will not be impacted by the project, it requires no further management consideration.

The SLF search was returned with negative results and no cultural resources were identified within the proposed project APE as a result of the records search. No specific Native American archaeological resources were identified within the APE as a result of the outreach conducted. Given the level of previous ground disturbance within the project area (i.e., grading and construction activities) the proposed project APE is considered to have low archaeological sensitivity.

a) Less than Significant with Mitigation Incorporated

Similar to the original approved project, although no known historical resources would be affected by the proposed project, construction of the proposed project would involve ground disturbing activities which have the potential to encounter previously unknown historical resources. If previously unknown historical resources are encountered during construction, implementation of **Mitigation Measures CUL-1** through **CUL-6**, would reduce impacts to less than significant, similar to the original approved project.

b) Less than Significant with Mitigation Incorporated

Similar to the original approved project, archaeological resources are not anticipated to be encountered during construction of the proposed project because no archaeological resources have been previously recorded within or immediately adjacent to the project alignment and because the alignment is within an existing disturbed right-of-way. However, if ground-disturbing activities expose previously unrecorded resources, **Mitigation Measures CUL-1** through **CUL-6** would help prevent impacts to the cultural or archaeological resources. With implementation of Mitigation Measures **CUL-1** through **CUL-6**, potential impacts resulting in an adverse change to archeological resources would be less than significant.

c) Less than Significant with Mitigation Incorporated

Similar to the original approved project, construction of the proposed project has the potential to result in discovery of unanticipated human remains during ground disturbing activities. **Mitigation Measure CUL-7** would be implemented to ensure proper procedures are in place if human remains are discovered during construction. With implementation of **Mitigation Measure CUL-7**, the impacts would be less than significant.

Mitigation Measures:

The following mitigation measures shall be implemented to avoid direct impacts to previously unknown historical and archaeological resources. With these mitigation measures incorporated, the proposed project impacts are considered less than significant.

CUL-1: Cultural Resources Treatment and Monitoring Agreement. At least 30 days prior to the start of any ground-disturbing activities, EMWD shall contact the Consulting Tribe(s) to develop Cultural Resource Treatment Monitoring Agreement(s) ("Agreement"). The Agreement(s) 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 reimbursements.

CUL-2: Develop a Cultural Resources Monitoring Plan. Prior to any grading activities, a Cultural Resources Monitoring Plan shall be prepared by a qualified archaeologist in consultation with the Consulting Tribe(s). The plan shall identify the location and timing of cultural resources monitoring. The plan shall also contain an

allowance that the qualified archaeologist, based on observations of subsurface soil stratigraphy or other factors during initial grading, and in consultation with the Native American monitor and EMWD, may reduce or discontinue monitoring as warranted if the archaeologist determines that the possibility of encountering archaeological deposits is low. The plan shall outline the appropriate measures to be followed in the event of unanticipated discovery of cultural resources during project implementation (including during the survey to occur following vegetation removal and monitoring during ground-disturbing activities). The plan shall identify avoidance as the preferred manner of mitigating impacts to cultural resources. The plan shall establish the criteria utilized to evaluate the historic significance (per CEQA) of the discoveries, methods of avoidance consistent with CEQA Guidelines Section 15126.4(b)(3), as well as identify the appropriate data recovery methods and procedures to mitigate the effect of the project if avoidance of significant historical or unique archaeological resources is determined to be infeasible. The plan shall also include reporting of monitoring results within a timely manner, disposition of artifacts, curation of data, and dissemination of reports to local and state repositories, libraries, and interested professionals. A qualified archaeologist and 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 in the event that cultural material is encountered.

CUL-3: Tribal Monitoring Agreements. A qualified archaeological monitor and a Consulting Tribe(s) monitor shall be present for ground-disturbing activities associated with the project, and both the project archaeologist and Tribal Monitor(s) will make a determination as to the areas with a potential for encountering cultural material. At least seven business days prior to project grading, EMWD shall contact the tribal monitors to notify the Tribe of grading/excavation and the monitoring program/schedule, and to coordinate with the Tribe on the monitoring work schedule. Both the archaeologist and the tribal monitor shall have the authority to stop and redirect grading activities in order 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 predetermined between EMWD and the Consulting Tribe(s), details of which shall be addressed in the Cultural Resources Treatment and Monitoring Agreement in **Mitigation Measure CUL-1**. Treatment may also include curation of the cultural resources at a tribal curation facility, as determined in discussion among

EMWD, the project archaeologist, and the tribal representatives and addressed in the Cultural Resources Treatment and Monitoring Agreement referenced in Mitigation **Measure CUL-1**.

CUL-4: Evaluation of Discovered Artifacts. All artifacts discovered at the development site shall be inventoried and analyzed by the project archaeologist and tribal monitor(s). A monitoring report will be prepared, detailing the methods and results of the monitoring program, as well as the disposition of any cultural material encountered. If no cultural material is encountered, a brief letter report will be sufficient to document monitoring activities.

CUL-5: Disposition of Inadvertent Discoveries. In the event that 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. EMWD 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 Monitoring Plan required pursuant to **Mitigation Measure CUL-2** is the next preferable treatment measure. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments.

3. In the event that on-site reburial is not feasible, EMWD will enter into a curation agreement with an appropriate qualified repository within Riverside County that meets federal standards per 36 Code of Federal Regulations 800 Part 79 and therefore would be curated and made available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within Riverside County, to be accompanied by payment of the fees necessary for permanent curation.

CUL-6: 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.

CUL-7: Human Remains. If Native American human remains are encountered, Public Resources Code 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 origin. Further, pursuant to California Public Resources Code Section 5097.98(b), 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." The most likely descendant (MLD) shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in Public Resources Code Section 5097.98.

3.6 Energy

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	[ ]	[ ]	[X]	[ ]
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	[ ]	[ ]	[X]	[ ]

Discussion

The 2020 IS/MND and Addendum describes the applicable energy background, environmental setting, and regulatory setting. Since the 2020 IS/MND and Addendum were adopted, the City of Moreno Valley developed and adopted the *Moreno Valley Climate Action Plan (CAP)* (City of Moreno Valley 2021b), concurrently with the Moreno Valley *General Plan 2040*. The CAP included an inventory of energy use in the city by sector, including for the water and wastewater sectors. The CAP reported that EMWD and Box Springs Mutual Water Company consumed 4,651,580 kWh of electricity to supply potable and non-potable water within Moreno Valley in 2019. Box Springs Mutual Water Company supplied less than one percent of the total amount of the City's water, so most of that electricity use can be attributed to EMWD. EMWD consumed 199,577 therms of natural gas in supplying potable and non-potable water in Moreno Valley in 2019. EMWD consumed 9,441,777 kWh of electricity and 419,096 therms of natural gas to treat and manage wastewater in Moreno Valley in 2019 (City of Moreno Valley 2021b). No other background or setting information has changed since the 2020 IS/MND and Addendum were adopted.

Electrical service and natural gas service in the proposed project area is provided by Southern California Edison (SCE) and the Southern California Gas Company, respectively. SCE's power content mix utilizes approximately 30.9 percent renewables, 3.3 percent large hydroelectric, 15.2 percent natural gas, 8.4 percent nuclear, and 42.3 percent from other and unspecified power sources through transactions (SCE 2020).

a) Less Than Significant Impact

Similar to the original approved project, construction of the proposed project would require fossil fuel consumption for operation of diesel-powered construction equipment and vehicle trips from construction crew, equipment, and materials hauling and delivery trips. A description of the anticipation pipeline construction fleet and material excavation can be found in *Section 2.5.1*. Estimates of the number of worker, hauling, and vendor trips, as well as the construction vehicle fleet for all phases of construction were based on information in *Section 2.5.1* and CalEEMod model assumptions, which are based on surveys of similar construction activities. Further detail can be found in **Appendix A**.

Similar to the original approved project, the proposed project would implement typical construction practices such as trenching and repaving. The project would not require unusual or excessive construction equipment or practices that would result in wasteful, inefficient, or unnecessary consumption of energy compared to projects of similar type and size (see *Section 2.5.1*). In addition, the construction fleet contracted for the proposed

project would be required to comply with the CARB In-Use Off-Road Diesel-Fueled Fleets Regulations (CARB 2011), which would limit vehicle idling time to five minutes, restrict adding vehicles to construction fleets with older-tier engines, and establish a schedule for retiring older, less fuel-efficient engines from the construction fleet. Once construction is complete, operational energy consumption would be incorporated into EMWD's existing non-potable water distribution system. The additional energy required to operate the proposed project would be negligible compared to EMWD's overall operations. Routine inspection would also be incorporated into EMWD's existing O&M activities. As such, construction and operation of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy during construction, and impacts would be less than significant.

b) Less Than Significant Impact

The City of Moreno Valley CAP, prepared concurrently with the 2040 General Plan, promotes energy efficiency throughout the city and includes measures that address energy efficiency in the residential, commercial, industrial, off-road equipment, city public services and public lighting, and natural resources sectors. Energy-reduction measures applicable to proposed project construction include reducing emissions from heavy-duty construction equipment by limiting idling based on SCAQMD requirements; utilizing cleaner fuels, equipment, and vehicles; and requiring clear signage reminding construction workers to limit idling.

The City of Moreno Valley 2040 General Plan includes goals, objectives, policies, and programs that guide decision making. The Water and Energy Conservation section includes Goal OSRC-3, which requires the City to use energy and water wisely and promote reduced consumption, and identifies policies and action times to achieve this goal. EMWD also implements its own energy efficiency programs, which focus on pursuing alternative sources of electrical power supply such as solar, digester gas, fuel cell technology and microturbines (EMWD nd).

The project would not conflict with the City's CAP measures, General Plan policies and action items, or EMWD energy efficiency programs because, similar to the original approved project, the proposed project would result in a negligible net increase in EMWD's existing overall operations energy use. Construction of the proposed project would comply with the CARB In-Use Off-Road Diesel-Fueled Fleets Regulations (CARB 2011), including limiting idling. Furthermore, the project would not result in wasteful or inefficient energy consumption as explained under question "a" above. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.

Mitigation Measures: None required or recommended.

3.7 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.	[ ]	[ ]	[X]	[ ]
ii) Strong seismic ground shaking?	[ ]	[ ]	[X]	[ ]
iii) Seismic-related ground failure, including liquefaction?	[ ]	[ ]	[X]	[ ]
iv) Landslides?	[ ]	[ ]	[X]	[ ]
b) Result in substantial soil erosion or the loss of top soil?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]

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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[ ]	[X]
f)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	[ ]	[X]	[ ]	[ ]

Discussion

The 2020 IS/MND and Addendum describe the applicable geology and soils background, environmental setting, and regulatory setting. Since the 2020 IS/MND and Addendum were adopted, the City of Moreno Valley *General Plan 2006* was updated and replaced with the *General Plan 2040* (City of Moreno Valley 2021a). A Geotechnical Investigation Report was prepared for the proposed project by Converse Consultants (Converse Consultants 2022). The purposes of this investigation were to determine the nature and engineering properties of the subsurface soils and to provide design and construction recommendations. No other new information or changed circumstances have arisen since the 2020 IS/MND and Addendum were adopted.

a.i) Less than Significant Impact

No portion of the proposed pipeline alignment is located within a currently designated State of California or Riverside County Earthquake Fault Zone. As a result, the potential for surface rupture resulting from the movement of nearby or distant faults is considered very low (Converse Consultants 2022). The nearest potentially active fault mapped in accordance with the Alquist-Priolo Earthquake Fault Zoning Act is the San Jacinto Fault Zone. The shortest distance between the San Jacinto Fault Zone and the proposed pipeline is 3.5 miles. Due to the distance between the Fault Zone and project alignment, there is a very low potential for surface fault rupture. Similar to the original approved project, the proposed project would not be associated with significant levels of risk of loss, injury, or death from rupture of a known earthquake fault. Impacts would be less than significant.

a.ii) Less than Significant Impact

The San Jacinto Fault Zone, located approximately 3.5 miles from the proposed project alignment, is one of the most active faults in Southern California. Additionally, the San Andres and Elsinore Fault Zones are located approximately 14 miles east and 19 miles west of the project alignment, respectively. Based on the California Department of Conservation Ground Motion Interpolator, the project area has a 0.915 gravity for potential ground shaking[1] and would likely be subject to seismic ground shaking during a measurable seismologic event (CDOC 2008).

Similar to the original approved project, the potential for ground shaking in the project area is relatively high due to the close proximity to the San Jacinto, San Andreas, and Elsinore Fault Zones. However, the project facilities would be designed per EMWD's Engineering Standards and Specifications and the geotechnical report prepared for the project (Converse Consultants 2022) which would ensure structural resiliency. The project would also be designed and constructed pursuant to applicable American Water Works Association standards and would incorporate measures to accommodate seismic loading pursuant to guidelines such as the "Greenbook" Standard Specifications for Public Works Construction (Greenbook Committee of Public Works Standards, Inc. 2018), the International Building Code (International Code Council 2018), and the California Building Code (California Code of Regulations, Title 24, Part 2). Because building and construction codes related to seismic shaking would be followed, there would be less potential for structural damage or loss due to seismic ground shaking. Even if structural damage does occur during a seismic event, the proposed project would be located entirely below ground and would not exacerbate a risk of seismic-related damage to other existing resources in the vicinity. Impacts would be less than significant.

a.iii) Less than Significant Impact

Liquefaction is a seismic phenomenon in which loose, saturated, granular soils behave similarly to a fluid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions exist: shallow groundwater; low-density non-cohesive (granular) soils; and high-intensity ground motion (City of Moreno Valley 2021a). Based on review of hazard maps, the proposed pipeline alignment is located within a State of

[1] Ground shaking potential is calculated as the potential for ground shaking that has a two percent chance of being exceeded in 50 years and is measured on a ratio scale to signify the severity of the earthquake.

California or Riverside County designated zone of liquefaction susceptibility of low to moderate risk. In addition, historical high groundwater levels along the pipeline alignment are not known with certainty and could vary depending upon the seasonal precipitation and possible groundwater pumping activity in the alignment vicinity. Therefore, the proposed project may be susceptible to liquefaction.

Similar to the original approved project, the proposed project would be designed and constructed in accordance with state and EMWD seismic engineering standards described under "a.ii" above, and the geotechnical report prepared for the project (Converse Consultants 2022) which would reduce any potential impacts associated with liquefaction. The proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure including liquefaction. Impacts would be less than significant.

a.iv) Less than Significant Impact

Landslide risk is typically associated with high slopes and unstable soils. Due to the flat nature of the proposed pipeline alignment, the potential for seismically induced landslides affecting the pipeline alignment is considered to be very low (Converse Consultants 2022). Similar to the original approved project, the proposed project would be designed and constructed in accordance with state and EMWD seismic engineering standards described under "a.ii" above, and the geotechnical report prepared for the project (Converse Consultants 2022) which would reduce any potential impacts associated with landslides. The proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related landslides. Impacts would be less than significant.

b) Less than Significant Impact

Similar to the original approved project, construction of the proposed project would require soil-disturbing activities, such as excavation, which would expose soil to erosion if exposed to strong winds, heavy rains, or other storm events. In compliance with the California NPDES Construction General Permit for Storm Water Discharges, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and Best Management Practices (BMPs) would be implemented to control and reduce pollutants in storm water discharges associated with construction, including erosion of soil. Once construction is complete, all pipeline disturbance areas would be returned to pre-project conditions and would not result in further soil erosion. Therefore, impacts would be less than significant.

c) Less than Significant Impact

Seismically induced lateral spreading involves primarily lateral movement of earth materials over underlying materials which are liquefied due to ground shaking. It differs from the slope failure in that complete ground failure involving large movement does not occur due to the relatively smaller gradient of the initial ground surface. Lateral spreading is demonstrated by near-vertical cracks with predominantly horizontal movement of the soil mass involved. Due to the low to moderate risk for liquefaction and flat nature of proposed pipeline alignment, the risk of lateral spreading in the project area is considered low to moderate (Converse Consultants 2022). Landslide impacts were addressed in response "a.iv" above.

Similar to the original approved project, liquefaction and lateral spreading are a risk associated with the project area due to potentially shallow groundwater levels. However, operation of the project, a functionally independent component of the Perris North Basin Contamination Prevention and Remediation Program, would result in groundwater pumping which would help regulate groundwater levels and minimize the potential risk of liquefaction. Adherence to state and EMWD seismic engineering standards described under "a.ii" above and the geotechnical report prepared for the project (Converse Consultants 2022) would ensure structural resiliency to earthquake events and associated lateral spreading and liquefaction. Therefore, implementation of the project is not expected to result in significant risk of landslide, lateral spreading, or liquefaction.

Although none of the proposed project alignment would be located in an area of known subsidence, the operation of the proposed project, a functionally independent component of the Perris North Basin Contamination Prevention and Remediation Program, would extract groundwater, which, when conducted in an unregulated manner, has been known to cause land subsidence and collapse. As explained in further detail under question "b" in *Section 3.10 Hydrology and Water Quality*, the proposed project, together with the original approved project, would produce approximately 3,700 AFY of groundwater in a sustainable manner consistent with the San Jacinto Groundwater Basin GSP. Therefore, the proposed project is not expected to be susceptible to risks associated with land subsidence or collapse. Impacts would be less than significant.

d) Less than Significant Impact

Expansive soils have the ability to significantly change their volume, shrink and swell, due to their soil moisture content. Expansive soils can crack rigid structures and potentially create pipeline rupture. Typically, expansive soils are very fine grained with a high to very high percentage (60 percent or more) of clay. The project area overlies a soil area that is

well drained and consists of sandy loam soils (UC Davis 2022). Based on the low clay particle content of the soil, the project alignment would not be located on expansive soils. Similar to the original approved project, the proposed project would be designed and constructed in accordance with state and EMWD seismic engineering standards described under "a.ii" above, and the geotechnical report prepared for the project (Converse Consultants 2022) which would ensure structural resiliency and minimize the potential effects of expansive soils. Therefore, impacts would be less than significant.

e) No Impact

The project does not propose the construction or use of septic tanks or alternative wastewater disposal systems. Therefore, there would be no impact.

f) Less than Significant Impact with Mitigation Incorporated

A Paleontological Resources Assessment was prepared in November 2021 for the EMWD Perris North Groundwater Monitoring Project which provides analytical coverage for the proposed project area. Given the proximity of the two projects, the paleontological sensitivity of the geological units underneath the proposed project area is similar to that of the Perris North Groundwater Monitoring Project and therefore, the 2021 Paleontological Resources Assessment is relied upon for the analysis in this Subsequent IS/MND. The complete report is provided in **Appendix D**.

As found in the Paleontological Resource Assessment **(Appendix D),** the majority of the proposed project area is directly underlain by Pleistocene alluvial-fan deposits which have a well-documented record of abundant and diverse vertebrate fauna recorded throughout California. A request was submitted to the Natural History Museum of Los Angeles County (NHMLAC) for a list of known fossil localities in the proposed project area. There are no previously recorded fossil localities in the project area based on the paleontological locality records search performed at NHMLAC. However, records maintained by the Western Science Center indicate several fossils were recovered less than 10 miles northeast of the project area between 11 to 13 feet below ground surface within Pleistocene alluvial fan deposits (**Appendix D**).

Similar to the original approved project, ground-disturbing activities associated with construction of the proposed project (e.g., trenching, bore and jack drilling) in previously undisturbed portions of the project site underlain by geologic units with a high paleontological sensitivity (i.e., Pleistocene alluvial deposits) may result in significant impacts to paleontological resources under Appendix G of State CEQA Guidelines. Impacts would be significant if construction activities result in the destruction, damage,

or loss of scientifically important paleontological resources and associated stratigraphic and paleontological data.

Construction of the proposed project would require temporary ground disturbance that would reach a maximum depth of 10 feet during open cut trenching and up to 40 feet during "bore and jack" drilling. "Bore and jack" drilling would have negligible impacts on paleontological resources or unique geological features because this type of ground disturbance does not typically remove observable geologic sediments. The project alignment is underlain by Pleistocene alluvial deposits which have the potential for fossiliferous deposits to occur at depths between 11-13 feet. Although there is low potential for encountering fossils, and impacts on paleontological resources are not anticipated, **Mitigation Measure GEO-1** would be implemented during all construction phases of the project to ensure proper procedures are in place in the event of an unanticipated fossil discovery, similar to the original approved project. **Mitigation Measure GEO-1** would ensure any unanticipated fossil discovered onsite would be preserved, and potential impacts on paleontological resources would be less than significant.

Mitigation Measures:

The following mitigation measures shall be implemented to avoid direct impacts to previously unknown paleontological resources. With these mitigation measures incorporated, the proposed project impacts are considered less than significant.

> **GEO-1: Unanticipated Fossil Discovery.** In the event of an unanticipated fossil discovery made during the construction of the project, in accordance with Society of Vertebrate Paleontology (2010) guidelines, it is the responsibility of any worker who observes the fossil within the project site to stop work within the fossil's immediate vicinity and notify a qualified professional paleontologist. The paleontologist shall evaluate the discovery, determine the fossil's significance, and decide if additional mitigation or treatment is needed. Work within the area of the fossil discovery will resume once the find is documented and authorization to resume construction work is given. Any significant paleontological resources discovered during construction monitoring will be prepared, identified, analyzed, and permanently curated in an approved regional museum repository.

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

Discussion

The 2020 IS/MND and Addendum describe the applicable greenhouse gas (GHG) background, environmental setting, and regulatory setting. Since the 2020 IS/MND and Addendum were adopted, the City of Moreno Valley adopted the *Moreno Valley Climate Action Plan CAP* (City of Moreno Valley 2021b), concurrently with the Moreno Valley *General Plan 2040*. No other background or setting information has changed since the 2020 IS/MND and Addendum were adopted.

a) Less Than Significant Impact

The proposed project would create GHG emissions during construction only. Construction is expected to last approximately 18 months, and the proposed project's life expectancy is conservatively assumed to be 30 years for the purposes of this GHG analysis. Construction impacts would include emissions associated with pipeline trenching and installation, as well as on-road vehicle trips for mobilization and demobilization activities (e.g., potholing, pipe and valve testing, and other activities). The proposed project would not be associated with a net increase in operation emissions because the pipeline would not require energy use to operate, and inspection of the pipeline and above ground appurtenances, and exercise of the valves would be incorporated into EMWD's existing O&M trips. Further details can be found in *Section 2 Project Description*.

Modeling of air emissions from construction was completed in CalEEMod version 2020.4.0. Details on construction, including timing and equipment, can be found in *Section*

2.5 Proposed Project Description. The proposed project would not emit GHGs associated with electricity consumption; all GHG emissions would result from vehicle use, including construction equipment, haul trips, and worker trips. No energy requirements are expected for the operation of the pipeline. Other project details necessary for GHG emissions modeling were obtained from CalEEMod and design engineer estimates (e.g., equipment horsepower, load factors, fleet mix, and vehicle emissions factors).

The results of the inventory for GHG emissions, as shown in the CalEEMod output tables in **Appendix A**, are presented in **Table 3-3** along with the significance threshold that was used in the 2020 IS/MND and Addendum. Consistent with the methodologies used in the 2020 IS/MND and Addendum, total GHG emissions from construction have been amortized over the 30-year lifetime of the proposed project.

Table 3-3: Project GHG Emissions per Year ($MTCO_2e$/year)

Source	$MTCO_2e$
Operation	negligible
Construction (amortized over 30 years)	33.7
Total	**34**
Threshold	3,000
Exceed Threshold?	*No*

**MTCO2e = metric tons of carbon dioxide equivalents*

During construction, the proposed project would emit a total of 1,012 $MTCO_2e$ over 2023 and 2024, with the maximum annual emissions of 603 $MTCO_2e$ occurring in 2023. Amortized over a 30 year period, the project would generate approximately 34 $MTCO_2e$ per year. In addition, the proposed project would adhere to existing energy efficiency requirements during construction, including CARB's In-Use Off-Road Diesel-Fueled Fleets Regulations that limit vehicle idling time to five minutes, restrict adding vehicles to construction fleets that have lower than Tier 3 engines, and establish a schedule for retiring older and less fuel-efficient engines (CARB 2011). Construction related GHG impacts would be less than significant. The State of California has set targets for renewable energy from the energy sector through the Renewable Portfolio Standard. The Renewable Portfolio Standard directs energy utilities to source half of their electricity sales from renewable sources by 2030 (CEC 2017). The proposed project would not consume electricity; therefore, the proposed project would not conflict with or obstruct this target. Impacts would be less than significant.

b) Less than Significant Impact

California's 2017 Climate Change Scoping Plan focuses on reducing energy demand and GHG emissions that result from mobile sources and land use development. Similar to the original approved project, the proposed project would not involve a considerable increase in new vehicle trips or land use changes, such as urban sprawl, that would result in an increase in vehicle trips. The Scoping Plan also recognizes that about two percent of the total energy used in the state is related to water conveyance; it calls for "increased water conservation and efficiency, improved coordination and management of various water supplies, greater understanding of the water-energy nexus, deployment of new technologies in drinking water treatment, groundwater remediation and recharge, and potentially brackish and seawater desalination." The proposed project is associated with the development, conveyance and use of local water supplies, thus requiring less energy than use of alternative water supplies such as imported water.

The City of Moreno Valley CAP Appendix C contains a non-exclusive list of potential additional measures that can be applied at the project level to reduce GHG emissions. Identified reduction measures include renewable energy, green building, energy efficiency, transportation, water conservation, landscaping, and solid waste measures. The proposed project would not conflict with the City of Moreno Valley CAP project level GHG reduction measures.

The proposed project would not interfere with existing city, county, or regional programs intended to reduce energy and improve water use efficiency. It would not result in GHG emissions higher than the Riverside County CAP significance screening thresholds. The proposed project would not, therefore, conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant, and no mitigation would be required.

Mitigation Measures: None required or recommended.

3.9 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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[X]	[ ]	[ ]
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	[ ]	[X]	[ ]	[ ]
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?	[ ]	[ ]	[X]	[ ]
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	[ ]	[ ]	[ ]	[X]
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	[ ]	[X]	[ ]	[ ]

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

Discussion

The 2020 IS/MND and Addendum describe the applicable hazards and hazardous materials background, environmental setting, and regulatory setting. No background and setting information has changed since the 2020 IS/MND and Addendum were adopted.

A regulatory records search was performed for the proposed project area using the SWRCB GeoTracker database (SWRCB 2022) and the California DTSC Envirostor database (DTSC 2022). There are no active hazardous materials cleanup sites listed on the SWRCB GeoTracker or DTSC Envirostor database within one mile of the proposed project alignment. The closest active cleanup site listed on the GeoTracker database is Towngate Cleaners (ID T10000005207) located approximately 1.5 miles southwest of the project pipeline. The closest active cleanup site listed on the EnviroStor database is Best Cleaners/Moreno Valley (ID 60002207) located approximately 1.25 miles west of the project pipeline. As discussed in *Section 3.20,* the project area is designated as a non–Very High Fire Hazard Severity Zone (VHFHSZ) within the Moreno Valley Local Responsibility Area (LRA) (FRAP 2009). The March Air Reserve Base, which has its own airport, is located approximately 3.5 miles southwest from the project alignment. The nearest municipal airport is the San Bernardino International Airport which is located over 10 miles north of the project area.

a) Less than Significant Impact

Similar to the original approved project, construction of the proposed project would temporarily increase the routine transport and use of hazardous materials such as for operation of equipment (i.e., gasoline, diesel) or installation of pipeline or appurtenances (i.e., adhesives, solvents). However, the construction contractor would be required to comply with applicable safety standards and regulations as described in the 2020 IS/MND and Addendum. Operation of the pipeline and above ground appurtenances would be incorporated into EMWD's existing O&M activities and would not require the routine transportation or use of hazardous materials. Therefore, the proposed project would not represent a significant hazard to the public or environment due to compliance with existing standards. Impacts would be less than significant.

b) Less than Significant with Mitigation Incorporated

Similar to the original approved project, construction of the proposed project could create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials used in construction, which include diesel fuel and minor amounts of paints, fuels, solvents and glues. As stated in Section *2.4 Environmental Setting*, sensitive receptors adjacent to the proposed pipeline alignment include single family residences, multi-family residences, churches, day care centers, and a public park. Implementation of **Mitigation Measure HAZ-1** from the 2020 IS/MND and Addendum would require the construction contractor to develop and implement a Hazardous Materials Management Spill Prevention and Control Plan that includes project-specific contingencies in the event of a spill or release of a hazardous material. Operation of the project pipeline and appurtenances would not require the routine transportation or use of hazardous materials which could create a significant hazard to the public or the environment. Therefore, with implementation of **Mitigation Measure HAZ-1**, impacts resulting from potential hazardous materials-related accidents would be reduced to less than significant.

c) Less than Significant with Mitigation Incorporated

Similar to the original approved project, there are existing schools within one-quarter mile of the proposed project alignment that would be exposed to hazardous emissions during construction (see *Section 2.5 Environmental Setting*). As explained in *Section 3.3 Air Quality*, emissions would be below SCAQMD LST thresholds and less than significant. As explained in response to "b" above, there is a risk of accidental release of hazardous materials during project construction, including within one-quarter mile of schools. Implementation of **Mitigation Measure HAZ-1** would reduce impacts to less than significant.

Upon completion of construction, no chemicals would be stored or routinely transported and used for O&M of the project. No hazardous materials would be handled or emitted on a regular basis and there would be less than significant impacts related to hazardous material release associated with long-term O&M activities. Impacts would be less than significant.

d) Less Than Significant Impact

Regulatory records were searched through the SWRCB GeoTracker database and the DTSC EnviroStor database. These databases provide information on potential, confirmed, and closed hazardous waste and substances sites in California. None of the proposed project alignment, appurtenances, or staging areas are proposed on a site that is included

on a list of hazardous materials sites per Government Code Section 65962.5, according to the SWRCB GeoTracker and DTSC EnviroStor databases (DTSC 2022 and SWRCB 2022). Additionally, there are no active hazardous waste clean-up sites adjacent to the proposed pipeline alignment. However, five closed clean-up sites are located adjacent to the project pipeline, all of which were leaking underground storage tank (LUST) sites.

Because none of the project alignment, appurtenances, or staging areas would be located on a clean-up site undergoing or awaiting remediation, no hazards to the public or the environment would be expected. Impacts would be less than significant.

e) No Impact

Similar to the original approved project, the proposed project is located near the MARB, which has its own airport. However, the proposed project area is outside of the MARB compatibility zones or airport influence area. While the project area is located within the FAR Part 77 Military Outer Horizontal Surface Limits, there are no restrictions on development for this outer area. Even so, the project would not include tall structures that could interfere with airport safety measures. There would be no impact.

f) Less than Significant with Mitigation Incorporated

Construction of the proposed project pipeline would involve installation of approximately 12,500 linear feet of raw water transmission pipeline with air release valves within Ironwood Avenue and Perris Boulevard. Similar to the original approved project, the proposed project would temporarily block traffic lanes during construction that could be used by emergency response vehicles or in emergency evacuations such that construction activities may conflict with the adopted emergency response plan and emergency evacuation plan (City of Moreno Valley Emergency Operations Plan (EOP) [City of Moreno Valley 2019c and City of Moreno Valley Local Hazard Mitigation Plan (LHMP) [City of Moreno Valley 2017]). As discussed in *Section 3.17 Transportation*, **Mitigation Measure TRA-1** would be implemented during project construction to ensure that construction would not interfere with emergency response times, similar to the original approved project. Long term, the project would not physically impair or otherwise interfere with emergency response or evacuation in the project vicinity because the pipeline would be installed underground, and ground surfaces would be returned to pre-construction conditions. Pipeline appurtenances would be installed at a practicable distance from traffic lanes to ensure no permanent impact to vehicles. Operation and maintenance of the project would be incorporated into EMWD's existing O&M activities and would not interfere with an adopted emergency response plan or emergency evacuation plan. With

the incorporation of traffic control measures identified in **Mitigation Measure TRA-1**, impacts would be less than significant.

g) Less than Significant

Similar to the original approved project, the proposed project would not involve the installation or maintenance of infrastructure that is typically associated with fire risk (*see Section 3.20 Wildfire*). Additionally, the proposed project alignment is located within area designated as non–VHFHSZ within the Moreno Valley LRA (FRAP 2009). Therefore, the project would have a less than significant impact on exposing people or structures to a significant risk of loss, injury or death involving wildland fires.

Mitigation Measures:

Implementation of the following mitigation measures will mitigate potential impacts related to emergency evacuation routes and accidental release of hazardous materials. With mitigation, impacts will be less than significant.

TRA-1: Traffic Control and Detour Plan (see *Section 3.17*)

Mitigation Measure HAZ-1: Hazardous Materials Management and Spill Prevention and Control Plan. Before construction begins, EMWD shall prepare a Hazardous Materials Management Spill Prevention and Control Plan that includes a project-specific contingency plan for hazardous materials and water operations. The Plan will be applicable to construction activities and will establish policies and procedures according to applicable codes and regulations, including but not limited to the California Building and Fire Codes, and federal and OSHA regulations. The Plan will include, but is not limited to the following:

- A discussion of hazardous materials management, including delineation of hazardous material storage areas, access and egress routes, waterways, emergency assembly areas, and temporary hazardous waste storage areas;
- Notification and documentation of procedures; and
- Spill control and countermeasures, including employee spill prevention/response training.

3.10 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 ground water quality?	[ ]	[ ]	[X]	[ ]
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may?	[ ]	[ ]	[X]	[ ]
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;	[ ]	[ ]	[X]	[ ]
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	[ ]	[ ]	[X]	[ ]
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	[ ]	[ ]	[X]	[ ]
iv) impede or redirect flood flows?	[ ]	[ ]	[X]	[ ]
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	[ ]	[ ]	[X]	[ ]

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

Discussion

The 2020 IS/MND and Addendum describe the applicable hydrology and water quality background, environmental setting, and regulatory setting. The West San Jacinto Groundwater Basin GSP has been approved since the certification of the 2020 IS/MND and Addendum. No other new information or changed circumstances have arisen since the 2020 IS/MND and Addendum were adopted.

The San Jacinto Groundwater Basin was deemed a high priority, but not critically overdrafted, basin by the California Department of Water Resources and was required to develop a GSP by 2022 for the non-adjudicated portions of the San Jacinto Groundwater Basin, according to the 2014 Sustainable Groundwater Management Act (SGMA). The eastern portion of the Subbasin is adjudicated, but the western portion (which includes the Perris North Groundwater Management Zone) is subject to the provisions of SGMA. EMWD acts as the Groundwater Sustainability Agency (GSA) for the western portion of the Subbasin and developed the West San Jacinto Groundwater Basin GSP, which was adopted by the EMWD Board of Directors, acting as the West San Jacinto GSA Board of Directors, on September 15, 2021. The GSP documents basin conditions and basin management based on measurable objectives and minimum thresholds defined to prevent significant and unreasonable impacts to sustainability indicators (including surface and groundwater levels and quality) defined in the GSP.

a) Less than Significant Impact

Similar to the original approved project, construction of the proposed project could result in short-term erosion/sedimentation during construction that has the potential to impact surface water quality. As discussed in *Section 2.6 Environmental Commitments*, the project contractor would be required to prepare a SWPPP and implement BMPs to control water quality of stormwater discharges offsite, such as erosion control, sediment control, tracking control and wind erosion control. Trenchless "bore and jack" construction may be required for pipeline installation where the project alignment crosses under RCFCWCD storm drains at Fir Avenue, Eucalyptus Avenue, and Cottonwood Avenue, and where the proposed project alignment crosses the Sunnymead stormwater channel north of the Highway 60/Moreno Valley Freeway. For this construction method, pits would be dug on either side of the surface feature to be avoided (e. g. storm channel). With implementation of the SWPPP BMPs and avoidance of the stormwater channels through trenchless (jack

and bore) installation method, construction of the proposed project would not be expected to impact water quality and thus, would not violate water quality standards or waste discharge requirements or otherwise degrade water quality. Impacts would be less than significant.

Operation of the proposed project, together with the other facilities of the Cactus Corridor Groundwater Wells Project evaluated in the 2020 IS/MND and Addendum, would help improve and protect groundwater quality of the Perris North Basin over time and is considered a beneficial effect. No adverse impacts on groundwater quality would be expected.

b) Less than Significant Impact

The proposed project is a below-ground pipeline that would not generate a need for increased groundwater supplies or result in a change in impervious surface area. Therefore, the project would not decrease groundwater supplies of interfere with groundwater recharge.

Similar to the original approved project, the applicable groundwater sustainability plan for the proposed project is the West San Jacinto Groundwater Basin GSP, which was adopted by the EMWD Board of Directors, acting as the West San Jacinto GSA Board of Directors, in September 2021. The West San Jacinto Basin GSP sustainability goal is to manage groundwater resources in a way that facilitates long-term sustainable use of groundwater in the non-adjudicated portion of the San Jacinto Groundwater Basin (West San Jacinto GSA 2021). 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 West San Jacinto Groundwater Basin
- Protecting beneficial uses such as municipal and domestic supplies of fresh groundwater resources in the Lakeview and Perris North Groundwater Management Zones to the extent feasible, by minimizing the northward and eastward migration of brackish groundwater from the Perris South Groundwater Management Zone.
- 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 proposed project, together with the Cactus Avenue Corridor Groundwater Wells Project components evaluated in the 2020 IS/MND and Addendum, would extract, convey, and treat approximately 3,700 AFY of contaminated groundwater from the Perris North Groundwater Management Zone for beneficial use as part of the larger Perris North Basin Groundwater Contamination Prevention and Remediation Program. As stated in the GSP, chronic lowering of groundwater levels in the Moreno Valley Production Area may impact operations of the Perris North Basin Groundwater Contamination Prevention and Remediation Program (West San Jacinto GSA 2021). However, over the 50-year planning and implementation horizon, the groundwater elevation minimum thresholds in the GSP allow for groundwater extractions that exceed historical levels while protecting against long-term aquifer supply depletion. This planned extraction accounts for groundwater production and use of the Perris North Basin Groundwater Contamination Prevention and Remediation Program. Therefore, the proposed project, as an independent component of the Perris North Basin Groundwater Contamination Prevention and Remediation Program, would not impact groundwater sustainability, and the production of groundwater associated with the Perris North Groundwater Contamination Prevention and Remediation Program would be conducted in a sustainable manner consistent with the San Jacinto Groundwater Basin GSP. Therefore, the proposed project would not substantially decrease groundwater supplies or interfere with groundwater recharge such that it would impede sustainable groundwater management of the basin, and impacts would be less than significant.

c) Less than Significant Impact

Construction of the proposed project would occur within existing roadway rights-of-way, and staging areas would be located on vacant, disturbed parcels. The pipeline would be installed below-ground and disturbed areas would be restored to their pre-construction condition. Above ground appurtenances would be installed within existing impervious areas and thus would not result in a permanent increase in total impervious surfaces in the project area. As discussed under topic "a", construction of the proposed project may result in disturbance or exposure of soil that could be subjected to erosion or sedimentation during a rain event.

Implementation of BMPs as required by the NPDES Construction General Permit and EMWD's existing environmental commitments would control erosion and sedimentation and prevent construction-related pollutants in stormwater discharges from the construction site. The project pipeline alignment may be required to cross existing concrete-lined drainage channels. However, at these locations, pipelines may be required to be constructed using trenchless methods (e.g., jack and bore). Using this technique, ground surface disturbance would not occur, except at the pits used to site the jack and

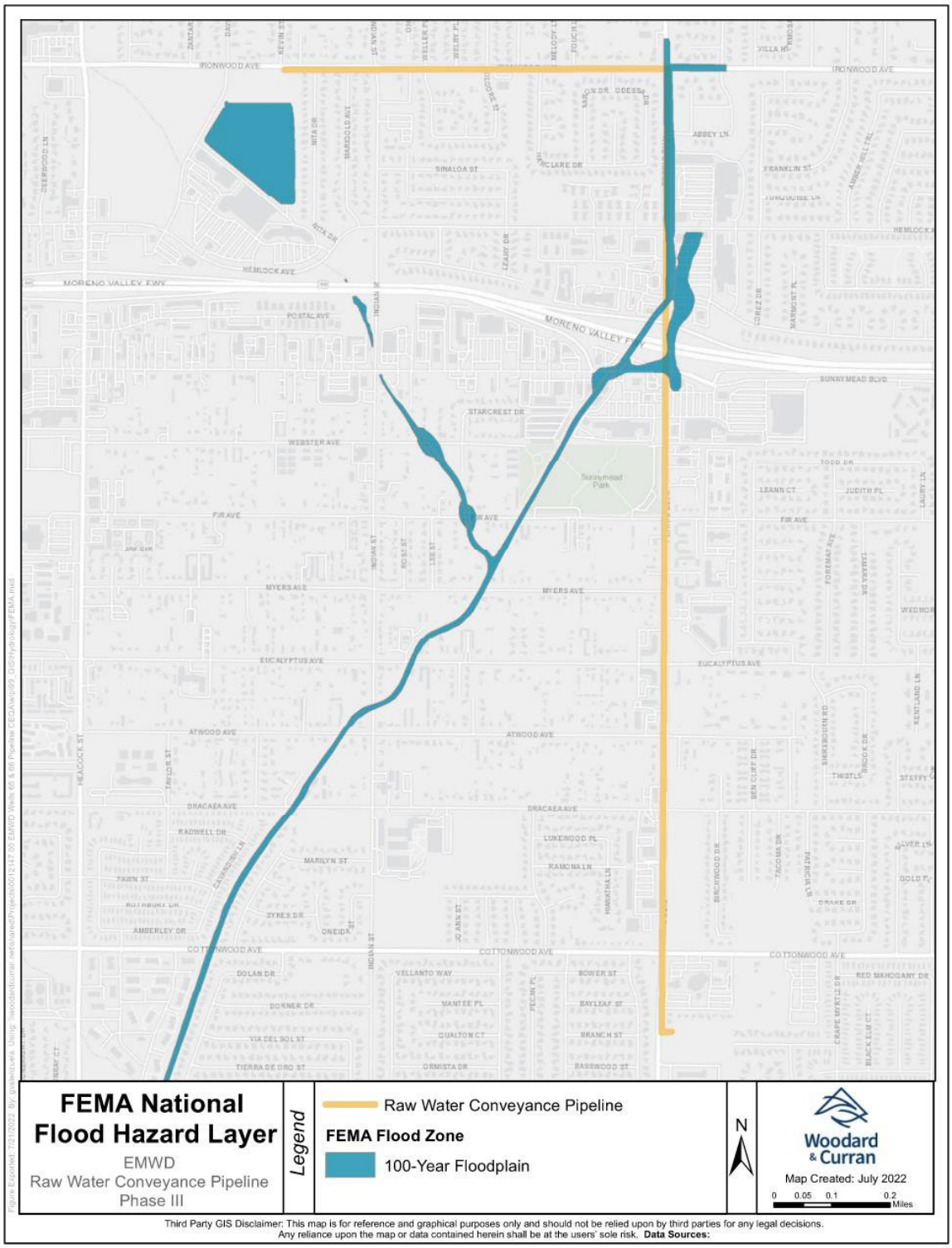
bore equipment (which would be located away from the channels). As a result, similar to the original approved project, the construction and operation of the proposed project would not impede or redirect flood flows, alter drainage patterns of the project area, cause substantial erosion, substantially increase surface runoff, generate runoff in excess of the existing storm drainage systems, or be a source of polluted runoff. Impacts would be less than significant.

d) Less than Significant Impact

The proposed project is located approximately 40 miles from the Pacific Ocean; at this distance, a tsunami would not impact the project vicinity. Located approximately 5 miles southeast of the project alignment, Lake Perris is one of only two waterbodies in Riverside County that have the potential for seismically induced seiche based on morphology and hydrology (Riverside County 2015). However, due to the distance between Lake Perris and the project alignment, the potential for inundation by seiche is low.

As shown in **Figure 3-2**, portions of the project alignment along Perris Boulevard are located in a 100-year floodplain as designated by the United States Department of Homeland Security Federal Emergency Management Agency (FEMA) National Flood Insurance Program. However, the pipeline would be installed below ground, disturbed areas would be restored to their pre-construction condition, and above ground appurtenances would be set back from flood channels. In addition, O&M of the project would not require storage of pollutants onsite that could be released in the event of potential inundation. Therefore, similar to the original approved project, the potential for the release of pollutants due to project inundation is low. Impacts would be less than significant.

Figure 3-2: FEMA 100 Year Floodplain



e) Less than Significant Impact

Similar to the original approved project, the applicable water quality and groundwater sustainability plans for the proposed project are the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) (Santa Ana RWQCB 2016) and the West San Jacinto Groundwater Basin GSP.

Water quality thresholds identified in the Basin Plan are intended to reduce pollutant discharge and ensure that water bodies are of sufficient quality to meet their designated beneficial uses (Santa Ana RWQCB 2016). The proposed project would not conflict with the water quality standards outlined in the Basin Plan or worsen water quality conditions in any 303(d)-listed water body. As discussed above, pollutant discharge during construction would be avoided via compliance with the NPDES Construction General Permit and existing EMWD environmental commitments (See *Section 2.6 Environmental Commitments*). Once operational, the project would not discharge extracted or treated water that could become a potential source of pollutants for downstream water bodies (e.g., San Jacinto River, Canyon Lake, Lake Elsinore). Therefore, the proposed project would not conflict with the Basin Plan. Impacts would be less than significant.

As discussed earlier in this section, the West San Jacinto GSP was adopted by the GSA in September 2021 in accordance with SGMA regulations. The sustainability goal of the GSP is to manage groundwater resources in a way that facilitates long-term sustainable use of groundwater in the non-adjudicated portion of the San Jacinto Groundwater Basin (West San Jacinto GSA 2021). The proposed project, together with the original approved project, would extract, convey, and treat approximately 3,700 AFY of contaminated groundwater in the Perris North Groundwater Management Zone as part of the larger Perris North Basin Groundwater Contamination Prevention and Remediation Program. As stated under topic "b" above, groundwater extractions as a result of the Perris North Basin Groundwater Contamination Prevention and Remediation Program have been accounted for over the West San Jacinto GSP 50-year planning and implementation horizon. Therefore, the proposed project, as an independent component of the Perris North Basin Groundwater Contamination Prevention and Remediation Program, would not impact groundwater sustainability, and the production of groundwater, associated with the Perris North Groundwater Contamination Prevention and Remediation Program, would be conducted in a sustainable manner consistent with the San Jacinto Groundwater Basin GSP. Thus, the proposed project would not conflict with the West San Jacinto GSP. Impacts would be less than significant.

Mitigation Measures: None required or recommended.

3.11 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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[ ]	[X]

Discussion

The 2020 IS/MND and Addendum describe the applicable land use and planning background, environmental setting, and regulatory setting. Background and setting information that has changed since the 2020 IS/MND and Addendum was adopted includes an update to the City of Moreno Valley General Plan (City of Moreno Valley 2021). No other new information or changed circumstances have arisen since the 2020 IS/MND and Addendum were adopted.

According to the City of Moreno Valley General Plan Land Use Map, the land use designation of the proposed project alignment includes roadway rights-of-way, and the potential temporary construction staging area is designated corridor mixed use. Land use designations adjacent to the pipeline alignment include commercial, light industrial, churches, single and multi-family residential, corridor mixed use, and public facilities including parks and schools (City of Moreno Valley 2022).

a) Less Than Significant Impact

Similar to the original approved project, the proposed project would be constructed within existing roadway rights-of-way and would temporarily affect adjacent established communities through increased dust, noise, and traffic during construction. However, once constructed, the pipelines would be underground, and roadways would be restored to pre-construction condition. The above ground appurtenances would be located a practicable distance from traffic lanes. Therefore, the proposed project would not permanently interfere with the pedestrian, bicycle or vehicle circulation of the

neighborhoods or community. The proposed project would have a less than significant impact related to physically dividing an established community.

b) No Impact

Construction of the proposed project would occur entirely within existing roadway rights-of-way and would comply with all applicable permits and approvals identified in *Section 2.7 Required Permits and Approvals*. Upon completion of construction, all disturbed surfaces would be restored to pre-construction conditions and operation of the project would not result in any land use changes. Therefore, the project would not conflict with applicable land use plans, policies and regulations intended to avoid or mitigate an environmental effect including City of Moreno Valley zoning policies and the 2040 General Plan. No impact would occur.

Mitigation Measures: None required or recommended.

3.12 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?	[ ]	[ ]	[ ]	[X]
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?	[ ]	[ ]	[ ]	[X]

Discussion

The 2020 IS/MND and Addendum describe the applicable mineral resources background, environmental setting, and regulatory setting. Background and setting information that has changed since the 2020 IS/MND and Addendum were adopted includes an update to the City of Moreno Valley General Plan (City of Moreno Valley 2021). No other new

information or changed circumstances have arisen since the 2020 IS/MND and Addendum were adopted.

a, b) No Impact

The proposed project is located within land designated by the California Department of Conservation as Mineral Resource Zone (MRZ)-3, land for which the significance of mineral resources cannot be determined. However, this MRZ category is not considered a significant potential mineral resource and there are no active mineral resource extraction facilities within the project area (City of Moreno Valley 2021a). The City of Moreno Valley 2040 General Plan land use map does not delineate any mineral resource recovery sites or designate any land for mineral resource production (City of Moreno Valley 2022). Therefore, no impact on the availability of a known mineral resource or the availability of a locally-important mineral resource recovery site would occur as a result of construction or operation of the proposed project.

Mitigation Measures: None required or recommended.

3.13 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?	[ ]	[X]	[ ]	[ ]
b) Generation of excessive groundborne vibration or groundborne noise levels?	[ ]	[X]	[ ]	[ ]

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

Discussion

The 2020 IS/MND and Addendum describe the applicable noise background, environmental setting, and regulatory setting. Since the 2020 IS/MND and Addendum were adopted, the City of Moreno Valley *General Plan 2006* was updated and replaced with the *General Plan 2040* (City of Moreno Valley 2021a). Information from the *2040 General Plan* relevant to the proposed project is summarized in the next paragraph. No other new information or changed circumstances have arisen since the 2020 IS/MND and Addendum were adopted. Refer to the 2020 IS/MND and Addendum for definitions and standards relevant to the proposed project.

The City of Moreno Valley *General Plan 2040* contains goals, policies, and actions related to minimizing noise impacts.

- Goal N-1: Design for a pleasant, healthy sound environment conducive to living and working
    - N.1-4: Require a noise study and/or mitigation measures if applicable for all projects that would expose people to noise levels greater than the "normally acceptable" standard and for any other projects that are likely to generate noise in excess of these standards.
    - N.1-5: Noise impacts should be controlled at the noise source where feasible, as opposed to at receptor end with measures to buffer, dampen, or actively cancel noise sources. Site design, building orientation, building design, hours of operation, and other techniques, for new developments deemed to be noise generators shall be used to control noise sources.
    - N.1-6: Require noise buffering, dampening, or active cancellation, on rooftop or other outdoor mechanical equipment located near residences, parks, and other noise sensitive land uses.

- N.1-C: Study the feasibility of using alternative pavement materials such as rubberized asphalt pavements on roadways to reduce noise generation. Update City standards as appropriate.

- Goal N-2: Ensure that noise does not have a substantial, adverse effect on the quality of life in the community.
  - N.2-3: Limit the potential noise impacts of construction activities on surrounding land uses through noise regulations in the Municipal Code that address allowed days and hours of construction, types of work, construction equipment, and sound attenuation devices.
  - N.2-A: Continue to maintain performance standards in the Municipal Code to ensure that noise generated by proposed projects is compatible with surrounding land uses.

In addition, the *General Plan 2040* Noise Element specifies sound levels for land use compatibility for the purposes of siting new land uses. These standards are summarized in **Table 3-4**.

Table 3-4: City of Moreno Valley General Plan 2040 Community Noise Compatibility Matrix

Land Use Type	Normally Acceptable (L_{dn} or CNEL dBA)	Conditionally Acceptable (L_{dn} or CNEL dBA)
Residential – Low Density Single Family, Duplex, Mobile Homes Residential – Multiple Family Transient Lodging: Hotels and Motels	50-65	65-70
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-70	Not defined
Auditoriums, Concert Halls, Amphitheaters Sports Arena, Outdoor Spectator Sports	Not defined	50-70
Playground, Neighborhood Parks	50-70	70-75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-75	Not defined
Office Buildings, Businesses, Commercial and Professional	50-70	70-80
Industrial, Manufacturing, Utilities, Agricultural	50-75	75-80

Note: "Conditionally Acceptable" means new construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design.

Existing Conditions

The project area setting is generally built-out. Surrounding land uses include commercial, light industrial, churches, single and multi-family residential, and public facilities including parks and schools. Noise-sensitive receptors adjacent to or in the vicinity of the pipeline alignment are described in *Section 2.4.1 Sensitive Receptors*. The pipeline alignment would be located in the existing roadway right-of-way, typically at least 25 feet from the nearest receptor.

Transportation is the major source of noise in the City of Moreno Valley. As part of the *General Plan 2040* development, ambient noise monitoring was conducted to assess current noise levels in Moreno Valley at a variety of land uses proximate to major noise sources. Short-term daytime noise measurements were taken adjacent to major noise sources in the city. The project alignment along Ironwood Avenue and Perris Boulevard has an existing community noise equivalent level[1] (CNEL) of 65-70 and 70-75 decibels (dB), respectively (City of Moreno Valley 2021a).

a) Less than Significant with Mitigation Incorporated

Construction

Construction of the proposed project is expected to last 18 months and would involve noise-generating activities such as trenching and installation of valves which would require the use of heavy equipment. The construction equipment that would be used can be found in *Section 2.5 Proposed Project Description*. The typical noise level of each piece of construction equipment that would be used for the Project is shown in **Table 3-5**.

[1] A 24-hour time-averaged sound exposure level adjusted for average-day sound source operations. The adjustment includes a 5-dB penalty for noise occurring between 7:00 p.m. and 10:00 p.m., and a 10-decibel (dB) penalty for those occurring between 10:00 p.m. and 7:00 a.m., to adjust for the increased impact of nighttime noise on human activities.

Table 3-5: Typical Construction Equipment Noise Levels

Equipment	Typical Noise Levels (dBA, at 50 feet)
Backhoe/Loader	78
Hydraulic Excavator	81
Crane	81
Drill Rig	85
Utility Truck	74[1]
Water Truck	84[1]
Welder	74
Compressor	78
Pump	81
Pick-up Trucks	75
Dump Truck	76
Concrete Saw	90
Pavement Breaker	89[1]
Sweeper	82
Paver	77
Generator	81

Source: FHWA 2006a

1. Utility truck noise was assumed to be comparable to a flat-bed truck. Water truck noise was assumed to be comparable to a tractor.. Pavement breaker noise level was assumed to be comparable to a jackhammer.

Construction of the proposed pipeline would occur in the Ironwood Avenue and Perris Boulevard right-of-way during daytime hours, except along Perris Boulevard between Elder Avenue and Sunnymead Boulevard where nighttime construction could be scheduled to avoid traffic impacts. The potential pipeline alignment and staging area are shown in **Figure 2-2**. Pipeline construction would include noise-generating activities such as saw cutting of the pavement, trench excavation, trench backfill and compaction, and site restoration/pavement replacement. The pipelines would be constructed at an average rate of 50 to 100 linear feet per day, depending on the conditions, extent of existing utilities and traffic control, and permitted work hours. The pipeline would be constructed using an open cut trenching method; however, trenchless techniques may be required where the pipeline crosses under RCFCWCD storm drains. In the limited locations where jack-and-bore methods may be used, construction would occur in one location for a longer period of time and could expose people to increased noise levels.

During project construction, truck trips would generate noise along haul routes. Project construction would require approximately 28 round-trip worker trips per day, one round-trip vendor trip per day, and an average of approximately six to seven round-trip

hauling trips per day during the busiest phase of construction - pipeline trenching, installation, and paving. Noise-sensitive land uses along haul routes, including residences and schools, would be exposed to truck noise during construction. The amount of noise generated is affected by the vehicle speed, load, road condition, and other factors. As noted in the City of Moreno Valley General Plan, road noise is a major noise source in the city. Construction truck noise that occurs in noisy locations is generally less disruptive than the same noise would be in a quieter location.

Existing features in the area can also attenuate noise to residential receptors. The approximate range of noise attenuation from existing features according to the Federal Highway Administration Roadway Construction Noise Model User Manual, which provides the guidance on shielding, is summarized in **Table 3-6** (FHWA 2006).

Table 3-6: Noise Shielding Guidance References

dBA of Shielding	Equivalent to the following between noise source and receptor
0	No barriers or breaks in the line of sight between the noise source and the receptor.
3	A noise barrier or other obstruction (like a dirt mound) just barely breaks the line-of-sight between the noise source and the receptor.
5	Noise source is enclosed or shielded with a solid barrier close to the source, but the barrier has some gaps in it.
8	Noise source is enclosed or shielded with a solid barrier close to the source
10	Noise source is completely enclosed and shielded with a solid barrier close to the source.
15	A building stands between the noise source and receptor and completely shields the noise source.

Source: FHWA 2006

Attenuating features between the proposed alignment and nearby residential structures range from no features, to wooden fences, to 5- or 6-foot concrete masonry walls. An estimate of the proposed project's related construction noise was modeled using the Federal Highway Administration Roadway Construction Noise Model (RCNM). Model results are included in **Appendix E**. The model included a conservative assumption about the total pieces of equipment that could be in use at any one time. The noise estimate relied on the default equipment list and noise specifications available in the RCNM. Assuming simultaneous use of the construction vehicle fleet shown in **Table 3-7**, the noise level at a distance of 50 feet would be approximately 87.9 dBA Leq. Where there are masonry walls providing shielding between the residences and the area actively under construction , the noise levels would be reduced to approximately 82.9 dBA Leq. See **Table 3-7**.

Table 3-7: Modeled Construction Noise

Equipment	Modeled Usage (%)	Noise Level at 50 feet	Noise Level at 50 feet with 5 dBA shielding
Concrete Saws (2)	20	82.6	77.6
Crane	16	72.6	67.6
Dump Trucks (2)	40	72.5	67.5
Excavator	40	76.7	71.7
Pickup Trucks (3)	40	71	66
Pumps	50	77.9	72.9
Backhoes (2)	40	73.6	68.6
Welder / Torch	40	70	65
Total		**87.9**	**82.9**
Source: Federal Highway Administration's Roadway Construction Noise Model Software, Version 1.1, 12/08/2008			

Project construction noise generated by EMWD project construction is not subject to the City of Moreno Valley ordinances and is unlikely to exceed the levels prohibited in the City Municipal Code that could cause permanent hearing loss and would occur during daytime hours in accordance with the City Municipal Code. Nonetheless, due to the proximity of construction activities to residences and other noise-sensitive receptors, impacts from construction noise would be potentially disruptive to daily activities. As with the original approved project, implementation of **Mitigation Measure NOI-1**, which requires the construction contractor to implement BMPs for noise control, daytime construction noise impacts would be reduced to less than significant. When project construction requires nighttime activities, **Mitigation Measure NOI-2**, would be implemented which requires that sound barriers providing at least 25 dBA of noise attenuation be used during nighttime construction activities, similar to the original approved project.

Once operational, the below-ground conveyance pipelines would not generate noise. Noise may be associated with occasional vehicle maintenance trips but these trips would be negligible. The project would have less-than-significant long-term operational noise impacts.

b) Less Than Significant With Mitigation Incorporated

Similar to the original approved project, construction activities associated with the proposed project would have the potential to generate low levels of groundborne vibration. Groundborne vibrations propagate through the ground and decrease in intensity quickly as they move away from the source. Vibrations with a PPV of 0.2

inches/second or greater have the potential to cause damage to non-engineered timber and masonry buildings (FTA 2018). The Transit Noise and Vibration Impact Assessment Manual provides average source levels for typical construction equipment that may generate groundborne vibrations (**Table 3-8**). Most equipment that would be used in construction of the proposed project is not expected to generate substantial groundborne vibration. For example, a loaded truck produces 0.076 PPV at a distance of 25 feet, and a pavement breaker produces 0.035 PPV at a distance of 25 feet. None of the construction equipment to be used would exceed the PPV threshold of 0.2 inches/second at a distance of 25 feet, which is the closest that the project construction would be to adjacent, existing land uses.

Table 3-8: Vibration Source Levels for Construction Equipment

Equipment	PPV at 25 feet (inches/second)	Approximate VdB at 25 feet
Backhoe/Loader	N/A	N/A
Auger Drill Rig	0.089[1]	87[1]
Compressor	N/A	N/A
Concrete Pumper	N/A	N/A
Concrete Saw	N/A	N/A
Crane	N/A	N/A
Drilling Rig	0.089[1]	87[1]
Generator	N/A	N/A
Hydraulic Excavator	N/A	N/A
Pavement Breaker	0.035	79
Paver	N/A	N/A
Pick-up Trucks	0.076[1]	86[1]
Pump	N/A	N/A
Sweeper	N/A	N/A
Utility Truck	0.076[1]	86[1]
Water Truck	0.076[1]	86[1]
Welder	N/A	N/A

Source: FTA 2018
Most construction equipment is not expected to generate vibration; these are denoted with "N/A."
1. Drill rig PPV was assumed to be comparable to caisson drilling. Pavement breaker was assumed to be comparable to a jackhammer. Pickup trucks, utility trucks, and water trucks were assumed to be comparable to "loaded trucks" as listed in the *Transit Noise and Vibration Impact Assessment Manual*.

According to the FTA's Transit Noise and Vibration Impact Assessment Manual, 80 VdB is the threshold for human annoyance from groundborne vibration noise when events are

infrequent. Typical vibration dB levels for a loaded truck are 86 VdB at a distance of 25 feet, and a pavement breaker typically produces 79 VdB at a distance of 25 feet. The pipeline would be constructed at least 25 feet from the nearest sensitive receptors. Vibrations associated with pipeline construction would occur infrequently and would be short in duration. Additionally, pipeline construction would move along the alignment at a rate of 50-100 linear feet per day and would not remain in the same location for an extended period of time; therefore, sensitive receptors near the pipeline alignment would not experience vibrations for the entire duration of Project construction. Exposure would be temporary, sporadic, and limited in duration. Once operational, the pipeline would not produce groundborne vibration or groundborne noise.

Pipeline construction would occur near sensitive receptors, including residences. Groundborne vibration and noise tends to be more perceptible and disruptive during nighttime hours when people are generally indoors and asleep. Although the majority of project construction would occur between the hours of 7:00 a.m. and 7:00 p.m., pipeline construction may require nighttime construction for portion of the alignment to reduce traffic impacts. Implementation of **Mitigation Measure NOI-2** would require that sound barriers providing at least 25 dBA of noise attenuation be used during nighttime construction activities. With the implementation of **Mitigation Measure NOI-2**, impacts would be less than significant.

c) No impact

Similar to the original approved project, the proposed project is not located within the vicinity of an airport. The closest airport is the MARB/March Inland Port. The runways at the base are located along the western edge of the base, approximately 3.5 miles from the project alignment. The Project alignment would be outside the 60-CNEL noise contour for the airport (Riverside County Airport Land Use Commission. 2014). The Project would not expose residences or workers to excessive aircraft noise and there would be no impact.

Mitigation Measures:

To mitigate possible noise impacts of the proposed project, EMWD shall implement **Mitigation Measure NOI-1** that requires implementation of BMPs to control construction noise, and **Mitigation Measure NOI-2** to require sound barriers to attenuate night-time construction noise. With these mitigation measures incorporated, the Project impacts are considered less than significant.

Mitigation Measure NOI-1: Construction Noise Reduction Measures

EMWD shall require its contractor to implement the following actions relative to construction noise:

- EMWD shall conduct construction activities between 7:00 a.m. and 7:00 p.m. on weekdays and 8:00 a.m. and 4:00 p.m. on Saturdays, in accordance with the City of Moreno Valley Municipal Code, Sections 8.14.040 and 11.80.030, with the exception of specific well drilling and testing activities, which require 24-hour continuous work.
- Prior to construction, EMWD in coordination with the construction contractor, shall provide written notification, to all properties within 50 feet of the proposed project facilities informing occupants of the type and duration of construction activities. Notification materials shall identify a method to contact EMWD's program manager with noise concerns. Prior to construction commencement, the EMWD program manager shall establish a noise complaint process to allow for resolution of noise problems. This process shall be clearly described in the notifications.
- Stationary noise-generating equipment shall be located as far from sensitive receptors as possible. Such equipment shall also be oriented to minimize noise that would be directed toward sensitive receptors. Whenever possible, other non-noise generating equipment (e.g., water tanks, roll-off dumpsters) shall be positioned between the noise source and sensitive receptors.
- Equipment and staging areas shall be located as far from sensitive receptors as possible. At the staging location, equipment and materials shall be kept as far from adjacent sensitive receptors as possible.
- Construction vehicles and equipment shall be maintained in the best possible working order; operated by an experienced, trained operator; and shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds).
- Unnecessary idling of internal combustion engines shall be prohibited. In practice, this would require turning off equipment if it would idle for five or more minutes.
- Electrically powered equipment shall be used instead of pneumatic or internal-combustion powered equipment, where feasible.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.

Mitigation Measure NOI-2: Noise Barriers

EMWD shall require its contractor to install temporary construction noise barriers prior to the start of construction activities that would occur outside the hours specified by the City of Moreno Valley Municipal Code Sections 8.14.040 and 11.80.030. These barriers shall block the line of sight between the equipment and the noise-sensitive receptor(s) and shall provide a minimum of 25 dBA of noise attenuation. The construction noise barrier shall be constructed of a material with a minimum weight of one pound per square foot with no gaps or perforations. It shall remain in place until conclusion of the nighttime construction activities. The project plans and specifications shall include documentation from a noise consultant verifying the inclusion of an appropriate noise barrier.

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

Discussion

The 2020 IS/MND and Addendum describe the applicable population and housing background, environmental setting, and regulatory setting. Background and setting information that has changed since the 2020 IS/MND and Addendum were adopted includes an update to the EMWD Urban Water Management Plan (UWMP) (EMWD 2021), and update to the City of Moreno Valley General Plan (City of Moreno Valley 2021). No

other new information or changed circumstances have arisen since the 2020 IS/MND and Addendum were adopted.

According to the 2020 UWMP, in 2020, EMWD served an estimated retail population of 603,950 through approximately 155,561 municipal connections which include single family, multi-family, commercial, industrial, institutional, landscape, and irrigation accounts. EMWD's service area is currently 40 percent built out, making it one of the few regions in Southern California that will see significant population growth in the coming decades. As planned for in the EMWD 2020 UWMP, EMWD's retail service area population will increase to an estimated 807,200 in 2045 (EMWD 2021).

A) No Impact

The proposed project would not directly induce unplanned population growth because the project is a raw water conveyance pipeline, and no new housing or permanent employment are proposed. Similar to the original approved project, the proposed project involves expansion of EMWD's water service infrastructure within its existing service area to augment water supply reliability and offset imported water. This supply would accommodate existing water demand and is consistent with planned growth anticipated in EMWD's 2020 UWMP. Therefore, the proposed project would not directly or indirectly induce unplanned population growth. No impact would occur.

b) No Impact

Construction and operation of the proposed pipeline would occur within existing roadways, and staging areas would be located on vacant lots. Similar to the original approved project, the proposed project would not displace existing people or houses or require the construction of replacement housing. No impact would occur.

Mitigation Measures: None required or recommended.

3.15 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 following public services:	[ ]	[ ]	[X]	[ ]
i) Fire protection?	[ ]	[ ]	[ ]	[X]
ii) Police protection?	[ ]	[ ]	[ ]	[X]
iii) Schools?	[ ]	[ ]	[ ]	[X]
iv) Parks?	[ ]	[ ]	[ ]	[X]
v) Other public facilities?	[ ]	[ ]	[ ]	[X]

Discussion

The 2020 IS/MND and Addendum describe the applicable public services background, environmental setting, and regulatory setting. No background or setting information has changed since the 2020 IS/MND and Addendum were adopted.

Riverside County Fire Station 2, located at 24935 Hemlock Avenue, is approximately 500 feet west of the proposed pipeline. The Moreno Valley Police Department, located at 22850 Calle San Juan de Los Lagos, is approximately 2.5 miles southwest of the proposed pipeline. Both the Riverside County Regional Medical Center, located at 26520 Cactus Avenue, and Kaiser Permanente Moreno Valley Medical Center, located at 27300 Iris Avenue, are farther than one mile from the proposed project alignment.

Ramona Elementary School, Sunnymead Montessori School, and the Riverside Academy are located within one-quarter mile of the project. Ramona Elementary and Sunnymead

Montessori are located on Bay Avenue, 0.12 mile west of the intersection with Perris Boulevard. Riverside Academy is located south of the southernmost extent of the proposed pipeline. St Christopher Parish, which houses the St. Christopher preschool, is located on the southeast corner of Perris Boulevard and Cottonwood Avenue. Sunnymead Park is located on the west side of Perris Boulevard, north of Fir Avenue.

No other new information or changed circumstances have arisen since the 2020 IS/MND and Addendum were adopted.

a) No Impact

The proposed project would not change existing demand for public services (e.g., fire and police protection, schools, parks, libraries, or health clinics) because construction of the project pipeline would serve existing communities and would not result in unplanned population growth (see *Section 3.14 Population and Housing*). Therefore, construction and operation of the proposed project would not necessitate expansion of existing or construction of new public facilities. No impact would occur.

Mitigation Measures: None required or recommended.

3.16 Recreation

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
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?	[ ]	[ ]	[ ]	[X]
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?	[ ]	[ ]	[ ]	[X]

Discussion

The 2020 IS/MND and Addendum describe the applicable recreation background, environmental setting, and regulatory setting. Background and setting information that has changed since the 2020 IS/MND and Addendum were adopted includes an update to the City of Moreno Valley General Plan (City of Moreno Valley 2021). No other new information or changed circumstances have arisen since the 2020 IS/MND and Addendum were adopted.

According to the City of Moreno Valley General Plan Land Use Map, land uses adjacent to the project alignment include commercial, light industrial, corridor mixed use, churches, single and multi-family residential, and public facilities including parks and schools (City of Moreno Valley 2022).

a, b) No Impact

The proposed project would not increase the use of existing parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. The project would be constructed within existing roadway rights-of-way and all disturbed surfaces would be restored to pre-construction conditions. The proposed project would not change existing demand for parks or other recreational facilities because construction of the project pipeline would serve existing and planned communities and would not result in unplanned population growth (see *Section 3.14 Population and Housing*). The project would not include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. Thus, no impacts would occur.

Mitigation Measures: None required or recommended.

3.17 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?	[ ]	[X]	[ ]	[ ]
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	[ ]	[ ]	[X]	[ ]
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	[ ]	[X]	[ ]	[ ]
d) Result in inadequate emergency access?	[ ]	[X]	[ ]	[ ]

Discussion

The 2020 IS/MND and Addendum describe the applicable transportation background, environmental setting, and regulatory setting. Three background and setting planning documents have been updated since the 2020 IS/MND and Addendum were adopted: 1) the RCTC *2011 Congestion Management Plan* was incorporated into the *2019 Long Range Transportation Study* (RCTC 2019); 2) the SCAG *2016 Regional Transportation Plan/Sustainable Communities Strategy* was updated in the *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* (SCAG 2020); and 3) the City of Moreno Valley *General Plan 2006* was updated in the *General Plan 2040* (City of Moreno Valley 2021).

The RCTC *2019 Long Range Transportation Study* took a comprehensive review of projects on the state highway, regional arterials, rail and bus, freight, and active transportation networks to identify transportation improvements. According to the *Long Range Transportation Study*, RCTC's *Congestion Management Plan* (CMP) minimum level of service threshold has been met for much of the CMP system, and in cases where the CMP

minimum threshold has been exceeded, there have been overriding considerations (e.g., construction, traffic diversions, etc.) or project improvements were already planned. No roadway segments in the proposed project area were identified with deficiencies using highway capacity model-based level of service results from the SCAG 2016 PM peak period level of service traffic model. Roadway segments within the proposed project area were identified with a level of service (LOS) D or better (RCTC 2019).

The SCAG *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* identifies strategies to meet mobility, legislative, financial and air quality requirements in the six counties of Southern California. The most noteworthy project identified in the City of Moreno Valley is the RapidLink Service with the goal of connecting the cities of Riverside, Moreno Valley, and Perris through public transportation (SCAG 2021).

The City of Moreno Valley *General Plan 2040* Circulation Element establishes goals, objectives, and policies for transportation, including identifying acceptable roadway LOS standards. LOS represents a qualitative description of the traffic operations experienced by the driver at an intersection or along a roadway segment, where LOS A represents no congestion and LOS F represents gridlock. General Plan policy C.3-1 requires the City to strive to maintain LOS "C" on roadway links, wherever possible, and LOS "D" in the vicinity of State Route 60/Moreno Valley Freeway and high employment centers, including intersections during peak hours.

The proposed project area is roughly 3.5 miles east of Interstate (I)-215 and intersects Highway 60/Moreno Valley Freeway along Perris Boulevard. The proposed alignment is located along Ironwood Avenue and Perris Boulevard, which are classified as a minor arterial and mixed-use boulevard, respectively. The proposed alignment is also entirely within the City of Moreno Valley's designated truck routes, which run east-west along Ironwood Avenue and north-south along Perris Boulevard (City of Moreno Valley 2019a). In addition, Ironwood Avenue is also classified as a Class II bike lane (City of Moreno Valley, 2021a). Active bus routes along the project alignment are operated by Riverside Transit Agency (RTA) and include Route 11 Moreno Valley Mapp – March ARB Loop Route and Route 19 Moreno Valley Mall to Perris Station Transit Center (RTA 2021).

a) Less Than Significant with Mitigation Incorporated

As described in *Section 2.5.3 Construction Schedule*, construction is anticipated to last approximately 19 months and most of the work would occur on weekdays between the hours of 7:00 a.m. to 7:00 p.m. However, to avoid conflicts with transportation in the area around California State Route 60/Moreno Valley Freeway, construction activities are expected to be scheduled during nighttime hours (7:00 p.m. to 5:00 a.m.) on Perris

Boulevard between Elder Avenue and Sunnymead Boulevard, with the possibility of extending 200 yards to the north and south beyond Elder Avenue and Sunnymead Boulevard on Perris Boulevard, depending on Caltrans circulation needs. During construction, the project would generate up to 28 round-trip worker trips, one vendor trip, and an average of six to seven hauling trips per day, assuming a conservatively slow construction rate of 50 LF per day. All construction activities would occur within City of Moreno Valley roadway rights of way, areas adjacent to the roadways, and on vacant parcels selected for staging areas.

Similar to the original approved project, although construction impacts would not be substantial, construction of the proposed project may necessitate individual traffic lane closures. However, construction would be temporary and potential traffic-related impacts would not occur in the same location over the 18-month construction period, but would move along the pipeline alignment. All disturbed areas would be restored to original grade and the project would have no permanent impact on existing vehicular traffic lanes, LOS, bike lanes, bus stops, or public transportation routes.

Although construction impacts would be temporary and have limited footprints, construction of the proposed project may require temporary closures of roadways, bicycle lanes, and sidewalks. To ensure the appropriate traffic controls are applied and potential traffic impacts related to lane closures are less than significant, **Mitigation Measure TRA-1** would be implemented which requires a Traffic Control and Detour Plan to be developed and approved by EMWD and the City of Moreno Valley prior to the start of construction. With implementation of **Mitigation Measure TRA-1**, the project would have a less than significant impact related to the City of Moreno Valley *2040 General Plan*, RCTC *Long Range Transportation* Plan, CVAG *Transportation Prioritization* Study, and SCAG *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy*, which focuses on long-term, regional circulation projects.

Operation of the proposed project would not conflict with regional transportation plans or the City of Moreno Valley General Plan because it would install below-ground pipelines that would not have a permanent impact on circulation. The above ground appurtenances would be located a practicable distance from traffic lanes and would also have no permanent impact on circulation. The proposed project's long-term impacts on the circulation system would therefore be less than significant.

b) Less Than Significant Impact

CEQA Guidelines Section 15064.3, subdivision (b) stipulates criteria for analyzing transportation impacts in terms of vehicle miles traveled (VMT) for land use projects and

transportation projects. VMT refers to the amount and distance of automobile travel attributable to a project. According to the Office of Planning and Research Technical Advisory on Evaluating Transportation impacts in CEQA (OPR 2018), the term "automobile" refers to on-road passenger vehicles, specifically cars and light-duty trucks. In the case of the proposed project, worker trips would be conducted in cars and light-duty trucks. Vendor and hauling trips would be conducted in medium- or heavy-duty trucks and are therefore excluded from the estimation of VMT. Environmental impacts associated with the use of medium- and heavy-duty truck trips are addressed in the Air Quality, Energy, and Greenhouse Gas sections of this document.

Similar to the original approved project, construction of the proposed project would involve approximately 28 round trip vehicle trips per day associated with workers travelling to and from the site. Worker trip details were based on CalEEMod default assumptions. CalEEMod estimates the number of construction workers by multiplying the number of pieces of construction equipment by 1.25. These trips would be temporary, occurring during the 18-month construction period. The screening threshold established by the Governor's Office of Planning and Research (OPR) for small projects states that "projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than significant transportation impact" (OPR 2018). The City of Moreno Valley considers projects that generate fewer than 400 trips per day to have less-than-significant VMT impacts (City of Moreno Valley Transportation Engineering Division 2020). Light-duty and passenger vehicle trips generated for this project would be less than the thresholds set by OPR and the City. Upon completion of the project, EMWD would continue to operate its water system with no operational modifications or net increase in VMT from cars and light-duty trucks. Therefore, the project would be consistent with CEQA Guidelines Section 15064.3, subdivision (b) and impacts would be less than significant.

c) Less Than Significant with Mitigation Incorporated

Similar to the original approved project, the proposed project would install below-ground pipelines and above ground appurtenances which would not have a permanent impact on geometric roadway design. The project would not construct new roadways, and existing roadways would be restored to their prior condition once construction is complete. EMWD would continue to operate its water system with minimal changes to O&M and the continued use of standard vehicles, which would not introduce incompatible uses to roadways. Therefore, the project would not create roadway hazards as a result of operation. Although project construction may require some incompatible uses on roadways in the project area (e.g., transportation of heavy construction equipment) that could temporarily increase hazards within primary City arterial streets,

the Traffic Control and Detour Plan required under **Mitigation Measure TRA-1** would include measures to ensure that vehicle ingress and egress from construction sites and staging areas occurs safely. The Traffic Control and Detour Plan under **Mitigation Measure TRA-1** would be required prior to the issuance of an encroachment permit from the City of Moreno Valley. With the implementation of **Mitigation Measure TRA-1**, project impacts associated with incompatible uses on the local roadways would be less than significant.

d) Less Than Significant with Mitigation Incorporated

Similar to the original approved project, construction of the proposed project would generate trips associated with construction (worker travel and delivery of materials and equipment) and may necessitate individual traffic lane closures. Although temporary, lane closures have the potential to hinder access for emergency vehicles.

To ensure that construction would not interfere with emergency response times, the project would implement **Mitigation Measure TRA-1** during construction, similar to the original approved project. Traffic control measures would require that emergency crews be able to access adjacent and surrounding areas and that the contractor coordinates the location of the work daily to ensure that emergency responders are informed of construction locations. Traffic control measures would also require the contractor make a reasonable effort to preserve access to business and properties during construction. With the incorporation of traffic control measures identified in **Mitigation Measure TRA-1**, impacts would be less than significant.

Mitigation Measures:

To mitigate possible impacts to circulation and emergency access during construction, EMWD shall implement **Mitigation Measure TRA-1**. The project impacts are considered less than significant with mitigation incorporated.

Mitigation Measure TRA-1: Traffic Control Plan and Detour Plan

Prior to project construction, EMWD shall require its construction contractor to implement a Traffic Control and Detour Plan, to be approved by the EMWD construction inspector. The Traffic Control Plan shall, at a minimum:

- Identify staging locations to be used during construction
- Identify safe ingress and egress points from staging areas
- Identify potential road closures
- Establish haul routes for construction-related vehicle traffic

- Include a Detour Plan that identifies alternative safe routes to maintain pedestrian and bicyclist safety during construction
- Include provisions for traffic control measures such as barricades, warning signs, cones, lights, and flag persons, to allow safe circulation of vehicle, bicycle, pedestrian, and emergency response traffic

The Traffic Control and Detour Plan shall be reviewed and approved by EMWD's project manager and the construction inspector prior to project construction. EMWD's construction inspector shall also provide the construction schedule and Traffic Control and Detour Plan to the City of Moreno Valley for review to ensure that construction of the proposed project does not conflict with other construction projects that may be occurring simultaneously in the project vicinity.

3.18 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	[ ]	[X]	[ ]	[ ]

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

Discussion

A HPIR was prepared in September 2022 for the proposed project. The complete report is provided in **Appendix C**.

The HPIR relied on a cultural resources records search of the CHRIS conducted by the Eastern Information Center staff at the University of California, Riverside in July 2021 for the EMWD Perris North Groundwater Monitoring Project which provides analytical coverage for the proposed project area. The CHRIS records search identified nine previously recorded cultural resources within 0.5-mile of the proposed project Area of Potential Effects (APE). None are located within the proposed project APE. Of these, eight are historic-period built environment resources comprised of historic-period single-family properties, and one is a historic period archaeological foundation. The recorded boundary of one resource (P-33-028824) is adjacent to the proposed project APE. P-33-028824 consists of an historic-period 15-foot by 6-foot foundation slab, a utility pole with 1930 and 1947 inspection nails, and a single clear glass bottle fragment.

On July 22, 2022, an archaeological field survey was conducted of the project area. The field survey did not identify any new archaeological or built environment cultural resources within the proposed project APE. The archaeologist attempted to relocate the previously recorded site P-33-028824 located adjacent to the project APE; however, the resource is located in a private plot of land with fencing blocking access. As this site is outside of the APE and would not be impacted by the project it requires no further management consideration.

A Sacred Lands File (SLF) search and contact list of Native Americans culturally affiliated with the project area was conducted in July 2021 for the Perris North Groundwater Monitoring Project, which encompassed the entirety of the proposed project APE. The SLF search was returned with negative results and no cultural resources were identified within

the proposed project APE as a result of the records search. For the HPIR, outreach to Native American tribes and local historical groups was conducted Four responses from Native American groups were received as a result of the initial outreach letters mailed or emailed on July 29, 2022, to each of the NAHC contacts included on the contact list received on July 25, 2021.

- Omar Aceves, Tribal Operations Clerk for the Augustine Band of Cahuilla Mission Indians, responded on July 29, 2022, stating they are unaware of specific cultural resources that may be affected by the proposed project but asked that – should cultural resources be discovered during the development of the project – the tribe be contacted immediately for further evaluation.
- A response letter was received from the Pechanga Band of Luiseño Indians on July 29, 2022. The letter stated they are interested in participating in this project as it is in their Ancestral Territory. They would like notification once the project begins the entitlement process and would also like copies of all archaeological reports, site records, proposed grading plans, and environmental documents. The tribe requests government-to-government consultation with the lead agency and suggests monitoring by a Riverside County qualified archaeologist and professional Pechanga Tribal Monitor be required during earthmoving activities. They are also interested in participating in surveys within Luiseño Ancestral territory and consulting with the project proponent/ lead agency regarding the treatment and disposition of all artifacts.
- The office of the Fort Yuma Quechan Historic Preservation Officer responded on August 1, 2022, stating they have no comments on the project and will defer to more local Tribes and support their decisions on the project.
- Arysa Gonzalez Romero, Cultural Resources Analyst for the Agua Caliente Band of Cahuilla Indians, responded on August 10, 2022, requesting the shapefiles for the project. The project archaeologist responded on August 12, 2022, providing the requested shapefiles.

On August 12, 2022, follow-up phone calls were made by the project archaeologist to each of the NAHC contacts listed that had not yet responded to initial outreach efforts, as summarized below.

- On August 12, 2022, project archaeologist Laura Maldonado attempted to contact Chairperson Daniel Salgado of the Cahuilla Band of Indians, but the call was forwarded to Bobby Ray Esparza instead. Mr. Esparza asked to have the original letter forwarded to him, which was done immediately after the call. On August 18, 2022, Ms. Maldonado received a response from Mr. Esparza stating the Cahuilla

Band has an interest in this project and would like to request that a cultural monitor from Cahuilla be present for all ground disturbing activities, expressing concern cultural resources may be unearthed during construction.

- On August 12, 2022, Ms. Maldonado called and spoke to Joseph Ontiveros from the Soboba Band of Luiseño Indians Cultural Resources Department. Mr. Ontiveros stated the project location is within their tribal cultural landscape and would like to enter government to government consultation with the lead l agency.
- On August 12, 2022, Ms. Maldonado attempted to contact Bo Mazzetti, the Rincon Band of Luiseño Indians Chairperson, but Chairperson Mazzetti was unavailable. Ms. Maldonado left a voicemail and sent a follow-up email. Chairperson Mazzetti responded on August 12, 2022, stating he would check in on the status of the Tribe's response. On August 19, 2022, Rincon received an email response from Cheryl Madrigal, the Tribal Historic Preservation Officer (THPO) for the Rincon Band of Luiseño Indians, stating the Tribe would like to consult with the lead agency on the proposed project. Ms. Madrigal also requested additional information regarding the project such as existing GIS shapefiles/KMZ, any cultural resources assessments, record search results, overlay maps of the project and potential APE and previously recorded cultural sites. Ms. Maldonado responded on August 26, 2022, providing the requested shapefiles, record search results, and project map.
- On August 22, 2022, archaeologist Leanna Flaherty attempted to contact Chairperson Jeff Grubbe of the Agua Caliente Band of Cahuilla Indians but was directed to an assistant instead. The assistant stated there was a new Chairperson, Reid Milanovich, and Ms. Flaherty was subsequently able to leave a voicemail for Mr. Milanovich. No further response has been received as of the date of the HPIR.
- On August 22, 2022, Ms. Flaherty called and spoke with Patricia Garcia, the THPO for the Agua Caliente Band of Cahuilla Indians (ACBCI). Ms. Garcia expressed concerns about the project and stated the Tribe is interested in consulting with the lead agency on impacts to resources, developing a mitigation plan, and participating in Native American monitoring. Ms. Garcia also stated the Tribe is backed up right now but will send a formal response letter soon. The project archaeologist received a formal letter from Lacy Padilla, THPO Operations Manager on August 30, 2022. The letter stated the project area is not located within the boundaries of the ACBCI Reservation; however, it is within the Tribe's Traditional Use Area. The Tribe requests a cultural resources inventory of the project area by a qualified archaeologist prior to any development activities in this area, a copy of the records search with associated survey reports and site records from the information center, and copies of any cultural resource documentation generated

in connection with this project. The documentation requested will be provided to the Tribe once it is finalized.

- On August 22, 2022, Ms. Flaherty attempted to contact Chairperson Joseph Hamilton of the Ramona Band of Cahuilla Indians, but the administrative staff person informed Ms. Flaherty that Mr. Hamilton is no longer the Chairman, and the new Chairperson is Danae Hamilton Vega. The administrative staff person also said she would follow-up with John Gomez, the Environmental Coordinator of the Tribe. (Note that two voicemails were also left for Mr. Gomez on August 12 and 22, 2022 and a follow-up email had been sent on August 12, 2022.) No further response has been received as of the date of the HPIR.
- On August 22, 2022, Ms. Flaherty attempted to contact Lovina Redner, the Tribal Chair of the Santa Rosa Band of Cahuilla Indians, but the call was answered by an administrative person instead. The administrative person gave Ms. Flaherty an updated email for the Tribal Chair and stated that Ms. Redner likely did not have any concerns if she hadn't already responded. On August 25, 2022, Ms. Flaherty confirmed the original letter was sent to the correct email address. No further response has been received as of the date of the HPIR.
- On August 23, 2022, Ms. Flaherty found evidence of a new email for Chairperson Shane Chapparosa of the Los Coyotes Band of Cahuilla and Cupeño Indians. Ms. Maldonado sent a copy of the original letter to Chairperson Chapparosa's new email on September 6th, 2022. No further response has been received as of the date of the HPIR.
- On August 25, 2022, Ryan Nordess, Cultural Resource Analyst for the Yuhaaviatam of San Manuel Nation (formerly known as the San Manuel Band of Mission Indians), emailed the project archaeologist stating the proposed project is not located near any known cultural resources.

Appendix C provides further information on contact efforts and provides copies of all nonconfidential Native American outreach correspondence.

Assembly Bill (AB) 52 Consultation

AB 52 establishes a formal consultation process between the lead agency, EMWD, and all California Native American Tribes within the area regarding tribal cultural resource evaluation. AB 52 mandates that the lead agency must provide formal written notification to the designated contact of traditionally and culturally affiliated California Native American tribes that have previously requested notice. Native American tribes are notified early in the project review phase by written notification that includes a brief description of the proposed project, location, and the lead agency's contact information. The Tribal contact then has 30 days to request project-specific consultation pursuant to this section (Public Resources Code Section 21080.1).

As a part of the consolation pursuant to Public Resources Code (PRC) Section 21080.3.1(b), both parties may suggest mitigation measures (PRC Section 21082.3) that can avoid or substantially lessen potential significant impacts to tribal cultural resources or provide alternatives that would avoid significant impacts to a tribal cultural resource. The California Native American tribe may request consultation on mitigation measures, alternatives to the project, or significant effects. The consultation may also include discussion on the environmental review, the significance of tribal cultural resources, the significance of the project's impact on the tribal cultural resources, project alternatives, or the measures planned to preserve or mitigate. Consultation shall end when either: 1) both parties agree on the mitigation measures to avoid or mitigate significant effects on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

EMWD has previously consulted with Native American tribal representatives, based on a contact list of tribes who indicated to EMWD that they are interested in receiving notification. Tribes previously consulted included Pechanga Band of Luiseno Indians, Soboba Band of Luiseno Indians, Rincon Band of Luiseno Indians and Agua Caliente Band of Cahuilla Indians. EMWD sent out re-initiation letters on 8/19/22 to tribes that previously consulted on the Cactus Avenue Corridor Groundwater Wells Project. EMWD has not received a response to the re-initiation letters.

a) Less than Significant with Mitigation Incorporated

No tribal cultural resources eligible for listing in the National Register of Historic Places (NRHP) or the California Register or Historical Resources (CRHR) have been recorded or identified within the project area. These results suggest that the project area is not highly sensitive for buried archaeological remains and therefore the possibility of encountering intact surface tribal cultural resources is considered low. However, the lack of surface

archaeology sites does not preclude their subsurface existence. Similar to the original approved project, construction of the proposed project requires ground-disturbing activities such as excavation which have the potential to expose previously unrecorded tribal cultural resources. **Mitigation Measure CUL-1** would require a Cultural Resource Treatment Monitoring Agreement be developed, in consultation with the Consulting Tribe(s) to address the treatment of inadvertently discovered archaeological resources and the participation of tribal monitor(s) during construction. **Mitigation Measure CUL-2** would require preparation of a Cultural Resources Monitoring Plan, in consultation with the Consulting Tribe(s) that identifies the location and timing of monitoring, and outlines the appropriate measures to be followed in the event of unanticipated discovery of cultural resources during project implementation. **Mitigation Measure CUL-2** also requires the Consulting Tribe(s) tribal monitor attend a pre-construction meeting with EMWD staff, the contractor, and appropriate subcontractors to discuss the monitoring program, including protocols to be followed in the event that cultural material is encountered. **Mitigation Measure CUL-3** requires a Consulting Tribe(s) monitor be present for ground-disturbing activities, make a determination as to the areas with a potential for encountering cultural material, and have the authority to stop and redirect grading activities in order to evaluate the nature and significance of any cultural resources discovered within the project limits. **Mitigation Measure CUL-4** requires artifacts discovered be inventoried and analyzed by the Consulting Tribe(s) tor. **Mitigation Measure CUL-5** specifies procedures to be carried out for final disposition of discoveries, in the event that Native American cultural resources are recovered. **Mitigation Measure CUL-6** requires the site of any reburial of culturally sensitive resources to not be disclosed. **Mitigation Measure CUL-7** requires Public Resources Code Section 5097.98 and California Health and Safety Code Section 7050.5 will be followed if Native American human remains are encountered, and the NAHC and "most likely descendant" be contacted, as appropriate. The implementation of these measures would reduce impacts to less-than-significant levels. Similar to the original approved project, with implementation of **Mitigation Measures CUL-1** through **CUL-7**, potential impacts resulting in a substantial adverse change to the significance of tribal cultural resources would be reduced to less than significant.

Mitigation Measures: Refer to **Mitigation Measures CUL-1** through **CUL-7** in *Section 3.5 Cultural Resources*.

3.19 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 storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	[ ]	[ ]	[X]	[ ]
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?	[ ]	[ ]	[ ]	[X]
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?	[ ]	[ ]	[X]	[ ]
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?	[ ]	[ ]	[X]	[ ]
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	[ ]	[ ]	[X]	[ ]

Discussion

The 2020 IS/MND and Addendum describe the applicable utilities background, environmental setting, and regulatory setting. Background and setting information that has changed since the 2020 IS/MND and Addendum were adopted includes an update to the EMWD UWMP (EMWD 2021).

No other new information or changed circumstances have arisen since the 2020 IS/MND and Addendum were adopted.

According to the 2020 UWMP, in 2020, EMWD provided 84,673 AF of water to 603,950 retail customers (EMWD 2021).

a) Less than Significant Impact

The proposed project would construct a raw water transmission pipeline and appurtenances and would not require or result in the additional expansion of EMWD's potable water delivery system beyond construction of the project pipeline.

As discussed in *Section 3.14 Population and Housing*, the proposed project would serve existing and planned communities and would not induce unplanned population or employment growth that would require or result in the construction of new or expanded water, wastewater treatment, natural gas, or telecommunications facilities. The proposed project, together with the other facilities of the Cactus Avenue Corridor Groundwater Wells Project analyzed in the 2020 IS/MND and Addendum, would augment the City of Moreno Valley's water supply to serve existing demand, consistent with planned growth anticipated in EMWD's 2020 UWMP.

Disturbed areas would be restored to their pre-construction condition and any vegetated areas would be replanted with appropriate native species, such that no permanent change in stormwater drainage would occur and no new drainage facilities would be constructed. As explained in *Section 3.6 Energy*, operation of the proposed project would be incorporated into EMWD's existing O&M and would require negligible additional consumption of electricity within EMWD's overall potable water distribution system. Therefore, the project would not result in the construction of new or expanded stormwater drainage or electrical power facilities that could create significant environmental effects.

The environmental impacts of the proposed project's raw water transmission pipeline and associated above ground appurtenances and valves are evaluated throughout this IS/MND and are anticipated to all be mitigated to a less than significant level.

b) No Impact

Similar to the original approved project, the proposed project involves expansion of EMWD's water service infrastructure within its existing service area to augment water supply reliability and offset imported water. Construction of the proposed project would require a minimal water supply for construction purposes such as dust control and

concrete mixing. Existing sources would be sufficient, and no new or expanded water source would be required for construction.

As discussed in *Section 3.14 Population and Housing*, operation of the proposed project would not induce unplanned population growth that would require or result in the construction of new water treatment facilities or the expansion of existing facilities. The additional water supply provided by the proposed project and other facilities of the Cactus Avenue Corridor Groundwater Wells project would accommodate existing water demand and is consistent with planned growth anticipated in the EMWD 2020 UWMP. No adverse impact related to sufficient water supplies would occur.

c) Less than Significant Impact

As discussed in *Section 3.14 Population and Housing*, construction and operation of the proposed project would not directly or indirectly induce unplanned population or employment growth that would require or result in the construction of a new or expanded wastewater collection infrastructure or treatment services. Therefore, the proposed project would have a less than significant impact on wastewater treatment capacity.

d) Less than Significant Impact

Construction of the proposed project would generate soil, asphalt, and concrete waste during installation of underground pipelines and construction of above ground appurtenances. While excavated soil would be reused onsite as backfill to the extent feasible, it is estimated that approximately 16,200 cubic yards of material would be generated during construction that would need to be disposed at a permitted landfill in accordance with local and state solid waste disposal requirements.

The closest landfill to the proposed project is the Badlands Sanitary Landfill (33-AA-0006), located at 31125 Ironwood Avenue approximately 6 miles east of the project alignment. The landfill has an overall remaining disposal capacity of approximately 7,800,000 tons of solid waste and has an expected cease operation date of January 2026 (CalRecycle nd). Construction of the proposed project would be complete by October 2024. Therefore, excess debris generated during project construction is reasonably anticipated to be within the permitted capacity of the Badlands Sanitary Landfill after onsite backfill of excavated soil combined with adherence to mandatory construction waste diversion requirements.

Solid waste generation would be limited to temporary construction activities, and operation of the proposed project is not anticipated to generate long-term solid waste. Similar to the original approved project, the proposed project would not adversely affect

available solid waste disposal capacity in the region and impacts to local infrastructure capacity and solid waste reduction goals would be less than significant.

e) Less than Significant Impact

Construction and operation of the proposed project would comply with local, state, and federal regulations related to solid waste. While operation of the proposed project is not anticipated to generate a significant amount of long-term solid waste, construction activities would create debris such as excavated soil and asphalt. Excavated soil would be backfilled to the extent possible, but construction contractor(s) would be required to dispose of excess construction debris in accordance with existing reduction statutes and regulations including Assembly Bill (AB) 939 and AB 341. These regulations would determine the landfill to be used for disposal of construction debris, mandatory 50 percent diversion of solid waste (AB 939), and mandatory recycling programs to reduce GHG emissions (AB 341). Therefore, similar to the original approved project, impacts from the proposed project related to compliance with local, state, and federal reduction statues and regulations related to solid waste would be less than significant.

Mitigation Measures: No additional mitigation measures required or recommended.

3.20 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?	[ ]	[X]	[ ]	[ ]
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?	[ ]	[ ]	[ ]	[X]

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?	[ ]	[ ]	[ ]	[X]
d)	Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	[ ]	[ ]	[ ]	[X]

Discussion

The 2020 IS/MND and Addendum describe the applicable wildfire background, environmental setting, and regulatory setting. No background or setting information has changed since the 2020 IS/MND and Addendum were adopted.

The proposed project area is designated as a non-VHFHSZ within the California Department of Forestry and Fire Protection (CalFire) Moreno Valley LRA (CalFire 2009). No other new information or changed circumstances have arisen since the 2020 IS/MND and Addendum were adopted.

a) Less than Significant with Mitigation Incorporated

Construction activities would be located within roadway rights-of-way, and potential staging areas include vacant land. As a result, construction may require sidewalk and lane closures that would temporarily restrict access for use by emergency response vehicles or emergency evacuations and could impair implementation of or physically interfere with the City's adopted EOP or Local Hazard Mitigation Plan. Implementation of **Mitigation Measure TRA-1** would require EMWD to develop a Traffic Control and Detour Plan, which would reduce conflict between project construction activities and the EOP and LHMP by requiring coordination with emergency services (police, fire, and others); requiring identification of roadways and access points for emergency services; and requiring that disruptions to or closures of these locations be minimized. Similar to the original approved project, operation of the proposed project would not physically impair or otherwise interfere with long-term emergency response or evacuation in the project vicinity as the pipeline would be located underground, and ground surfaces would be restored to pre-construction conditions. O&M activities would be incorporated into EMWD's routine maintenance and would not involve additional vehicles being added to roadways. Therefore, impacts of the project on adopted emergency plans would be less

than significant with implementation of **Mitigation Measure TRA-1**. Further consideration of the proposed construction activities and potential for roadway access and hazardous conditions can be found under *Section 3.17 Transportation*.

b) No Impact

Similar to the original approved project, the proposed project area is designated as non-VHFHSZ within the Moreno Valley LRA. Upon completion, the project pipeline would be located below grade within public rights of way and appurtenances would be located within adjacent sidewalks. The proposed project would not change any existing land surface or use types that would exacerbate wildfire risks. In addition, the project is an underground pipeline and not a land use development that would accommodate occupants on-site. Therefore, the proposed project would not exacerbate wildfire risks or expose any project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. No impacts would occur.

c) No Impact

The proposed project would not involve the installation or maintenance of infrastructure that is typically associated with fire risk, such as roads, fuel breaks, emergency water sources, or power lines. The proposed project would rely on existing roads and utilities. Installation of pipelines and appurtenances would occur within existing roadway rights-of-way. The proposed project area is designated as non-VHFHSZ within the Moreno Valley LRA. The project would not exacerbate wildfire risks. No impact would occur.

d) No Impact

The proposed would be located within existing public rights-of-way and potential staging areas would be located within vacant parcels. Pipelines would be installed below-grade and overlying ground surface would be restored to pre-construction conditions, resulting in no permanent impact to site drainage. Therefore, the proposed project would not expose people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. No impact would occur. Further consideration of the proposed project's impact related to stormwater runoff and drainage can be found under *Section 3.10 Hydrology and Water Quality*.

Mitigation Measures: Refer to **Mitigation Measure TRA-1** in *Section 3.17 Transportation*.

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Does the Project:				
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	[ ]	[X]	[ ]	[ ]
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	[ ]	[ ]	[X]	[ ]
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	[ ]	[X]	[ ]	[ ]

Discussion

a) Less Than Significant with Mitigation Incorporated

With the implementation of mitigation measures, the proposed project would have a less than significant impact on the environment. Due to high levels of existing disturbance and low habitat quality, there is low probability of sensitive wildlife species being present in the project area. However, small pockets of open space and vegetation exist that could support nesting and foraging. In order to avoid and minimize the potential for impacts to these sensitive species, **Mitigation Measures BIO-1, BIO-2,** and **BIO-3** would be

implemented. **Mitigation Measure BIO-1** would avoid direct impacts to burrowing owls. To avoid direct or indirect impacts to nesting birds, implementation of **Mitigation Measure BIO-2** would require pre-construction surveys to minimize all impacts to nesting birds to less than significant. **Mitigation Measure BIO-3** would require a pre-construction clearance survey and implementation of a Worker Environmental Awareness Program (WEAP) prior to construction to address potential impacts to coastal whiptail, western yellow bat, and LA pocket mouse. No historical or prehistorical resources were identified within the area that would be directly impacted by the project activities; however, there is a potential for previously unknown cultural material to exist. If ground-disturbing activities expose previously unrecorded resources, **Mitigation Measures CUL-1** through **CUL-6** would help prevent damage to the cultural resources. The project area is underlain by Holocene deposits, which have low paleontological sensitivity; however, below the Holocene deposits are Pleistocene sediments at a depth of approximately 11 feet, which have high paleontological sensitivity. Impacts on paleontological resources are not anticipated because fossiliferous deposits have the potential to occur at greater depths than most of the proposed project ground disturbance. To ensure proper procedures are in place in the event of an unanticipated fossil discovery, **Mitigation Measure GEO-1** would be implemented during all construction phases of the project. **Mitigation Measure GEO-1** would require that any unanticipated fossil discovered onsite be preserved.

b) Less Than Significant

CEQA Guidelines Section 15130(b) provides two approaches to discussing cumulative project impacts: either the *List-of-Projects* Method: a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or the *Summary-of-Projections* Method: a summary of projections contained in an adopted general plan or related planning document or in a prior environmental document that has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative

impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency. EMWD is relying on the *List-of-Projects* method for purposes of this analysis.

The proposed project is part of the Cactus Avenue Corridor Groundwater Wells Project, which is one project of several within the Perris North Groundwater Contamination Prevention and Remediation Program. The other projects include projects that would result in the construction and operation of groundwater monitoring wells, extraction wells, treatment and distribution facilities also within the Perris North Basin. The other projects

include the following:

- Perris North Raw Water Conveyance Pipeline Phase II project which includes a transmission pipeline to convey groundwater extracted at Wells 208 and 209. Facilities include approximately 18,300 linear feet of pipelines in the City of Moreno Valley to convey raw groundwater from the extraction wells to the proposed centralized treatment and blending facility. These pipelines would be located primarily within roadway rights of way along Bay Avenue, Kitching Street, Gentian Street, Patricia Avenue, Santiago Drive, Iris Avenue, and Los Cabos Drive.
- Perris North Cactus Corridor Well Equipping and Treatment consisting of:
    - Equipping Wells 65-66
    - Equipping Wells 208-209
    - Equipping of Wells 206-207
    - A centralized treatment facility consisting of granular activated carbon (GAC) for Tetrachloroethylene - also known as perchloroethylene (PCE) - removal and a subsequent blending facility using MWD water from the Cactus II Feeder for compliance for nitrate and fluoride above MCLs/SMCLs and manganese which includes a finished water pumping station, a clearwell, and approximately related raw and potable pipelines.

Construction of these projects would occur at different times and sites far enough removed from each other that construction related cumulative effects such as fugitive dust and construction noise would be less than significant. Development would adhere to applicable rules and regulations related to dust suppression, traffic control, storm water control, handling/storage of hazardous materials, and regulations related to protections for plants/animals/waters of the State and U.S. Cumulative impacts in these areas are also considered less than significant. The only operational vehicle trips associated with the various projects listed above would be the infrequent monitoring/maintenance trips and brine disposal trips, which would result in an insignificant cumulative increase on area roadways separated in time and distance. Cumulative noise and air quality effects from these projects would also be less-than-significant due to their minimal contribution. Therefore, these projects are not expected to create impacts that are individually limited, but cumulatively considerable.

The proposed project would not have impacts that are individually limited, but cumulatively considerable. The impacts of the proposed project have been analyzed in

accordance with the CEQA Guidelines; each topic has been found to have either no impact, a less than significant impact, or a less than significant impact with mitigation incorporated. The project is of a limited scale, and, taken in sum with other projects in the area, would not produce cumulatively considerable impacts to the environment or human beings. Therefore, cumulative impacts of the proposed project would be less than significant.

c) Less Than Significant with Mitigation Incorporated

With the implementation of mitigation measures, the proposed project would have a less than significant environmental impact on human beings. Although the proposed project would follow all existing applicable regulations, during construction, there is generally the potential for hazardous materials associated with typical construction activities to be released. **Mitigation Measure HAZ-1** would minimize the risk of hazardous material exposure through material use and accidents by requiring EMWD and its construction contractor to develop a Hazardous Materials Management and Spill Prevention and Control Plan to ensure project-specific contingencies are in place.

The proposed project may expose the community, including sensitive receptors, to noise from project construction. **Mitigation Measure NOI-1** would ensure that construction noise is reduced using BMPs, and **Mitigation Measure NOI-2** would require the use of noise barriers to reduce the nighttime noise level at sensitive receptors to the maximum extent possible. With these mitigation measures in place, the proposed project would have a less than significant impact on human beings as a result of noise.

Construction impacts would be temporary and have a limited footprint, but construction may require temporary closures of roadways, bicycle lanes, and sidewalks. Potential impacts related to these closures would be minimized through the implementation of a Traffic Control Plan and Detour Plan, as described in **Mitigation Measure TRA-1**, which would ensure that appropriate traffic controls are implemented.

The impacts of the proposed project have been analyzed in accordance with the CEQA Guidelines; each topic has been found to have either no impact, a less than significant impact, or a less than significant impact with mitigation incorporated. Therefore, with the implementation of the mitigation measures noted above, the proposed project would not result in any environmental effects that would cause substantial adverse effects on human beings either directly or indirectly.

Mitigation Measures: See Mitigation Measures **BIO 1, BIO-2, BIO-3, CUL-1, CUL-2, CUL-3, CUL-4, CUL-5, CUL-6, CUL-7, GEO-1, HAZ-1, NOI-1, NOI-2,** and **TRA-1**.

4. FEDERAL CROSS-CUTTING ENVIRONMENTAL REGULATIONS EVALUATION

The proposed project may receive funding from a federal program (U.S. Department of the Interior, Bureau of Reclamation) or a partially funded federal program (SWRCB's Clean Water State Revolving Fund [CWSRF] and DWSRF). This section describes the proposed project's status of compliance with the federal crosscutting regulations. The 2020 IS/MND and Addendum describe the applicable regulatory background of each federal cross-cutting regulation. There are no changed circumstances or new information that have arisen since the 2020 IS/MND and Addendum were adopted.

4.1 Federal Endangered Species Act

As explained in the Biological Resources Technical Study (**Appendix B**), the proposed project area does not provide suitable habitat for most special-status plant and wildlife species. The literature review identified 45 sensitive plant species and 34 sensitive wildlife species within the California Native Plant Society nine-quad and California Natural Diversity Database five-mile search of the study area, respectively. However, this was presumably because the study area is located between Box Spring Mountain Reserve Park and the Lake Perris Reservoir. Due to the lack of specific habitat types or suitable substrates as well as the high levels of historic and existing disturbance, special status plant species are not expected to occur in the study area. Twenty-seven of the 34 wildlife species within five miles of the project area have no potential or are not expected to occur within the study area due to lack of suitable habitat.

Seven sensitive wildlife species were determined to have a low potential to occur within the study area due to the observation of small pockets of open habitat with sparse vegetation in the adjacent parcels and within the staging area: CDFW Watch List Cooper's hawk and California horned lark; and CDFW Species of Special Concern coastal whiptail lizard, Los Angeles pocket mouse, western yellow bat, loggerhead shrike, and burrowing owl. The burrowing owl and its habitat is also protected under the Western Riverside MSHCP, which encompasses the project area.

Potential indirect impacts would be minimized through implementation **Mitigation Measures BIO-1, BIO-2**, and **BIO-3**. Therefore, similar to the original approved project, the proposed project would not result in direct or indirect impacts to special-status plant or wildlife species, would not jeopardize any listed species, and a no effect determination is anticipated. The lead agency would be in compliance with the FESA.

4.2 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act applies to projects in which the maximum surface area of impoundment of water is greater than ten acres. It is not applicable to activities primarily connected to land management and use carried out by federal agencies with respect to federal lands under their jurisdiction. The proposed project would not involve any direct or indirect impacts from construction or operational activities to a body of water. Therefore, the Fish and Wildlife Coordination Act would not apply.

4.3 Federal Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act

As explained in the Biological Resources Technical Study (**Appendix B**), the proposed project area contains potential nesting bird habitat. Construction of the pipeline has the potential to impact species protected by the MBTA and the Bald and Golden Eagle Protection Act indirectly through construction noise, dust, and vibration from equipment. Impacts would be minimized through actions to avoid special status bird species during construction (**Mitigation Measure BIO-2**). Therefore, similar to the original approved project, the proposed project would not result in impacts to protected birds, and the lead agency would be in compliance with the MBTA and the Bald and Golden Eagle Protection Act.

4.4 Magnuson-Stevens Fishery Conservation and Management Act

The proposed project area is not located in any U.S. federal waters regulated under the Magnuson-Stevens Act. As explained in the Biological Resources Technical Study (**Appendix B**), the area is not within any Essential Fish Habitat. Similar to the original approved project, the proposed project is not expected to have an adverse effect on resident or migratory fish, wildlife species, or fish habitat in the proposed project area.

4.5 Invasive Species - Executive Order 13112

Executive Order 13112 (Invasive Species) calls upon executive departments and agencies to take steps to prevent the introduction and spread of invasive species, and to support efforts to eradicate and control invasive species that are established. Construction of the proposed project has the potential to affect the spread of invasive species. The spread of invasive species pollen and seeds would be minimized through implementation of construction best management practices that suppress dust and contain sedimentation and runoff from the site (see *Section 2.6 Environmental Commitments*). As such, the lead agency would be in compliance with Executive Order 13112 on Invasive Species.

4.6 Rivers and Harbors Act, Section 10

If a project involves the construction of structures or any other regulated activities in, under, or over navigable waters of the United States, a Section 10 Permit from the USACE is required. Regulated activities include the placement/removal of structures, work involving dredging, disposal of dredged material, filling, excavation, or any other disturbance of soils/ sediments or modification of a navigable waterway. There are no navigable waters of the United States under Section 10 Rivers and Harbors Act (USACE Los Angeles 1961) in the project area. Therefore, the Rivers and Harbors Act does not apply to the proposed project.

4.7 Protection of Wetlands - Executive Order 11990

As explained in the Biological Resources Technical Study (**Appendix B**), the proposed project area does not contain wetlands or wetland features. Therefore, there would be no impact to wetlands and the lead agency would be in compliance with EO 11990.

4.8 Coastal Barriers Resources Act, Coastal Zone Management Act, Marine Mammal Protection Act

The proposed project area is not within or adjacent to the Coastal Zone or the Coastal Barrier Resources System. It is located 40 miles from the ocean and construction activities would not involve direct, indirect, and/or cumulative impacts to marine mammals. Similar to the original approved project, the Coastal Barriers Resources Act, Coastal Zone Management Act, and Marine Mammal Protection Act do not apply to the proposed project.

4.9 Floodplain Management - Executive Orders 11988, 12148, and 13690

As described in *Section 3.10 Hydrology and Water Quality*, the project area is in FEMA SFHA Zone AE (100-year flood zone). Although the proposed project would be located within 100-year SFHA, it would include installation of underground water distribution pipelines that would not interfere with floodplain management or floodplain function or expose people or structures to a significant loss, injury or death involving flooding. As such, the lead agency would be in compliance with these executive orders.

4.10 Wild and Scenic Rivers Act, Wilderness Act

The proposed project is not within any federal designated Wild and Scenic Rivers. It also is not within a designated wilderness area. Similar to the original approved project, the Wild and Scenic Rivers Act and Wilderness Act do not apply to the project.

4.11 Safe Drinking Water Act/ Sole Source Aquifer Protection

Similar to the original approved project, proposed project is not located in an area with a sole source aquifer. Therefore, the Sole Source Aquifer Program does not apply to the proposed project, and the lead agency would be in compliance with Section 1424(e) of the Safe Drinking Water Act.

4.12 National Historic Preservation Act, Section 106/ Historic Sites Act

As discussed in *Section 3.5 Cultural Resources*, a Historical Properties Identification Report for the proposed project was conducted and provided in **Appendix C**. The analysis includes a Section 106 evaluation for the proposed project and can be submitted as part of the consultation process with the State Historic Preservation Officer (SHPO). Concurrence by SHPO would ensure compliance with the NHPA.

The HPIR identified nine previously recorded cultural resources within 0.5-mile of the proposed project Area of Potential Effects (APE). None are located within the proposed project APE. Eight are historic-period built environment resources comprised of historic-period single-family properties, and one is a historic period archaeological foundation. The recorded boundary of one resource (P-33-028824) is adjacent to the proposed project APE. P-33-028824 consists of an historic-period 15-foot by 6-foot foundation slab, a utility pole with 1930 and 1947 inspection nails, and a single clear glass bottle fragment. On July 22, 2022, the field survey did not identify any new archaeological or built environment cultural resources within the proposed project APE. The archaeologist attempted to relocate the previously recorded site P-33-028824 located adjacent to the project APE; however, the resource is located in a private plot of land with fencing blocking access. This site is outside of the APE and will not be impacted by the project. All historic period built environment resources were found to be unevaluated or ineligible for listing in the NRHP or CRHR, and therefore do not qualify as historical resources under Section 106.

Similar to the 2020 IS/MND and Addendum, although archeological sensitivity of the project area is considered low based on the records search and field survey, there is potential for ground-disturbing activities to expose previously unrecorded cultural resources. **Mitigation Measures CUL-1** through **CUL-6** would require the initial ground-disturbing activities be observed by an archaeological and Native American monitor, construction be suspended if historical resources are discovered during construction, and the resource be appropriately evaluated and treated. **Mitigation Measure CUL-7** would be implemented to ensure proper procedures would be in place if human remains were unearthed during construction activities. Similar to the original approved project, there would be no effect to historic properties under Section 106 of the NHPA.

4.13 Archaeological and Historic Preservation Act (AHPA)

As described in *Section 3.5 Cultural Resources* and *Federal Cross-Cutting Environmental Regulation 4.12 National Historic Preservation Act, Section 106 Historic Sites Act*, a Historical Properties Identification Report for the proposed project was conducted and is provided in **Appendix C**. This assessment evaluated the potential for the proposed project to impact prehistoric, historic, and archaeological resources and found there would be no effect to archaeological and historic resources. Similar to the original approved project, the proposed project would include ground-disturbing activities which could impact buried materials. In order to mitigate this impact, and ensure preservation of any materials or data discovered, several mitigation measures would be implemented. With implementation of **Mitigation Measures CUL-1** through **CUL-7**, scientific, prehistoric, historic and archaeological materials and data would be preserved. The proposed project is expected to have no effects to scientific, prehistoric, historic and archaeological materials and data under the AHPA.

4.14 Executive Order 13007 – Indian Sacred Sites

As discussed in *Section 3.18 Tribal Cultural Resources*, results of the Sacred Lands File Search by the NAHC did not indicate the presence of Native American sacred lands within the vicinity of the project area. Similar to the original approved project, implementation of **Mitigation Measure CUL-1, CUL-2,** and **CUL-3** would require agreements and monitoring plans be established prior to any ground-disturbing activities. **Mitigation Measures CUL-4, CUL-5,** and **CUL-6** would require appropriate treatment of any inadvertently discovered artifacts. **Mitigation Measure CUL-7** Human Remains would ensure proper procedures are in place if human remains are discovered during construction and for the remains to analyzed to determine origin and disposition pursuant to PRC Section 5097.98. With the implementation of **Mitigation Measure CUL-1** through CUL-7 the project would have a less than significant impact to tribal cultural resources and EMWD would be in compliance with EO 13007.

4.15 Farmland Protection Policy Act

As discussed in *Section 3.2 Agriculture and Forestry Resources*, none of the pipeline alignments are classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or located on lands protected by a Williamson Act contract. Similar to the original approved project, the project would not result in land use changes and would, convert important farmland to a nonagricultural use, conflict with zoning regulations, or result in other changes that would indirectly result in conversion of nearby farmland to non-agricultural use. Therefore, the lead agency would be in compliance with the FPPA.

4.16 Clean Air Act

As described in *Section 3.3 Air Quality*, the proposed is within the South Coast Air Basin, which is designated extreme nonattainment for ozone and serious nonattainment particulate matter $PM_{2.5}$. **Table 4-1** summarizes the project's total annual construction emissions, adds the total annual construction emissions from the original approved project, and compares those to the applicable de minimis threshold for the SCAB region. As shown in **Table 4-1**, the proposed and original approved project combined criteria air pollutant emissions would not exceed the applicable de minimis thresholds. Therefore, the general conformity requirements do not apply to these emissions and the project is exempt from a conformity determination.

Table 4-1: Annual Project Emissions Compared to De Minimum Thresholds (tons/year)

Emissions Source	Ozone (NO_x)	Ozone (VOC)	$PM_{2.5}$
Raw Water Conveyance Pipeline Phase III annual construction emissions	2.4	0.3	0.1
Original Approved Project annual construction emissions	11	1.5	0.8
Combined annual construction emissions	**13.4**	**1.8**	**0.9**
De Minimis Threshold	*10*	*10*	*70*
Threshold exceeded?	***No***	***No***	***No***
Notes: The SCAB is non-attainment for O_3, however thresholds are set for NO_x (oxides of nitrogen) and ROG (reactive organic gases)/VOC (volatile organic compounds) because these pollutants are ozone precursors, which chemically react in the presence of sunlight to form ground-level ozone. For the purposes of this analysis, the terms ROG and VOC are used interchangeably. Sources: USEPA 2017; SCAQMD 2022.			

The results of the air quality modeling show that pollutant emissions would not exceed federal General Conformity de minimis thresholds. Accordingly, the lead agency would be in compliance with the CAA.

4.17 Executive Order 13195 on Trails for America in the 21st Century

There are no trails within the project area that would be permanently or temporarily impacted. To ensure appropriate traffic controls are implemented, including identification of temporary alternative safe routes to maintain pedestrian safety, the project would develop a Traffic Control and Detour Plan (**Mitigation Measure TRA-1)**. As a result, no adverse effects on trails would occur and the lead agency is in compliance with this EO.

4.18 Environmental Justice

As shown in *Section 4.16 Environmental Justice* of the 2020 IS/MND, communities composed of minority populations and disadvantaged communities are located within the project area. Similar to the original approved project, the proposed project would help increase water supply reliability in the EMWD service area. Although construction of the proposed project has the potential for short-term environmental impacts related to noise, hazards and hazardous materials, and transportation as described in this document, operation of the project would have the long-term benefit of providing a more reliable local potable water source for these communities which are served by EWMD. As assessed elsewhere in this document, temporary impacts would be reduced to less than significant. Therefore, with the consideration of the benefits provided to these communities through implementation of the project, it would not result in any disproportionately high adverse impact on minority or low-income communities. Thus, no adverse environmental justice impacts would occur.

4.19 Environmental Alternative Analysis

SWRCB SRF Programs' federal regulations and the State Environmental Review Process require an environmental alternative analysis for projects covered under a Negative Declaration, Mitigated Negative Declaration, or an Environmental Impact Report. The analysis should briefly explain the direct and indirect environmental impacts associated with each project alternative considered and the environmental reasoning behind why the project alternative was selected. The project alternatives include the No Project Alternative and the proposed Cactus Avenue Groundwater Wells Project.

The No Project/No Action Alternative would not achieve the project objectives to increase EMWD potable supplies by 3,700 AFY, while also cleaning up contamination areas of concern in the Perris North Groundwater Basin. The No Project/No Action Alternative is also not consistent with regional and state plans to address groundwater contamination. The No Project/No Action Alternative would result in continued environmental impacts related to hazardous substances and contaminated groundwater.

The addition of the proposed project to the proposed Cactus Avenue Groundwater Wells project would not add new potential environmental effects The proposed project, including the proposed project, is the recommended alternative because it is cost-effective, serves the greatest demand, and achieves other project objectives for drinking water compliance reliability.

5. REPORT PREPARATION

5.1 Report Authors

This report was prepared by EMWD, Woodard & Curran, and teaming partners. Staff from the agencies and companies that were involved include:

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APPENDIX A: CALEEMOD AIR QUALITY DATA SHEETS

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Cactus Subsequent MND

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	200.00	1000sqft	4.59	200,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - calculated

Off-road Equipment - calculated

Off-road Equipment - caluclated

Off-road Equipment - calculated

Off-road Equipment -

Off-road Equipment - calculated

Trips and VMT - calculated

Grading -

Vehicle Trips - No new operations or maintenance trips

Area Coating - None. There would be no change from existing conditions

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Landscape Equipment - 'None. There would be no change from existing conditions

Water And Wastewater - 'No additional water consumption or wastewater production

Construction Off-road Equipment Mitigation - calculated

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	12000	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	46.00
tblConstructionPhase	NumDays	20.00	64.00
tblConstructionPhase	NumDays	8.00	250.00
tblConstructionPhase	NumDays	18.00	250.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,620.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	4.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.9535	31.8967	38.0248	0.0917	0.5844	1.3800	1.9644	0.1563	1.3114	1.4677	0.0000	8,845.9867	8,845.9867	2.0030	0.0797	8,919.7952
2024	3.7846	29.8679	37.8186	0.0916	0.5844	1.2430	1.8275	0.1563	1.1801	1.3364	0.0000	8,831.4723	8,831.4723	1.9968	0.0781	8,904.6529
Maximum	**3.9535**	**31.8967**	**38.0248**	**0.0917**	**0.5844**	**1.3800**	**1.9644**	**0.1563**	**1.3114**	**1.4677**	**0.0000**	**8,845.9867**	**8,845.9867**	**2.0030**	**0.0797**	**8,919.7952**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.9535	31.8967	38.0248	0.0917	0.5598	1.3800	1.9398	0.1503	1.3114	1.4617	0.0000	8,845.9867	8,845.9867	2.0030	0.0797	8,919.7952
2024	3.7846	29.8679	37.8186	0.0916	0.5598	1.2430	1.8028	0.1503	1.1801	1.3303	0.0000	8,831.4723	8,831.4723	1.9968	0.0781	8,904.6529
Maximum	**3.9535**	**31.8967**	**38.0248**	**0.0917**	**0.5598**	**1.3800**	**1.9398**	**0.1503**	**1.3114**	**1.4617**	**0.0000**	**8,845.9867**	**8,845.9867**	**2.0030**	**0.0797**	**8,919.7952**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	4.22	0.00	1.30	3.86	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0727	1.9000e-004	0.0204	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0438	0.0438	1.1000e-004		0.0466
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0727**	**1.9000e-004**	**0.0204**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**7.0000e-005**		**0.0438**	**0.0438**	**1.1000e-004**	**0.0000**	**0.0466**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0727	1.9000e-004	0.0204	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0438	0.0438	1.1000e-004		0.0466
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0727**	**1.9000e-004**	**0.0204**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**7.0000e-005**		**0.0438**	**0.0438**	**1.1000e-004**	**0.0000**	**0.0466**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization	Demolition	4/3/2023	6/5/2023	5	46	
2	Grading	Grading	6/6/2023	5/20/2024	5	250	
3	Paving	Paving	6/6/2023	5/20/2024	5	250	
4	Demobilization	Demolition	5/21/2024	8/16/2024	5	64	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 4.59

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Mobilization	Concrete/Industrial Saws	0	8.00	81	0.73
Mobilization	Excavators	0	8.00	158	0.38
Mobilization	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Air Compressors	1	7.00	78	0.48
Grading	Bore/Drill Rigs	1	10.00	221	0.50
Grading	Concrete/Industrial Saws	1	7.00	81	0.73
Grading	Cranes	1	7.00	231	0.29

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Excavators	1	8.00	158	0.38
Grading	Generator Sets	1	8.00	84	0.74
Grading	Graders	0	8.00	187	0.41
Grading	Off-Highway Trucks	1	7.00	402	0.38
Grading	Paving Equipment	1	7.00	132	0.36
Grading	Pumps	1	7.00	84	0.74
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Sweepers/Scrubbers	1	7.00	64	0.46
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Dumpers/Tenders	2	7.00	16	0.38
Paving	Off-Highway Trucks	1	7.00	402	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	0	6.00	132	0.36
Paving	Rollers	0	6.00	80	0.38
Paving	Rubber Tired Dozers	0		247	0.40
Paving	Rubber Tired Loaders	0		203	0.36
Paving	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Welders	1	7.00	46	0.45
Demobilization	Concrete/Industrial Saws	0	8.00	81	0.73
Demobilization	Excavators	0	8.00	158	0.38
Demobilization	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Mobilization	0	4.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	11	28.00	1.00	1,620.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Paving	5	13.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demobilization	0	4.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Mobilization - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Mobilization - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1100e-003	0.0363	0.0143	1.8000e-004	6.4000e-003	2.1000e-004	6.6100e-003	1.8400e-003	2.0000e-004	2.0500e-003		19.6031	19.6031	6.6000e-004	2.8400e-003	20.4653
Worker	0.0128	8.5700e-003	0.1403	3.9000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		39.5837	39.5837	9.6000e-004	9.0000e-004	39.8771
Total	**0.0139**	**0.0449**	**0.1546**	**5.7000e-004**	**0.0511**	**4.6000e-004**	**0.0516**	**0.0137**	**4.3000e-004**	**0.0141**		**59.1868**	**59.1868**	**1.6200e-003**	**3.7400e-003**	**60.3424**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Mobilization - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1100e-003	0.0363	0.0143	1.8000e-004	6.1800e-003	2.1000e-004	6.3900e-003	1.7900e-003	2.0000e-004	1.9900e-003		19.6031	19.6031	6.6000e-004	2.8400e-003	20.4653
Worker	0.0128	8.5700e-003	0.1403	3.9000e-004	0.0428	2.5000e-004	0.0430	0.0114	2.3000e-004	0.0116		39.5837	39.5837	9.6000e-004	9.0000e-004	39.8771
Total	**0.0139**	**0.0449**	**0.1546**	**5.7000e-004**	**0.0490**	**4.6000e-004**	**0.0494**	**0.0132**	**4.3000e-004**	**0.0136**		**59.1868**	**59.1868**	**1.6200e-003**	**3.7400e-003**	**60.3424**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.7743	23.8951	28.6707	0.0638		1.0910	1.0910		1.0390	1.0390		6,130.4969	6,130.4969	1.4285		6,166.2103
Total	**2.7743**	**23.8951**	**28.6707**	**0.0638**	**0.0000**	**1.0910**	**1.0910**	**0.0000**	**1.0390**	**1.0390**		**6,130.4969**	**6,130.4969**	**1.4285**		**6,166.2103**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0140	0.7806	0.2195	3.7000e-003	0.1134	5.9100e-003	0.1193	0.0311	5.6600e-003	0.0367		407.2424	407.2424	0.0226	0.0647	427.0887
Vendor	1.1100e-003	0.0363	0.0143	1.8000e-004	6.4000e-003	2.1000e-004	6.6100e-003	1.8400e-003	2.0000e-004	2.0500e-003		19.6031	19.6031	6.6000e-004	2.8400e-003	20.4653
Worker	0.0894	0.0600	0.9822	2.7400e-003	0.3130	1.7600e-003	0.3147	0.0830	1.6200e-003	0.0846		277.0859	277.0859	6.7200e-003	6.3300e-003	279.1398
Total	**0.1045**	**0.8769**	**1.2160**	**6.6200e-003**	**0.4327**	**7.8800e-003**	**0.4406**	**0.1159**	**7.4800e-003**	**0.1234**		**703.9314**	**703.9314**	**0.0300**	**0.0739**	**726.6937**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.7743	23.8951	28.6707	0.0638		1.0910	1.0910		1.0390	1.0390	0.0000	6,130.4968	6,130.4968	1.4285		6,166.2103
Total	**2.7743**	**23.8951**	**28.6707**	**0.0638**	**0.0000**	**1.0910**	**1.0910**	**0.0000**	**1.0390**	**1.0390**	**0.0000**	**6,130.4968**	**6,130.4968**	**1.4285**		**6,166.2103**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0140	0.7806	0.2195	3.7000e-003	0.1091	5.9100e-003	0.1150	0.0300	5.6600e-003	0.0357		407.2424	407.2424	0.0226	0.0647	427.0887
Vendor	1.1100e-003	0.0363	0.0143	1.8000e-004	6.1800e-003	2.1000e-004	6.3900e-003	1.7900e-003	2.0000e-004	1.9900e-003		19.6031	19.6031	6.6000e-004	2.8400e-003	20.4653
Worker	0.0894	0.0600	0.9822	2.7400e-003	0.2994	1.7600e-003	0.3011	0.0797	1.6200e-003	0.0813		277.0859	277.0859	6.7200e-003	6.3300e-003	279.1398
Total	**0.1045**	**0.8769**	**1.2160**	**6.6200e-003**	**0.4146**	**7.8800e-003**	**0.4225**	**0.1115**	**7.4800e-003**	**0.1190**		**703.9314**	**703.9314**	**0.0300**	**0.0739**	**726.6937**

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.6448	22.2575	28.5961	0.0638		0.9763	0.9763		0.9287	0.9287		6,133.6886	6,133.6886	1.4244		6,169.2974
Total	**2.6448**	**22.2575**	**28.5961**	**0.0638**	**0.0000**	**0.9763**	**0.9763**	**0.0000**	**0.9287**	**0.9287**		**6,133.6886**	**6,133.6886**	**1.4244**		**6,169.2974**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0139	0.7842	0.2231	3.6500e-003	0.1133	5.9200e-003	0.1193	0.0311	5.6600e-003	0.0367		401.6122	401.6122	0.0227	0.0638	421.2000
Vendor	1.0800e-003	0.0365	0.0141	1.8000e-004	6.4000e-003	2.1000e-004	6.6200e-003	1.8400e-003	2.0000e-004	2.0500e-003		19.3211	19.3211	6.6000e-004	2.8000e-003	20.1723
Worker	0.0834	0.0536	0.9147	2.6600e-003	0.3130	1.6800e-003	0.3147	0.0830	1.5500e-003	0.0846		268.9857	268.9857	6.0800e-003	5.8900e-003	270.8936
Total	**0.0984**	**0.8742**	**1.1519**	**6.4900e-003**	**0.4327**	**7.8100e-003**	**0.4405**	**0.1159**	**7.4100e-003**	**0.1233**		**689.9190**	**689.9190**	**0.0295**	**0.0725**	**712.2659**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.6448	22.2575	28.5961	0.0638		0.9763	0.9763		0.9287	0.9287	0.0000	6,133.6886	6,133.6886	1.4244		6,169.2974
Total	**2.6448**	**22.2575**	**28.5961**	**0.0638**	**0.0000**	**0.9763**	**0.9763**	**0.0000**	**0.9287**	**0.9287**	**0.0000**	**6,133.6886**	**6,133.6886**	**1.4244**		**6,169.2974**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0139	0.7842	0.2231	3.6500e-003	0.1091	5.9200e-003	0.1150	0.0300	5.6600e-003	0.0357		401.6122	401.6122	0.0227	0.0638	421.2000
Vendor	1.0800e-003	0.0365	0.0141	1.8000e-004	6.1800e-003	2.1000e-004	6.3900e-003	1.7900e-003	2.0000e-004	1.9900e-003		19.3211	19.3211	6.6000e-004	2.8000e-003	20.1723
Worker	0.0834	0.0536	0.9147	2.6600e-003	0.2994	1.6800e-003	0.3011	0.0797	1.5500e-003	0.0812		268.9857	268.9857	6.0800e-003	5.8900e-003	270.8936
Total	**0.0984**	**0.8742**	**1.1519**	**6.4900e-003**	**0.4146**	**7.8100e-003**	**0.4224**	**0.1115**	**7.4100e-003**	**0.1189**		**689.9190**	**689.9190**	**0.0295**	**0.0725**	**712.2659**

3.4 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9840	7.0606	7.6677	0.0198		0.2801	0.2801		0.2640	0.2640		1,863.3084	1,863.3084	0.5407		1,876.8253
Paving	0.0481					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0321**	**7.0606**	**7.6677**	**0.0198**		**0.2801**	**0.2801**		**0.2640**	**0.2640**		**1,863.3084**	**1,863.3084**	**0.5407**		**1,876.8253**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1100e-003	0.0363	0.0143	1.8000e-004	6.4000e-003	2.1000e-004	6.6100e-003	1.8400e-003	2.0000e-004	2.0500e-003		19.6031	19.6031	6.6000e-004	2.8400e-003	20.4653
Worker	0.0415	0.0279	0.4560	1.2700e-003	0.1453	8.2000e-004	0.1461	0.0385	7.5000e-004	0.0393		128.6470	128.6470	3.1200e-003	2.9400e-003	129.6006
Total	**0.0426**	**0.0642**	**0.4703**	**1.4500e-003**	**0.1517**	**1.0300e-003**	**0.1527**	**0.0404**	**9.5000e-004**	**0.0413**		**148.2501**	**148.2501**	**3.7800e-003**	**5.7800e-003**	**150.0659**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9840	7.0606	7.6677	0.0198		0.2801	0.2801		0.2640	0.2640	0.0000	1,863.3084	1,863.3084	0.5407		1,876.8253
Paving	0.0481					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0321**	**7.0606**	**7.6677**	**0.0198**		**0.2801**	**0.2801**		**0.2640**	**0.2640**	**0.0000**	**1,863.3084**	**1,863.3084**	**0.5407**		**1,876.8253**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1100e-003	0.0363	0.0143	1.8000e-004	6.1800e-003	2.1000e-004	6.3900e-003	1.7900e-003	2.0000e-004	1.9900e-003		19.6031	19.6031	6.6000e-004	2.8400e-003	20.4653
Worker	0.0415	0.0279	0.4560	1.2700e-003	0.1390	8.2000e-004	0.1398	0.0370	7.5000e-004	0.0377		128.6470	128.6470	3.1200e-003	2.9400e-003	129.6006
Total	**0.0426**	**0.0642**	**0.4703**	**1.4500e-003**	**0.1452**	**1.0300e-003**	**0.1462**	**0.0388**	**9.5000e-004**	**0.0397**		**148.2501**	**148.2501**	**3.7800e-003**	**5.7800e-003**	**150.0659**

3.4 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9534	6.6748	7.6318	0.0198		0.2579	0.2579		0.2430	0.2430		1,863.6574	1,863.6574	0.5395		1,877.1452
Paving	0.0481					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0015**	**6.6748**	**7.6318**	**0.0198**		**0.2579**	**0.2579**		**0.2430**	**0.2430**		**1,863.6574**	**1,863.6574**	**0.5395**		**1,877.1452**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0800e-003	0.0365	0.0141	1.8000e-004	6.4000e-003	2.1000e-004	6.6200e-003	1.8400e-003	2.0000e-004	2.0500e-003		19.3211	19.3211	6.6000e-004	2.8000e-003	20.1723
Worker	0.0387	0.0249	0.4247	1.2400e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		124.8862	124.8862	2.8200e-003	2.7400e-003	125.7721
Total	**0.0398**	**0.0614**	**0.4388**	**1.4200e-003**	**0.1517**	**9.9000e-004**	**0.1527**	**0.0404**	**9.2000e-004**	**0.0413**		**144.2073**	**144.2073**	**3.4800e-003**	**5.5400e-003**	**145.9444**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9534	6.6748	7.6318	0.0198		0.2579	0.2579		0.2430	0.2430	0.0000	1,863.6574	1,863.6574	0.5395		1,877.1452
Paving	0.0481					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0015**	**6.6748**	**7.6318**	**0.0198**		**0.2579**	**0.2579**		**0.2430**	**0.2430**	**0.0000**	**1,863.6574**	**1,863.6574**	**0.5395**		**1,877.1452**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0800e-003	0.0365	0.0141	1.8000e-004	6.1800e-003	2.1000e-004	6.3900e-003	1.7900e-003	2.0000e-004	1.9900e-003		19.3211	19.3211	6.6000e-004	2.8000e-003	20.1723
Worker	0.0387	0.0249	0.4247	1.2400e-003	0.1390	7.8000e-004	0.1398	0.0370	7.2000e-004	0.0377		124.8862	124.8862	2.8200e-003	2.7400e-003	125.7721
Total	**0.0398**	**0.0614**	**0.4388**	**1.4200e-003**	**0.1452**	**9.9000e-004**	**0.1462**	**0.0388**	**9.2000e-004**	**0.0397**		**144.2073**	**144.2073**	**3.4800e-003**	**5.5400e-003**	**145.9444**

3.5 Demobilization - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Demobilization - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0800e-003	0.0365	0.0141	1.8000e-004	6.4000e-003	2.1000e-004	6.6200e-003	1.8400e-003	2.0000e-004	2.0500e-003		19.3211	19.3211	6.6000e-004	2.8000e-003	20.1723
Worker	0.0119	7.6600e-003	0.1307	3.8000e-004	0.0447	2.4000e-004	0.0450	0.0119	2.2000e-004	0.0121		38.4265	38.4265	8.7000e-004	8.4000e-004	38.6991
Total	**0.0130**	**0.0441**	**0.1447**	**5.6000e-004**	**0.0511**	**4.5000e-004**	**0.0516**	**0.0137**	**4.2000e-004**	**0.0141**		**57.7476**	**57.7476**	**1.5300e-003**	**3.6400e-003**	**58.8714**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Demobilization - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0800e-003	0.0365	0.0141	1.8000e-004	6.1800e-003	2.1000e-004	6.3900e-003	1.7900e-003	2.0000e-004	1.9900e-003		19.3211	19.3211	6.6000e-004	2.8000e-003	20.1723
Worker	0.0119	7.6600e-003	0.1307	3.8000e-004	0.0428	2.4000e-004	0.0430	0.0114	2.2000e-004	0.0116		38.4265	38.4265	8.7000e-004	8.4000e-004	38.6991
Total	**0.0130**	**0.0441**	**0.1447**	**5.6000e-004**	**0.0490**	**4.5000e-004**	**0.0494**	**0.0132**	**4.2000e-004**	**0.0136**		**57.7476**	**57.7476**	**1.5300e-003**	**3.6400e-003**	**58.8714**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0727	1.9000e-004	0.0204	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0438	0.0438	1.1000e-004		0.0466
Unmitigated	0.0727	1.9000e-004	0.0204	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0438	0.0438	1.1000e-004		0.0466

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8800e-003	1.9000e-004	0.0204	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0438	0.0438	1.1000e-004		0.0466
Total	**0.0727**	**1.9000e-004**	**0.0204**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0438**	**0.0438**	**1.1000e-004**		**0.0466**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8800e-003	1.9000e-004	0.0204	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0438	0.0438	1.1000e-004		0.0466
Total	**0.0727**	**1.9000e-004**	**0.0204**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0438**	**0.0438**	**1.1000e-004**		**0.0466**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	0	0	0	0	0.73	

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Cactus Subsequent MND

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	200.00	1000sqft	4.59	200,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - calculated

Off-road Equipment - calculated

Off-road Equipment - caluclated

Off-road Equipment - calculated

Off-road Equipment -

Off-road Equipment - calculated

Trips and VMT - calculated

Grading -

Vehicle Trips - No new operations or maintenance trips

Area Coating - None. There would be no change from existing conditions

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Landscape Equipment - 'None. There would be no change from existing conditions

Water And Wastewater - 'No additional water consumption or wastewater production

Construction Off-road Equipment Mitigation - calculated

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	12000	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	46.00
tblConstructionPhase	NumDays	20.00	64.00
tblConstructionPhase	NumDays	8.00	250.00
tblConstructionPhase	NumDays	18.00	250.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,620.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	4.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2946	2.3816	2.8288	6.8300e-003	0.0439	0.1028	0.1467	0.0118	0.0977	0.1095	0.0000	597.8766	597.8766	0.1354	5.5100e-003	602.9050
2024	0.1914	1.5126	1.9096	4.6300e-003	0.0306	0.0628	0.0934	8.1900e-003	0.0596	0.0678	0.0000	405.4465	405.4465	0.0915	3.7200e-003	408.8421
Maximum	**0.2946**	**2.3816**	**2.8288**	**6.8300e-003**	**0.0439**	**0.1028**	**0.1467**	**0.0118**	**0.0977**	**0.1095**	**0.0000**	**597.8766**	**597.8766**	**0.1354**	**5.5100e-003**	**602.9050**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2946	2.3816	2.8288	6.8300e-003	0.0421	0.1028	0.1449	0.0113	0.0977	0.1090	0.0000	597.8760	597.8760	0.1354	5.5100e-003	602.9044
2024	0.1914	1.5126	1.9096	4.6300e-003	0.0293	0.0628	0.0921	7.8800e-003	0.0596	0.0675	0.0000	405.4461	405.4461	0.0915	3.7200e-003	408.8417
Maximum	**0.2946**	**2.3816**	**2.8288**	**6.8300e-003**	**0.0421**	**0.1028**	**0.1449**	**0.0113**	**0.0977**	**0.1090**	**0.0000**	**597.8760**	**597.8760**	**0.1354**	**5.5100e-003**	**602.9044**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**4.20**	**0.00**	**1.30**	**3.81**	**0.00**	**0.43**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**4-3-2023**	**7-2-2023**	0.3470	0.3470
2	**7-3-2023**	**10-2-2023**	1.1780	1.1780
3	**10-3-2023**	**1-2-2024**	1.1782	1.1782
4	**1-3-2024**	**4-2-2024**	1.0954	1.0954
5	**4-3-2024**	**7-2-2024**	0.5778	0.5778
6	**7-3-2024**	**9-30-2024**	0.0009	0.0009
		Highest	1.1782	1.1782

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0129	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0129**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0129	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0129**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization	Demolition	4/3/2023	6/5/2023	5	46	
2	Grading	Grading	6/6/2023	5/20/2024	5	250	
3	Paving	Paving	6/6/2023	5/20/2024	5	250	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Demobilization	Demolition	5/21/2024	8/16/2024	5	64	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 4.59

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Mobilization	Concrete/Industrial Saws	0	8.00	81	0.73
Mobilization	Excavators	0	8.00	158	0.38
Mobilization	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Air Compressors	1	7.00	78	0.48
Grading	Bore/Drill Rigs	1	10.00	221	0.50
Grading	Concrete/Industrial Saws	1	7.00	81	0.73
Grading	Cranes	1	7.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Grading	Generator Sets	1	8.00	84	0.74
Grading	Graders	0	8.00	187	0.41
Grading	Off-Highway Trucks	1	7.00	402	0.38
Grading	Paving Equipment	1	7.00	132	0.36
Grading	Pumps	1	7.00	84	0.74
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Sweepers/Scrubbers	1	7.00	64	0.46
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Dumpers/Tenders	2	7.00	16	0.38
Paving	Off-Highway Trucks	1	7.00	402	0.38

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	0	6.00	132	0.36
Paving	Rollers	0	6.00	80	0.38
Paving	Rubber Tired Dozers	0		247	0.40
Paving	Rubber Tired Loaders	0		203	0.36
Paving	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Welders	1	7.00	46	0.45
Demobilization	Concrete/Industrial Saws	0	8.00	81	0.73
Demobilization	Excavators	0	8.00	158	0.38
Demobilization	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Mobilization	0	4.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	11	28.00	1.00	1,620.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demobilization	0	4.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Mobilization - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	8.8000e-004	3.3000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.4093	0.4093	1.0000e-005	6.0000e-005	0.4274
Worker	2.9000e-004	2.2000e-004	3.0000e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.7899	0.7899	2.0000e-005	2.0000e-005	0.7965
Total	**3.1000e-004**	**1.1000e-003**	**3.3300e-003**	**1.0000e-005**	**1.1600e-003**	**1.0000e-005**	**1.1700e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.1992**	**1.1992**	**3.0000e-005**	**8.0000e-005**	**1.2238**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Mobilization - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	8.8000e-004	3.3000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.4093	0.4093	1.0000e-005	6.0000e-005	0.4274
Worker	2.9000e-004	2.2000e-004	3.0000e-003	1.0000e-005	9.7000e-004	1.0000e-005	9.7000e-004	2.6000e-004	1.0000e-005	2.6000e-004	0.0000	0.7899	0.7899	2.0000e-005	2.0000e-005	0.7965
Total	**3.1000e-004**	**1.1000e-003**	**3.3300e-003**	**1.0000e-005**	**1.1100e-003**	**1.0000e-005**	**1.1100e-003**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**1.1992**	**1.1992**	**3.0000e-005**	**8.0000e-005**	**1.2238**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2067	1.7802	2.1360	4.7500e-003		0.0813	0.0813		0.0774	0.0774	0.0000	414.3312	414.3312	0.0966	0.0000	416.7450
Total	**0.2067**	**1.7802**	**2.1360**	**4.7500e-003**	**0.0000**	**0.0813**	**0.0813**	**0.0000**	**0.0774**	**0.0774**	**0.0000**	**414.3312**	**414.3312**	**0.0966**	**0.0000**	**416.7450**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0100e-003	0.0613	0.0165	2.8000e-004	8.3100e-003	4.4000e-004	8.7500e-003	2.2800e-003	4.2000e-004	2.7000e-003	0.0000	27.5366	27.5366	1.5300e-003	4.3700e-003	28.8785
Vendor	8.0000e-005	2.8400e-003	1.0800e-003	1.0000e-005	4.7000e-004	2.0000e-005	4.9000e-004	1.4000e-004	2.0000e-005	1.5000e-004	0.0000	1.3259	1.3259	4.0000e-005	1.9000e-004	1.3843
Worker	6.5000e-003	5.0000e-003	0.0681	2.0000e-004	0.0229	1.3000e-004	0.0230	6.0800e-003	1.2000e-004	6.2000e-003	0.0000	17.9101	17.9101	4.6000e-004	4.6000e-004	18.0590
Total	**7.5900e-003**	**0.0691**	**0.0856**	**4.9000e-004**	**0.0317**	**5.9000e-004**	**0.0323**	**8.5000e-003**	**5.6000e-004**	**9.0500e-003**	**0.0000**	**46.7726**	**46.7726**	**2.0300e-003**	**5.0200e-003**	**48.3218**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2067	1.7802	2.1360	4.7500e-003		0.0813	0.0813		0.0774	0.0774	0.0000	414.3308	414.3308	0.0966	0.0000	416.7445
Total	**0.2067**	**1.7802**	**2.1360**	**4.7500e-003**	**0.0000**	**0.0813**	**0.0813**	**0.0000**	**0.0774**	**0.0774**	**0.0000**	**414.3308**	**414.3308**	**0.0966**	**0.0000**	**416.7445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0100e-003	0.0613	0.0165	2.8000e-004	8.0000e-003	4.4000e-004	8.4400e-003	2.2000e-003	4.2000e-004	2.6300e-003	0.0000	27.5366	27.5366	1.5300e-003	4.3700e-003	28.8785
Vendor	8.0000e-005	2.8400e-003	1.0800e-003	1.0000e-005	4.5000e-004	2.0000e-005	4.7000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	1.3259	1.3259	4.0000e-005	1.9000e-004	1.3843
Worker	6.5000e-003	5.0000e-003	0.0681	2.0000e-004	0.0219	1.3000e-004	0.0220	5.8300e-003	1.2000e-004	5.9600e-003	0.0000	17.9101	17.9101	4.6000e-004	4.6000e-004	18.0590
Total	**7.5900e-003**	**0.0691**	**0.0856**	**4.9000e-004**	**0.0303**	**5.9000e-004**	**0.0309**	**8.1600e-003**	**5.6000e-004**	**8.7400e-003**	**0.0000**	**46.7726**	**46.7726**	**2.0300e-003**	**5.0200e-003**	**48.3218**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1336	1.1240	1.4441	3.2200e-003		0.0493	0.0493		0.0469	0.0469	0.0000	281.0016	281.0016	0.0653	0.0000	282.6330
Total	**0.1336**	**1.1240**	**1.4441**	**3.2200e-003**	**0.0000**	**0.0493**	**0.0493**	**0.0000**	**0.0469**	**0.0469**	**0.0000**	**281.0016**	**281.0016**	**0.0653**	**0.0000**	**282.6330**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.8000e-004	0.0417	0.0113	1.8000e-004	5.6300e-003	3.0000e-004	5.9300e-003	1.5500e-003	2.9000e-004	1.8300e-003	0.0000	18.4078	18.4078	1.0400e-003	2.9300e-003	19.3056
Vendor	5.0000e-005	1.9300e-003	7.2000e-004	1.0000e-005	3.2000e-004	1.0000e-005	3.3000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	0.8858	0.8858	3.0000e-005	1.3000e-004	0.9249
Worker	4.1200e-003	3.0200e-003	0.0430	1.3000e-004	0.0155	8.0000e-005	0.0156	4.1200e-003	8.0000e-005	4.2000e-003	0.0000	11.7858	11.7858	2.8000e-004	2.9000e-004	11.8795
Total	**4.8500e-003**	**0.0467**	**0.0550**	**3.2000e-004**	**0.0215**	**3.9000e-004**	**0.0219**	**5.7600e-003**	**3.8000e-004**	**6.1300e-003**	**0.0000**	**31.0795**	**31.0795**	**1.3500e-003**	**3.3500e-003**	**32.1100**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1336	1.1240	1.4441	3.2200e-003		0.0493	0.0493		0.0469	0.0469	0.0000	281.0013	281.0013	0.0653	0.0000	282.6326
Total	**0.1336**	**1.1240**	**1.4441**	**3.2200e-003**	**0.0000**	**0.0493**	**0.0493**	**0.0000**	**0.0469**	**0.0469**	**0.0000**	**281.0013**	**281.0013**	**0.0653**	**0.0000**	**282.6326**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.8000e-004	0.0417	0.0113	1.8000e-004	5.4200e-003	3.0000e-004	5.7200e-003	1.4900e-003	2.9000e-004	1.7800e-003	0.0000	18.4078	18.4078	1.0400e-003	2.9300e-003	19.3056
Vendor	5.0000e-005	1.9300e-003	7.2000e-004	1.0000e-005	3.1000e-004	1.0000e-005	3.2000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	0.8858	0.8858	3.0000e-005	1.3000e-004	0.9249
Worker	4.1200e-003	3.0200e-003	0.0430	1.3000e-004	0.0148	8.0000e-005	0.0149	3.9500e-003	8.0000e-005	4.0300e-003	0.0000	11.7858	11.7858	2.8000e-004	2.9000e-004	11.8795
Total	**4.8500e-003**	**0.0467**	**0.0550**	**3.2000e-004**	**0.0206**	**3.9000e-004**	**0.0210**	**5.5300e-003**	**3.8000e-004**	**5.9100e-003**	**0.0000**	**31.0795**	**31.0795**	**1.3500e-003**	**3.3500e-003**	**32.1100**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0733	0.5260	0.5712	1.4800e-003		0.0209	0.0209		0.0197	0.0197	0.0000	125.9322	125.9322	0.0365	0.0000	126.8457
Paving	3.5800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0769**	**0.5260**	**0.5712**	**1.4800e-003**		**0.0209**	**0.0209**		**0.0197**	**0.0197**	**0.0000**	**125.9322**	**125.9322**	**0.0365**	**0.0000**	**126.8457**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0000e-005	2.8400e-003	1.0800e-003	1.0000e-005	4.7000e-004	2.0000e-005	4.9000e-004	1.4000e-004	2.0000e-005	1.5000e-004	0.0000	1.3259	1.3259	4.0000e-005	1.9000e-004	1.3843
Worker	3.0200e-003	2.3200e-003	0.0316	9.0000e-005	0.0106	6.0000e-005	0.0107	2.8200e-003	6.0000e-005	2.8800e-003	0.0000	8.3154	8.3154	2.1000e-004	2.1000e-004	8.3845
Total	**3.1000e-003**	**5.1600e-003**	**0.0327**	**1.0000e-004**	**0.0111**	**8.0000e-005**	**0.0112**	**2.9600e-003**	**8.0000e-005**	**3.0300e-003**	**0.0000**	**9.6413**	**9.6413**	**2.5000e-004**	**4.0000e-004**	**9.7688**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0733	0.5260	0.5712	1.4800e-003		0.0209	0.0209		0.0197	0.0197	0.0000	125.9320	125.9320	0.0365	0.0000	126.8456
Paving	3.5800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0769**	**0.5260**	**0.5712**	**1.4800e-003**		**0.0209**	**0.0209**		**0.0197**	**0.0197**	**0.0000**	**125.9320**	**125.9320**	**0.0365**	**0.0000**	**126.8456**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0000e-005	2.8400e-003	1.0800e-003	1.0000e-005	4.5000e-004	2.0000e-005	4.7000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	1.3259	1.3259	4.0000e-005	1.9000e-004	1.3843
Worker	3.0200e-003	2.3200e-003	0.0316	9.0000e-005	0.0102	6.0000e-005	0.0102	2.7100e-003	6.0000e-005	2.7600e-003	0.0000	8.3154	8.3154	2.1000e-004	2.1000e-004	8.3845
Total	**3.1000e-003**	**5.1600e-003**	**0.0327**	**1.0000e-004**	**0.0106**	**8.0000e-005**	**0.0107**	**2.8400e-003**	**8.0000e-005**	**2.9100e-003**	**0.0000**	**9.6413**	**9.6413**	**2.5000e-004**	**4.0000e-004**	**9.7688**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0482	0.3371	0.3854	1.0000e-003		0.0130	0.0130		0.0123	0.0123	0.0000	85.3794	85.3794	0.0247	0.0000	85.9973
Paving	2.4300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0506**	**0.3371**	**0.3854**	**1.0000e-003**		**0.0130**	**0.0130**		**0.0123**	**0.0123**	**0.0000**	**85.3794**	**85.3794**	**0.0247**	**0.0000**	**85.9973**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0000e-005	1.9300e-003	7.2000e-004	1.0000e-005	3.2000e-004	1.0000e-005	3.3000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	0.8858	0.8858	3.0000e-005	1.3000e-004	0.9249
Worker	1.9100e-003	1.4000e-003	0.0200	6.0000e-005	7.2000e-003	4.0000e-005	7.2400e-003	1.9100e-003	4.0000e-005	1.9500e-003	0.0000	5.4720	5.4720	1.3000e-004	1.3000e-004	5.5155
Total	**1.9600e-003**	**3.3300e-003**	**0.0207**	**7.0000e-005**	**7.5200e-003**	**5.0000e-005**	**7.5700e-003**	**2.0000e-003**	**5.0000e-005**	**2.0500e-003**	**0.0000**	**6.3578**	**6.3578**	**1.6000e-004**	**2.6000e-004**	**6.4404**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0482	0.3371	0.3854	1.0000e-003		0.0130	0.0130		0.0123	0.0123	0.0000	85.3793	85.3793	0.0247	0.0000	85.9972
Paving	2.4300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0506**	**0.3371**	**0.3854**	**1.0000e-003**		**0.0130**	**0.0130**		**0.0123**	**0.0123**	**0.0000**	**85.3793**	**85.3793**	**0.0247**	**0.0000**	**85.9972**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0000e-005	1.9300e-003	7.2000e-004	1.0000e-005	3.1000e-004	1.0000e-005	3.2000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	0.8858	0.8858	3.0000e-005	1.3000e-004	0.9249
Worker	1.9100e-003	1.4000e-003	0.0200	6.0000e-005	6.8900e-003	4.0000e-005	6.9300e-003	1.8400e-003	4.0000e-005	1.8700e-003	0.0000	5.4720	5.4720	1.3000e-004	1.3000e-004	5.5155
Total	**1.9600e-003**	**3.3300e-003**	**0.0207**	**7.0000e-005**	**7.2000e-003**	**5.0000e-005**	**7.2500e-003**	**1.9300e-003**	**5.0000e-005**	**1.9700e-003**	**0.0000**	**6.3578**	**6.3578**	**1.6000e-004**	**2.6000e-004**	**6.4404**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Demobilization - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	1.2200e-003	4.6000e-004	1.0000e-005	2.0000e-004	1.0000e-005	2.1000e-004	6.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5613	0.5613	2.0000e-005	8.0000e-005	0.5861
Worker	3.7000e-004	2.7000e-004	3.8900e-003	1.0000e-005	1.4000e-003	1.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.0669	1.0669	3.0000e-005	3.0000e-005	1.0754
Total	**4.0000e-004**	**1.4900e-003**	**4.3500e-003**	**2.0000e-005**	**1.6000e-003**	**2.0000e-005**	**1.6200e-003**	**4.3000e-004**	**2.0000e-005**	**4.4000e-004**	**0.0000**	**1.6282**	**1.6282**	**5.0000e-005**	**1.1000e-004**	**1.6614**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Demobilization - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	1.2200e-003	4.6000e-004	1.0000e-005	1.9000e-004	1.0000e-005	2.0000e-004	6.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5613	0.5613	2.0000e-005	8.0000e-005	0.5861
Worker	3.7000e-004	2.7000e-004	3.8900e-003	1.0000e-005	1.3400e-003	1.0000e-005	1.3500e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.0669	1.0669	3.0000e-005	3.0000e-005	1.0754
Total	**4.0000e-004**	**1.4900e-003**	**4.3500e-003**	**2.0000e-005**	**1.5300e-003**	**2.0000e-005**	**1.5500e-003**	**4.2000e-004**	**2.0000e-005**	**4.3000e-004**	**0.0000**	**1.6282**	**1.6282**	**5.0000e-005**	**1.1000e-004**	**1.6614**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0129	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0129	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0129					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0129**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0129					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0129**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	0	0	0	0	0.73	

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B: BIOLOGICAL RESOURCES TECHNICAL REPORT

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October 28, 2022
Rincon Project No: 21-12325

Haley Johnson, Water Resources Planner
Woodard & Curran
24422 Avenida de la Carlota, Suite 180
Laguna Hills, California 92653

Subject: Biological Resources Technical Study in Support of a Subsequent Initial Study-Mitigated Negative Declaration for the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in the City of Moreno Valley, Riverside County, California

Dear Ms. Johnson:

This report documents the findings of a Biological Resources Technical Study (BRTS) conducted by Rincon Consultants, Inc. (Rincon) in support of a subsequent California Environmental Quality Act (CEQA) review for the proposed Raw Water Conveyance Pipeline Phase III Project (project), which is a component of the Cactus Avenue Corridor Groundwater Wells Project. The subsequent Initial Study Mitigated Negative Declaration (IS/MND) being prepared is based on and serves to support the 2020 IS/MND and addendum prepared by Eastern Municipal Water District (EMWD) with support from Woodard and Curran for the Cactus Avenue Corridor Groundwater Wells project (State Clearinghouse #202030267). EMWD proposes the installation of an 18-inch transmission pipeline along Ironwood Avenue from approximately the intersection with Kevin Street east to the intersection with Perris Boulevard and along Perris Boulevard from the intersection with Ironwood Avenue south to the site of a future centralized treatment plant located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane in the city of Moreno Valley (city), Riverside County, California. The length of the pipeline, including one large staging area, was evaluated for biological constraints for the proposed pipeline construction areas. This technical study documents existing site conditions via desktop analysis and field surveys to evaluate potential impacts to sensitive biological resources for the proposed pipeline construction areas, including one large staging area (i.e., project site). The analysis included the project site plus a 100-foot buffer, referred to as the "study area," totaling 16.54 acres (11.34-acre proposed pipeline construction area, 5.2-acre staging area).

Project Location and Description

The project site is located in the city, in the western portion of Riverside County, California (Figure 1 and Figure 2). The project would be constructed entirely within the existing Ironwood Avenue and Perris Boulevard paved road right-of-way. The proposed raw water pipeline would extend east from Well 66 on Ironwood Avenue, at approximately the intersection with Kevin Street, then turn south and extend along Perris Boulevard until it reaches the planned central treatment facility located between Bay Avenue and St. Christopher Lane. The project site's staging area consists of Assessor Parcel Numbers (APN) 479-140-027 and 479-131-012. The project site is located within the United States (U.S.) Geological Survey Riverside East and Sunnymead, California, 7.5-minute topographic quadrangles. The project site is in an area characterized by a mix of residential, commercial, and industrial development.

The Raw Water Conveyance Pipeline Phase III ("project" or "proposed project") involves construction and operation of approximately 12,500 linear feet of 18-inch diameter polyvinyl chloride (PVC) raw water transmission pipeline with air release valves within Ironwood Avenue and Perris Boulevard. The proposed project would convey raw groundwater from the Well 66 site, located on the south side of Ironwood Avenue at approximately the intersection with Kevin Street. Water from Well 65 is conveyed to the Well 66 site through an existing pipeline in Ironwood Avenue, then the combined flows would be conveyed to the proposed central treatment facility on Perris Boulevard between Bay Avenue and St. Christopher Lane via the proposed project.

The project, together with the other facilities of the Cactus Corridor Groundwater Wells Project, would also augment local water supply in the EMWD service area. In doing so, it would reduce EMWD's need to purchase additional imported water. Currently, approximately 75 percent of EMWD's potable water demand is supplied by imported water from the Metropolitan Water District through its connections to the Colorado River Aqueduct and its connections to the State Water Project, while approximately 25 percent of EMWD's drinking water comes from local EMWD groundwater wells. Most of the groundwater produced by EMWD comes from its wells in the Hemet and San Jacinto areas. EMWD also has existing wells in the Moreno Valley, Perris Valley, and Murrieta areas. In 2025, EMWD's potable and raw water demands were estimated to be approximately 100,000-acre feet per year, according to its latest Urban Water Management Plan (EMWD 2021).

Methodology

Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees.

Environmental Statutes

For the purpose of this report, potential impacts to biological resources were analyzed based on the following statutes:

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- City of Moreno Valley Municipal Code (City of Moreno Valley 1997)
- Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP 2003)

Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by the CEQA Guidelines Appendix G Initial Study Checklist, were used to evaluate potential environmental effects. Based on these criteria, the proposed project would have a significant effect on biological resources if it would:

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

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

c) *Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal areas, 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.*

Western Riverside Multiple Species Habitat Conservation Plan

The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP or Plan) is a comprehensive, multi-jurisdictional Habitat Conservation Plan (HCP) focusing on Conservation of species and their associated Habitats in Western Riverside County. This Plan is one of several large, multi-jurisdictional habitat-planning efforts in Southern California with the overall goal of maintaining biological and ecological diversity within a rapidly urbanizing region. Th e MSHCP Plan Area encompasses approximately 1.26 million acres (1,966 square miles); it includes all unincorporated Riverside County land west of the crest of the San Jacinto Mountains to the Orange County line, as well as the jurisdictional areas of the Cities of Temecula, Murrieta, Lake Elsinore, Canyon Lake, Norco, Corona, Riverside, Moreno Valley, Banning, Beaumont, Calimesa, Perris, Hemet, and San Jacinto. It covers multiple species and multiple habitats within a diverse landscape, from urban centers to undeveloped foothills and montane forests, all under multiple jurisdictions. It extends across many bioregions as well, including the Santa Ana Mountains, Riverside Lowlands, San Jacinto Foothills, San Jacinto Mountains, Agua Tibia Mountains, Desert Transition, and San Bernardino Mountains.

Per the requirements of the MSHCP, this report is intended to document the project's consistency with this plan, including required habitat assessments of riparian/riverine areas and vernal pools, listed fairy shrimp, and burrowing owl.

Literature Review

Prior to the field surveys, a literature review was conducted to establish the environmental and regulatory setting of the proposed project. The literature review included review of the U.S. Department of Agriculture (USDA) *Soil Survey for the Western Riverside Area* (2022b), Riverside East and *Sunnymead, CA* USGS 7.5-minute topographic quadrangles, literature detailing the habitat requirements of subject species, aerial photographs (Google Earth 2022), and topographic maps (USGS 2022). The MSHCP, species accounts, and other reference materials were reviewed for habitat assessment requirements as well as habitat suitability elements for special status species. The primary objective of the habitat assessment was to evaluate the project sites potential to support special status species as well as to determine the applicability of other MSHCP and CEQA requirements as they pertain to the proposed project.

In addition, the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB; CDFW 2022a), Biogeographic Information and Observation System (BIOS; CDFW 2022b), and U.S. Fish and Wildlife Service (USFWS) Critical Habitat Portal (USFWS 2022a) and Information for Planning and Consultation (IPaC; USFWS 2021b) system were reviewed to determine if any special status wildlife, plant or vegetation communities were previously recorded within five (5) miles of the study area. Map review of the U.S. Forest Service (USFS) managed National Wild and Scenic River System was performed to assess whether wild or scenic rivers occurred on site (USFS 2022). The *National Wetlands Inventory* (NWI; USFWS 2022c) was reviewed to determine if any wetland and/or non-wetland waters had been previously documented and mapped on or in the vicinity of the proposed study area. Other resources reviewed included the California Native Plant Society (CNPS) online *Inventory of Rare and Endangered Plants of California* (CNPS 2022), CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2022c); and CDFW *Special Animals List* (CDFW 2022d).

Field Reconnaissance Survey

A field reconnaissance survey of the study area was conducted to document existing site conditions and the potential presence of sensitive biological resources, including sensitive plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. Rincon biologist Genelle Watkins conducted the reconnaissance survey on July 22, 2022. The survey of the project site was conducted on foot with the aid of binoculars as necessary for visual inspections.

Identification of potentially jurisdictional aquatic resources during the reconnaissance survey included assessment of potential wetlands and non-wetland waters that may constitute waters of the U.S., waters of the State, streambeds, and/or riparian/riverine or vernal pool resources; however, a formal jurisdictional delineation of waters and wetlands was not completed. During the survey, the biologist noted general site characteristics, documented vegetation, wildlife species observed, and took representative photographs at each project site (Attachment 1). Vegetation communities were mapped by walking transects of the project sites and captured using a Global Positioning System (GPS) capable of sub-meter accuracy. Data gathered from the field surveys was checked for quality and consistency, and all species identified to the finest taxonomic level.

Existing Conditions

Physical Characteristics

The project site is located in arid western Riverside County, which is characterized by long, hot, dry summers and short, relatively wet winters. Average temperatures range from 87 to 95°F during the summer and 67 to 71°F during the winter. The average annual precipitation in the region is 10.34 inches (U.S. Climate Data 2022).

Survey conditions included temperatures ranging from 70 to 83 degrees Fahrenheit (°F), partly cloudy skies because of a wildfire nearby, and winds of 0 to five (5) miles per hour. Current land use at the project site consists of public streets, parks, disturbed lots, developed areas, and residential communities and commercial infrastructure. Areas of similar land use are in the surrounding vicinity. The locations for the proposed pipeline project include the length of Perris Boulevard, and a segment of Ironwood Avenue, ending at Well 66. All are adjacent to commercial and residential developments, including the staging area located southeast of the intersection of Perris Boulevard and Dracaea Avenue. Debris piles of concrete and trash and ongoing construction was observed throughout the study area.

Watershed and Drainages

The project site is within the approximate 2,650-square mile Santa Ana River Watershed. The Santa Ana River Watershed spans from portions of the San Jacinto Mountains, San Bernardino Mountains, San Gabriel Mountains, and Santa Ana Mountains to the cities of Rialto, Lake Elsinore, Anaheim, Huntington Beach, and Irvine. Two major rivers drain the Santa Ana River watershed: the Santa Ana River and the San Jacinto River.

During the field survey, established stormwater drainages were identified within the residential areas adjacent to Perris Boulevard. These man-made drainages observed adjacent to the project were dry at the time of the field survey, exhibited signs of regular maintenance such as trenching of existing public walkways and development of new building infrastructure, and were mostly clear of vegetation. The project site showed no signs of persistent emergent vegetation, emergent mosses, or lichens. Riparian/Riverine systems or other potentially jurisdictional resources were not observed during the survey.

Topography and Soils

Topography throughout the project site was relatively level with elevations ranging from 1,642 feet above mean sea level (msl) in the northern portion of the project site and gradually increases to approximately 1,655 feet above msl in the southern portion of the project site. The project site primarily consists of level ground within disturbed vacant lots, developed park areas and shopping centers, and residential and commercial areas.

The USDA Natural Resources Conservation Service (NRCS) Web Soil Survey delineates 10 soil map units found within the project site, listed below and in Table 1Summary of Soil Units within the Study Area:

- Greenfield sandy loam 2 to 8 percent slopes, eroded
- Hanford coarse sandy loam, 2 to 8 percent slopes
- Monserate sandy loam, 5 to 15 percent slopes

- 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
- Ramona sandy loam 5 to 8 percent slopes, severely eroded
- Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- Tujunga loamy sand, 0 to 8 percent slopes

Site specific soil observations were not determined to be consistent with those mapped by the USDA NRCS Web Soil Survey because the site is primarily within a paved roadway. These 10 map units can be organized into six soil series that are described below. No soils present at the project site are included on the *National Hydric Soils List* (USDA NRCS 2022c), save for the Tujunga loamy sand map unit.

Table 1 Summary of Soil Units within the Study Area

Study Area	Soil Units
Pipeline Construction Area	▪ Hanford coarse sandy loam, 2 to 8 percent slopes ▪ Ramona sandy loam, 2 to 5 percent slopes, eroded ▪ Monserate sandy loam, shallow, 5 to 15 percent slopes, eroded ▪ Ramona sandy loam, 2 to 5 percent slopes, eroded ▪ Ramona very fine sandy loam, 0 to 8 percent slopes ▪ Ramona sandy loam, 5 to 8 percent slopes, severely eroded ▪ Greenfield sandy loam, 2 to 8 percent slopes, eroded ▪ Tujunga loamy sand, channeled, 0 to 8 percent slopes
Staging Area	▪ Ramona sandy loam, 0 to 2 percent slopes, MLRA 19 ▪ Ramona sandy loam, 2 to 5 percent slopes, eroded ▪ Pachappa fine sandy loam, 2 to 8 percent slopes

Greenfield Soils

This series consists of deep, well drained soils that formed in moderately coarse and coarse textured alluvium derived from granitic and mixed rock sources. Greenfield sandy loam is found on alluvial fans and terraces at elevations from 100 to 3,500 feet above msl in dry, subhumid and mesothermal climates. It can be used to produce a wide variety of irrigated field, forage, and fruit crops as well as for growing dryland grain and pasture. Vegetation on uncultivated areas consists of annual grass, forbs, shrubs, and scattered oak (*Quercus* sp.*)* trees, however within the study area all Greenfield soils are disturbed, and no oak trees or other native vegetation is present.

Hanford Soils

This series consists of very deep, well drained soils that formed in moderately coarse textured alluvium dominantly from granite. Hanford soils are typically found on stream bottoms, flood plains and alluvial fans from 150 to 3,500 feet above msl in dry, subhumid and mesothermal climates. They are used for growing a wide range of fruits, vegetables, and general farm crops, as well as for urban development and dairies. Vegetation in uncultivated areas is mainly annual grasses and associated herbaceous species.

Monserate Soils

This soil series is a member of the fine-loamy, mixed, thermic family of Typic Durixeralfs. Typically, Monserate soils have brown and yellowish-red, slightly acidic, sandy loam A horizons, reddish brown, neutral, sandy clay loam B2t horizons underlain by silica-cemented duripans. This series is typically found on nearly-level to moderately-steep old, dissected terraces and fans from 700 to 2,500 feet above msl in dry, subhumid and mesothermal climates. This soil type is used principally for growing grain, grain hay or pasture, some citrus, and field and truck crops when irrigation water is available. Naturalized vegetation is mainly annual grasses and forbs, widely spaced native canyon oak (*Quercus chrysolepis*), and shrubs on eroded slopes.

Pachappa Soils

The Pachappa series consists of well drained (minimal) Noncalcic Brown soils developed from moderately coarse textured alluvium. They occur on gently sloping alluvial fans and flood plains under annual grass-herb vegetation at elevations under 1,000 feet above msl in a semiarid to dry subhumid mesothermal climate. Characteristically the Pachappa soils have grayish brown, slightly acid A1 horizons and brown, slightly finer textured neutral B2 horizons that overlie moderately alkaline, slightly calcareous B3ca horizons and very slightly calcareous stratified C horizons. This soil is mostly found under irrigation for alfalfa (*Medicago sativa*), small grains and row crops as well as dry farm small grains and normally generate good yields. Annual grasses, herbs, and shrubs are found growing on this soil.

Ramona Soils

The Ramona series is a member of the fine-loamy, mixed, thermic family of Typic Haploxeralfs. Typically, Ramona soils have brown, slightly and medium acid, sandy loam and fine sandy loam A horizons, reddish brown and yellowish red, slightly acid, sandy clay loam B2t horizons, and strong brown, neutral, fine sandy loam C horizons. This soil is typically found on nearly-level to moderately steep terrace and fans derived from granitic and related rock sources at elevations of 250 to 3,500 feet above msl in dry, subhumid and mesothermal climates. This soil type is mostly used for the production of grain, grain-hay, pasture, irrigated citrus (*Citrus* sp.), olives (*Olea* sp.), truck crops, and deciduous fruits. Uncultivated areas have a cover of annual grasses, forbs, chamise (*Adenostoma fasciculatum*), or chaparral.

Tujunga Soils

The Tujunga series is a member of the mixed, thermic Typic Xeropsamments, consisting of very deep, excessively drained soils, formed in alluvium from granitic sources. Tujunga soils are on alluvial fans and floodplains found in urban areas. The soils range from a pale brown to dark grayish brown color, fine sandy loam A horizons and coarse sandy loam C horizons. This soil is used for grazing, fruits, and urban residential or commercial development. Uncultivated areas have shrub cover, annual grasses, and forbs; ornamental species and turf-grass are common in urban areas. This soil type is classified as hydric and listed on the NRCS' Hydric Soils List (USDA NRCS 2022c).

Vegetation Communities and Land Cover Types

One (1) vegetation community and two (2) land cover types occur within the study area (Figure 4). A list of plant and animal species observed within the study area are included in Attachment 2.

Disturbed Habitat

Disturbed habitat is the dominant land cover type throughout the proposed staging area. Areas that have been physically disturbed (by previous legal human activity) and are no longer recognizable as a native or naturalized vegetation association, but continue to retain a soil substrate, were characterized as disturbed habitat. Vegetation, if present, is nearly exclusively composed of non-native plant species such as ornamentals or ruderal exotic species that take advantage of disturbance. These areas are not typically artificially irrigated but receive water from precipitation or runoff. Disturbed habitat is located throughout the staging area and predominately devoid of vegetation. Non-native annual grassland vegetation species, such as wild oats (*Avena fatua*) and ripgut brome (*Bromus diandrus*), were found sparsely scattered within the staging area, but were not the dominant land cover. Disturbed habitat land cover was dominant throughout the 5.2 acre proposed pipeline construction staging area, including the 100-foot buffer.

Urban/Developed

Developed land cover is the dominant land cover type found within the study area and consists of developments such as residential housing, commercial buildings, industrial buildings, asphalt roads, graveled access roads, parking areas, and storage areas. These areas have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Native tree species were not observed along the project site, but several non-native species such as Jacaranda (*Jacaranda mimosifolia*), European olive (*Olea europaea*), London plane (*Platanus* x *acerifolia*), Tree-of-Heaven (*Ailanthus altissima*), Peruvian pepper tree (*Schinus molle*), Mexican fan palm (*Washingtonia robusta*), and crimson bottle brush (*Callistemon citrinus*) were identified. Although tree species were not dense enough to constitute their own distinct vegetation community, planted individuals were primarily observed immediately adjacent to the project site in ornamental landscapes, such as Sunnymead Park. This land cover type covers a total of 11.34 acres within the pipeline construction area, including the 100-foot buffer.

General Wildlife

The project site provides limited habitat for wildlife species that commonly occur within urban communities in Riverside County. Common urban-adapted avian species were observed on site during the survey, including: red-tailed hawk (*Buteo jamaicensis*), cliff swallow (*Petrochelidon pyrrhonota*), black phoebe (*Sayornis nigricans*), song sparrow (*Melospiza melodia*), common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), northern mockingbird (*Mimus polyglottos*), Anna's hummingbird (*Calypte anna*), and black-chinned hummingbird (*Archilochus alexandri*). Western fence lizard (*Sceloporus occidentalis*) was the only reptile observed within the study area.

Sensitive Biological Resources

Based on review of aerial photographs and the field reconnaissance survey, Rincon evaluated the potential presence of sensitive biological resources on and adjacent to the site.

Special Status Species

Local, state, and federal agencies regulate special status species and generally require an assessment of their presence or potential presence to be conducted prior to the approval of a proposed project. Assessments for the potential occurrence of special status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, species occurrence records from other sites in the vicinity of the study area, and previous reports for the project site. The potential for each special status species to occur in the study area was evaluated according to the following criteria:

- **No Potential.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Not Expected.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Low Potential.** Some of the habitat components meeting the species requirements are present, although the habitat adjacent to the site may be unsuitable. Occurrences in the region may be lacking or isolated from the site due to surrounding development. The species has a low probability of being found on the site due to the isolated nature and low habitat quality.
- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last five [5] years).

The literature review identified 45 sensitive plant species and 34 sensitive wildlife species within the CNPS nine (9)-quad and CNDDB five (5)-mile search of the study area, respectively. Presumably, this is because the study area is located between Box Spring Mountain Reserve Park and the Perris Reservoir (Attachment 3; Table 2). Additionally, eight (8) sensitive natural communities: canyon live oak ravine forest, Riversidian alluvial fan sage scrub, southern coast live oak riparian forest, southern cottonwood willow riparian forest, southern riparian forest, southern riparian scrub, southern sycamore alder riparian woodland, and southern willow scrub were identified as occurring within the study area; however, only southern sycamore alder riparian woodland occurred within five miles of the project site. Sensitive plant species and natural communities were not observed withing the study area because due to high disturbance and heavy development in and around the area.

Special Status Plant Species

The project site is located within a highly developed urban area, highly disturbed and surrounded by existing commercial and residential development. Due to the lack of specific habitat types or suitable substrates as well as the high levels of historic and existing disturbance, special status plant species are not expected to occur on the sites, discussed in further detail in Attachment 3.

Special Status Wildlife Species

The project site is located within a highly developed urban area, is highly disturbed, and surrounded by existing commercial and residential development. The study area is not suitable for most special status wildlife species due to the lack of native vegetation communities and specific habitats, as well as high levels of historic and existing disturbance and isolation from native habitats. The literature review identified 34 special status wildlife species recorded within five (5) miles of the study area. Twenty-seven (27) of these species have no potential or are not expected to occur within the study area due to lack of suitable habitat (e.g., riparian areas, woodland, coastal sage scrub habitat, etc., described in Attachment 3).

Low quality or marginal foraging, scanning, and/or nesting habitat exists within the study area for four (4) sensitive wildlife bird species with a low potential to occur. This includes Cooper's Hawk (*Accipiter cooperii*), burrowing owl (*Athene cunicularia*), Loggerhead shrike (*Lanius ludovicianus*), and California horned lark (*Eremophila alpestris actia*). One (1) reptile species of special concern, coastal whiptail (*Aspidoscelis tigris stejnegeri*) also has a low potential to occur. Species of special concern, Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) and western yellow bat (*Lasiurus xanthinus*) are the two (2) mammal species with a low potential to occur. Undeveloped areas adjacent to the project site containing marginally suitable habitats are largely dominated by sparse, non-native ruderal species. The potential for these species to occur is low due to the site-specific locations within highly developed/urbanized areas and limited available habitat structure to form burrows and nests, which would likely deter individuals from long-term use of both the project site. Additionally, no small mammal burrows or any inactive or active burrows were observed during the field reconnaissance survey.

Nesting Birds

Ornamental trees, grass, shrubs and bare ground found within disturbed habitats and urban/developed areas within the study area could provide suitable nesting habitat for several common avian species observed during the reconnaissance survey. Bird nests and eggs are protected by CFGC 3503 and the Migratory Bird Treaty Act (MBTA). Common species such as mourning dove and house finch have the potential to nest in shrubs, even in highly disturbed settings. Construction of the project thus has the potential to directly (by destroying a nest) or indirectly (construction noise, dust, and other human disturbances that may cause a nest to fail) impact nesting birds protected under the CFGC and MBTA. Overall, the project site is considered low quality for nesting birds due to lack of vegetation, recent signs of grading, and the project site's adjacency to heavily travelled roadways. However, immediately adjacent ornamental vegetation and mature trees provide nesting opportunities and active nests have a moderate to high probability of being present adjacent to project activities.

Sensitive Plant Communities

No sensitive plant communities as identified by the CNDDB or local ordinances, or riparian habitat, are present within the study area.

Jurisdictional Waters and Wetlands

The project site consists primarily of developed areas, disturbed habitats, and vacant lots, and is adjacent to urban roadways. Most of the surrounding land use includes streets, sidewalks, residential

and commercially developed areas intermixed with isolated areas of open space and public land. Aside from the Perris Valley Storm Drain several miles to the south of the project site, the NWI did not identify any additional potential aquatic features within or adjacent to the project site.

During the field survey, man-made stormwater drainages were present in residential areas; all of which lacked wetland vegetation and are not connected to an established water source. All observed drainage features throughout the project site were dry and influenced by urban, residential, or stormwater runoff, and sources lacked ordinary high-water markings. The topography is relatively flat throughout the project site and vegetation has grown presumably due to nuisance runoff and impervious surfaces in the nearby areas. There is not a direct point source of water that feeds into any of the drainages on the project site.

Further, no hydric soils are present on the project site, save for a small segment between Elder Avenue and the exit ramp to eastbound Highway 60, containing Tujunga loamy sand. Based off site conditions and the literature search, no waters or wetlands potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), Santa Ana Regional Water Quality Control Board (RWQCB), or CDFW were observed within the project site during the field reconnaissance survey.

Riparian/Riverine, Vernal Pool and Fairy Shrimp Habitat

Riparian/riverine areas are lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or depend on a nearby freshwater source or areas that contain a freshwater flow during all or a portion of the year (County of Riverside 2003). These areas may support one (1) or more species listed in the MSHCP. Vernal pools are seasonal wetlands that occur in depressions, typically have wetland indicators that represent all three (3) parameters (soils, vegetation, and hydrology), and are defined based on vernal pool indicator plant species during the wetter portion of the growing season but normally lack wetland indicators associated with vegetation and/or hydrology during the drier portion of the growing season.

The project site and its components were assessed for riparian/riverine and vernal pool habitat as required by the Western Riverside MSHCP. Based upon the findings of Rincon's reconnaissance surveys, no riparian/riverine habitats are present within the study area due to urbanization. The remainder of the project site is heavily disturbed due to past agricultural uses, urban development, and are currently either unvegetated, developed, or dominated by exotic upland species, which are not conducive to supporting riparian/riverine habitats. Additionally, no vernal pools or fairy shrimp habitat were observed within the study area which is underlain by moderately to excessively well-drained soils. Thus, vernal pools and/or seasonal wetlands would not be expected to form during the wet season.

Wildlife Movement

According to the Western Riverside County Regional Conservation Authority (RCA) MSHCP Information Tool, the project site is not located within an MSHCP Criteria Area, Public-Quasi Public Reserve Lands, or a Core or Linkage (RCA 2022). The CDFW BIOS (2022b) classifies a portion of the study area immediately adjacent to the site as a connection with implementation flexibility but does not include any mapped essential habitat connectivity areas in the immediate vicinity of the site. The closest mapped essential habitat connectivity areas are located approximately 2.5 miles to the northeast near the Kalmia Hills and approximately three (3) miles to the northwest in the vicinity of Box Springs Mountain Reserve Park. The project site is separated from these identified essential habitat connectivity areas by public roadways

and residential areas, and therefore the site is not expected to contribute to a significant wildlife migratory corridor.

Resources Protected by Local Policies and Ordinances

Several trees are located in the public right-of-way, parkway, and/or public parks. No protected trees, as designated by the City's Tree Management Policy, exist on the project site. The study area falls within the County of Riverside Stephens' Kangaroo Rat (*Dipodomys stephensi*) Plan and Fee area. However, because the study area is urbanized and contains only a small fragmented (5.2 acres) area of disturbed habitat to be utilized as the staging area, which is otherwise surrounded by development, limited habitat exists to support the species and it is unlikely to be present.

Conservation Plans

The project site is located within the boundaries of the Western Riverside MSHCP, but not within a designated survey area identified for any other MSHCP covered species. The northern portion of the site on Ironwood Avenue is located less than one (1) mile from a habitat assessment area for burrowing owl as classified by the MSHCP. Additionally, the project site is not located within a criteria cell or within Public/Quasi Public conserved lands. The closest Public/Quasi-Public conserved lands are located approximately three (3) miles northeast of Well 66 within the Box Springs Mountain Reserve Park (County of Riverside 2022).

Impact Analysis and Mitigation Measures

Special Status Species

As mentioned above, 45 sensitive plant species and 34 sensitive wildlife species are known to occur or have potential to occur within the CNPS nine (9) quad and CNDDB five (5)-mile radius search of the study area, respectively. Due to the lack of specific habitats or suitable substrates as well as the high levels of historic and existing disturbance, sensitive plant species are not expected to occur on the site. Therefore, no impacts to sensitive plant species are expected.

Of the 34 sensitive wildlife species identified, 27 of these species are not expected to occur due to lack of suitable habitat (e.g., riparian, scrub, woodland). Seven (7) sensitive wildlife species were determined to have a low potential to occur within the study area: CDFW Watch List Cooper's hawk and California horned lark; and CDFW Species of Special Concern coastal whiptail, Los Angeles pocket mouse, western yellow bat, loggerhead shrike, and burrowing owl. These seven (7) species were determined to have a low potential to occur in the study area due to the observation of small pockets of open habitat with sparse vegetation in the adjacent parcels and within the staging area. The project site's immediate adjacency to urban development and disturbed nature of the staging area substantially diminishes the quality of the habitat. The rest of the study area is located within highly developed areas lacking vegetation or undergoing construction. The entire study area exhibited signs of previous disturbance, and none of these species were observed during the field surveys.

Impacts from construction activities could potentially interfere with or deter these species from nesting, roosting, or foraging in the study area. To avoid and minimize the potential for impacts to these species, implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3, below, are recommended for project construction.

As described in *Existing Conditions*, the trees within the study area could provide suitable nesting habitat for several common avian species. All trees on the project site are located around the perimeter of the main roads, and within residential backyards in proximity to the staging area. The proposed project would not remove any trees; therefore, construction activities are not expected to result in direct impacts to birds who may use these trees for nesting. If project activities are to take place during the nesting bird season (typically January through September) direct impacts to ground nesting bird species are possible; therefore, pre-construction surveys recommended in Mitigation Measure BIO-2 would be required to avoid direct impacts to these species. Indirect impacts such as construction noise, dust, and increased human presence could disturb nests if they are present in adjacent trees. To ensure avoidance of direct or indirect impacts, implementation of Mitigation Measures BIO-1 and BIO-2 would require pre-construction burrowing owl and nesting bird surveys to minimize all potential impacts to nesting birds to less than significant.

Mitigation Measures

BIO-1 Burrowing Owl Pre-construction Clearance Survey

A qualified wildlife biologist shall conduct a pre-construction survey of proposed impact areas to confirm presence/absence of burrowing owl individuals no more than 14 days prior to construction. The survey methodology shall be consistent with the methods outlined in the California Department of Fish and Wildlife (CDFW) *Staff Report on Burrowing Owl Mitigation* (2012). If no active breeding or wintering owls are identified, no further mitigation is required.

If burrowing owl is detected on site, the following mitigation measures shall be implemented in accordance with the *CDFW Staff Report on Burrowing Owl Mitigation* (2012):

- EMWD shall hire a qualified wildlife biologist that would be on site during initial ground-disturbing activities in potential burrowing owl habitat identified in the biological resources assessment.
- No ground-disturbing activities shall be permitted within a buffer no less than 200 meters (656 feet) from an active burrow, depending on the level of disturbance as defined by the Canadian Wildlife Service Environment (2009), unless the qualified biologist determines a reduced buffer would not adversely affect the burrowing owl(s).
- Active burrows shall not be disturbed during the nesting season (February 1 to August 31).
- During the nonbreeding season (September 1 to January 31), ground-disturbing work can proceed near active burrows as long as the work occurs no closer than 50 meters (165 feet) from the burrow, depending on whether the level of disturbance is low, such as surveying, drive by, lowline 2” or less, plowed in (CWSE 2009), and if the active burrow is not directly affected by the project activity. A smaller/larger buffer may be established by the qualified biologist following monitoring and assessments of the project’s effects on the burrowing owls. If active winter burrows are found that would be directly affected by ground-disturbing activities, owls can be excluded from winter burrows according to recommendations made in the *Staff Report on Burrowing Owl Mitigation* (2012). Additionally, if burrowing owls are found on-site, a qualified biologist shall prepare and submit a passive relocation program in accordance with Appendix E (i.e., *Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans*) of the *CDFW’s Staff Report on Burrowing Owl Mitigation* (2012) for CDFW review and approval prior to the commencement of disturbance activities on-site.

- Burrowing owls shall not be excluded from burrows until a Burrowing Owl Exclusion Plan is developed based on the recommendations made in Appendix E, *Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans*, of the CDFW *Staff Report on Burrowing Owl Mitigation* (2012). The Burrowing Owl Exclusion Plan will be submitted to CDFW for review and approval prior to the commencement of disturbance activities on-site.
- Prior to passive relocation, the EMWD shall be responsible for acquiring compensatory mitigation at a ratio of 1:1 for lost breeding and/or wintering habitat to be implemented on- or off-site, including permanent conservation and management of burrowing owl habitat through the recordation of a conservation easement, funding of a non-wasting endowment, and implementation of a Mitigation Land Management Plan based on the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) and CDFW guidance. Mitigation lands would be identified through coordination with CDFW and on, adjacent, or proximate to the impact site where feasible and where habitat is suitable to support burrowing owl. If required, by CDFW, compensatory mitigation should be completed prior to passive relocation of owls and completion of construction.
- When a qualified biologist determines that burrowing owls are no longer occupying the project site and passive relocation is complete, construction activities may begin. A final letter should be prepared by the qualified biologist documenting the results of the passive relocation. The letter shall be submitted to CDFW.

BIO-2 Pre-construction Nesting Bird Surveys

To avoid impacts to nesting birds, activities associated with vegetation removal, construction, and/ or grading shall be conducted September 16 and January 14, which is outside the peak nesting/ breeding bird season. If vegetation removal, construction, and/or grading must occur during the peak nesting/breeding season (January 15 through September 15), EMWD shall ensure that impacts to nesting/breeding birds are avoided through the implementation of preconstruction surveys, establishment of an exclusionary buffer zone, and ongoing monitoring, if necessary. EMWD shall designate a qualified biologist experienced in identifying local and migratory bird species; conducting bird surveys using appropriate survey methodology (such as CDFW-accepted species-specific survey protocols, available here: https://www.wildlife.ca.gov/conservation/survey-protocols); nesting surveying techniques; recognizing breeding and nesting behaviors; locating nests and breeding territories; identifying nesting stages and nest success; determining/establishing appropriate avoidance and minimization measures; and monitoring the efficacy of implemented avoidance and minimization measures.

- Prior to activities associated with vegetation removal, construction, and/ or grading during the peak bird nesting/breeding season (January 15 through September 15), the biologist shall conduct surveys for active nests. Preconstruction nesting bird surveys should be conducted no more than three days prior to the start of clearance/construction work. If ground-disturbing activities are delayed, additional preconstruction surveys should be conducted so that no more than three days have elapsed between the survey and ground-disturbing activities.
- Surveys shall encompass all suitable areas within 100 feet of the construction zone, including trees, shrubs, bare ground, burrows, cavities, and structures. Survey duration shall take into consideration the size of the site; density, and complexity of the land cover type; number of survey participants; survey techniques employed; and shall be sufficient to ensure the data collected are complete and accurate. Preconstruction surveys shall focus on both direct and indirect evidence of nesting,

including nest locations and nesting behavior (e.g., copulation, carrying of food or nest materials, nest building, removal of fecal sacks, flushing suddenly from atypically close range, agitation, aggressive interactions, feigning injury or distraction displays, or other behaviors).

- Active nests found within 100 feet of the construction zone shall be delineated with highly visible construction fencing or other exclusionary material that would inhibit entry by personnel or equipment into the buffer zone. Installation of the exclusionary material shall be completed by the qualified biologist prior to initiation of construction activities. The biologist shall identify an appropriate protective buffer zone around the nest depending on the sensitivity of the species, the nature of the construction activity, and the amount of existing disturbance in the vicinity. In general, the qualified biologist should designate a buffer of 50 to 200 feet for common nesting birds and 200 to 500 feet for special status nesting birds and nesting raptors. If excluding work activities from any established buffers is not feasible, the biologist may establish a modified buffer exclusion utilizing specific biological and/or ecological attributes of the project location and avian species. The buffer zone shall remain intact and maintained while the nest is active (i.e., occupied or being constructed by at least one adult bird) and until young birds have fledged and no continued use of the nest is observed, as determined by the biologist. No construction activities shall be allowed within the buffer until nesting activity has ended to ensure protection of nesting birds. If the biologist determines nesting activities could fail as a result of work activities, all work shall cease within the buffer exclusion, and no entry into the buffer will occur. Construction activities within the no-work buffer may proceed after the biologist determines the nest is no longer active due to natural causes (e.g., young have fledged, predation, or other non-human causes of nest failure). The barrier shall be removed by construction personnel at the direction of the biologist.

BIO-3 Coastal Whiptail, Yellow Bat, and LA Pocket Mouse WEAP Training and Pre-construction Survey

Because there is marginal habitat present within small pockets of open habitat with sparse vegetation in the adjacent parcels to the study area and within the staging area to support the presence of coastal whiptail, western yellow bat, and LA pocket mouse, a pre-construction survey prior to ground disturbance activity shall be carried out by a qualified biologist. Worker Environmental Awareness Program (WEAP) training shall also be conducted prior to any ground disturbance activities, to address the potential for these species to occur within the project area. The training will address best management practices (BMPs) prior to, during, and after construction, including appropriate protocol to follow if any special-status species are identified. All participants in construction activities will be required to attend this training prior to ground disturbance, and a signature from each participant will be required at the conclusion of the training.

Preconstruction surveys should be conducted no more than three days prior to the start of clearance/construction work. This survey will include 100 percent ground coverage transects on foot to look for evidence of coastal whiptail, LA pocket mouse, and yellow bat. Additionally, surveys for yellow bat will consist of a visual inspection on foot of all trees adjacent to the work area, and an evening emergence survey. If found, species will be avoided, or relocated out of the project area in direct coordination with CDFW. If ground-disturbing activities are delayed, additional preconstruction surveys should be conducted so that no more than three days have elapsed between the survey and ground-disturbing activities. With the implementation of the above mitigation measures, impacts to biological resources would be less than significant.

Sensitive Plant Communities

The study area did not contain riparian habitat, sage scrub, or other sensitive natural communities. The study area is highly developed and disturbed, with residential and commercial infrastructure present throughout. Areas lacking commercial and residential communities contain landscaped public parks and other small, fragmented open spaces for recreation.

Jurisdictional Waters and Wetlands

The study area does not contain any jurisdictional drainages or wetlands, and does not contain vegetational features, which are all likely due to anthropogenic uses and the developed nature. As such, no impacts to jurisdictional waters and wetlands are expected with implementation of the proposed project.

Riparian/Riverine, Vernal Pool and Fairy Shrimp Habitat

Based upon the findings of Rincon's reconnaissance survey, no riparian/riverine habitat is present within the project site. The construction footprint of the groundwater pipeline would be limited to Perris Boulevard and Ironwood Avenue, with surrounding sites consisting of parks, disturbed lots, developed areas, and sites undergoing residential and industrial development. No riparian/riverine habitat occurs within the proposed project site or staging area. Therefore, no further actions related to riparian/riverine habitat are required pursuant to the MSHCP. Additionally, no jurisdictional features under the jurisdiction of the USACE, RWQCB, or CDFW are located within the project site.

No vernal pools or fairy shrimp habitat were observed within the study area. The project site is underlain by moderately to excessively well-drained soils. Overall, the project site, including the staging area, are heavily disturbed, containing existing development, are currently unvegetated, developed, or dominated by exotic upland species not conducive to supporting vernal pools or vernal pool species. Additionally, there was no evidence of standing water observed on site or within the laydown area. No vernal pool or fairy shrimp habitat occurs within the project site; and therefore, no further actions related to vernal pools are required pursuant to the MSHCP.

Wildlife Movement

As discussed above, the study area is not located within an MSHCP Criteria Area, Public-Quasi Public Reserve Lands or within a Core or Linkage (RCA 2022). In addition, CDFW BIOS (2022b) does not include any mapped essential habitat connectivity areas within the immediate vicinity of the site. The closest mapped essential habitat connectivity areas are located approximately five (5) miles to the northeast adjacent to Kamila Hills and approximately 1.1 miles to the northwest in the vicinity of Box Springs Mountain Reserve Park. The site is separated from these habitat connectivity areas by existing development and paved roadways. In addition, the site is surrounded by existing development and heavily traveled transportation corridors, including the Interstate 60 freeway; therefore, the site and staging area is not expected to contribute to a significant migratory wildlife corridor. Therefore, no impacts to wildlife movement are expected.

Local Policies and Ordinances

Stephens' Kangaroo Rat Plan Area

The project is subject to the County of Riverside Ordinance No. 663 (Stephens' Kangaroo Rat Mitigation Fee Ordinance) which requires that all proposed development projects located within the fee area are reviewed to determine the most appropriate course of action to ensure the survival of the species through one or more of the following: (1) on-site mitigation of impacts to the Stephens' Kangaroo Rat through the reservation or addition of lands included within or immediately adjacent to a potential habitat reserve site, or (2) payment of the Mitigation Fee or (3) any combination of (1) and (2) consistent with the intent and purpose of the ordinance. The project site lacks suitable grassland, coastal scrub, and sagebrush habitat to support the species. The site is highly urbanized and disturbed, and the small, vacant areas intermittently dispersed throughout the site are surrounded by residential and commercial infrastructure. This species is not expected to be present within the study area and any non-developed habitat is considered unsuitable given its disturbed and fragmented nature. Therefore, the proposed project would not result in impacts to or loss of suitable habitat for Stephens' kangaroo rat.

Protected Trees

The project is subject to the City's Tree Management Policy (Ord. 923 § 1, 2017) within the City's Municipal Code, Chapter 14.40 Tree Care. Trees located in the public right-of-way, parkway, or in a public park, shall be maintained by the responsible party or entity in compliance with International Society of Arboriculture (ISA) recommendations and ANSI A300 Standards. This policy defines a tree as any woody plant, which is 15 feet or more in height at maturity, with a single or multiple trunks, often unbranched for several feet above the ground and having a definite crown. This policy declares that all persons and public entities shall comply with provisions of this policy, including any amendments. Additionally, the City of Moreno Valley Municipal Code protects heritage trees, defined as those with a 15" diameter (measured at 24 inches above ground level). No person shall cut, destroy, top, or disfigure a heritage tree within city limits, excluding trees grown in nurseries and tree farms for sale. No city tree or heritage removal is proposed and therefore no City-protected trees would be impacted by the project.

Conservation Plans

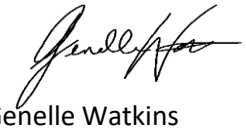
The proposed project is located within the boundaries of the Western Riverside MSHCP. None of the project alignment is located within existing or proposed reserve or criteria areas of the MSHCP. The proposed project is not located within a criteria cell or within Public/Quasi Public conserved lands. The closest Public/Quasi-Public conserved lands are located approximately 0.6 mile northwest of Groundwater Well 66 Opt. D-3 at the Poorman Reservoir. Based on the project site's distance and separation from Public/Quasi-Public lands and the existing development between them, the proposed project is not expected to impact these conserved areas. Throughout the project site the potential for burrowing owl to occur is low given that the site is located within highly disturbed areas surrounded by urban development which would normally deter individuals from long-term use of the site. Indirect impacts are not expected with the implementation of the mitigation measures proposed; additionally, any project related disturbances would not rise above current existing levels found at the project site as the adjacent areas contain heavy vehicular traffic on the adjacent paved roads, public sidewalks, and

residential and commercially developed areas. The project would therefore not conflict with the provisions of the MSHCP.

Thank you for the opportunity to provide this BRTS. Please contact the undersigned with any questions.

Sincerely,

Rincon Consultants, Inc.



Genelle Watkins
Biologist/Certified Arborist (WE 12998 A)

Angie Harbin
Natural Resources Director

Attachments

Figures

Attachment 1 Project Site Photographs

Attachment 2 Observed Plant and Animal Species List

Attachment 3 Special Status Species Potential for Occurrence

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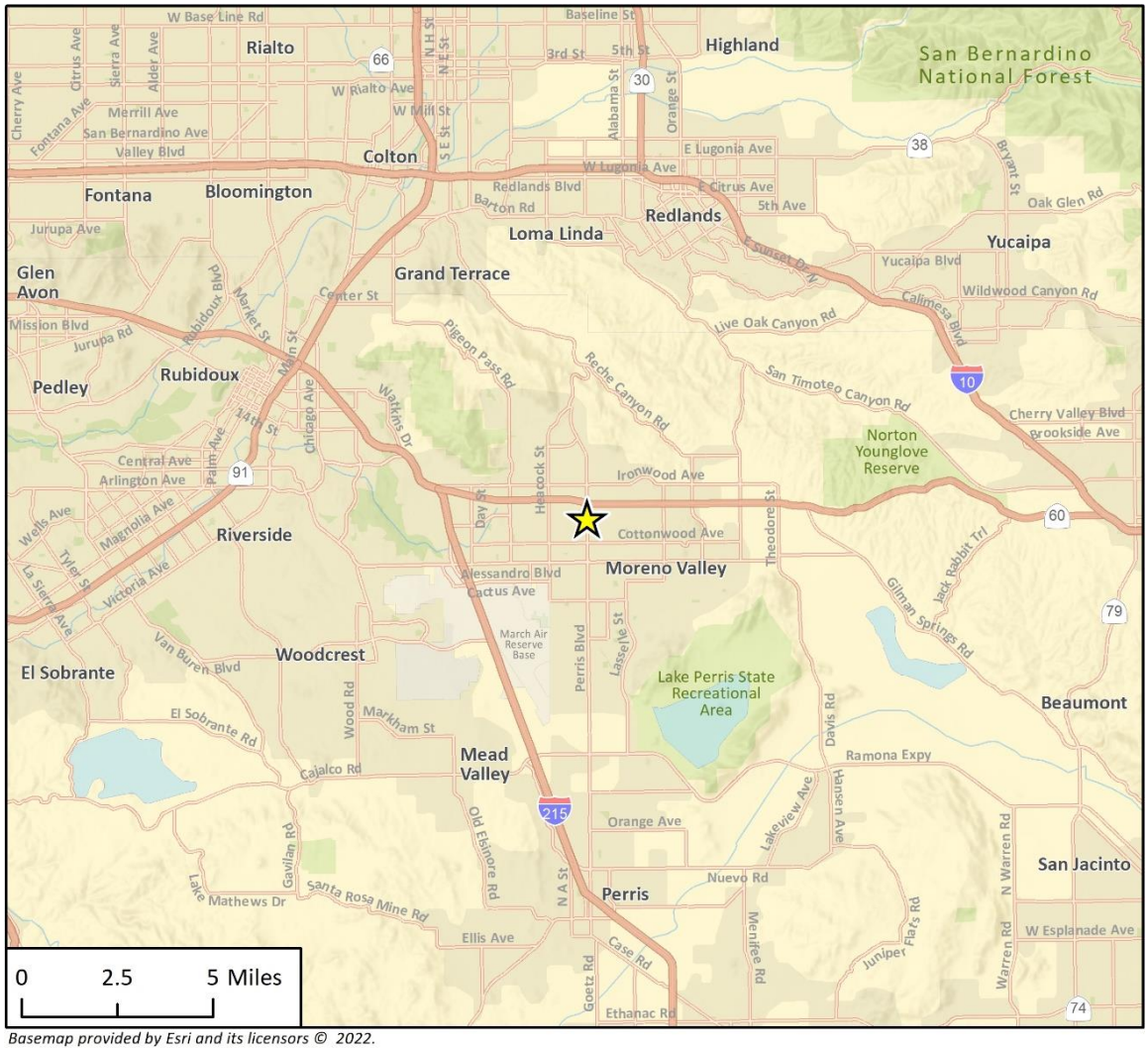
Figure 1 Regional Location



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Project Location

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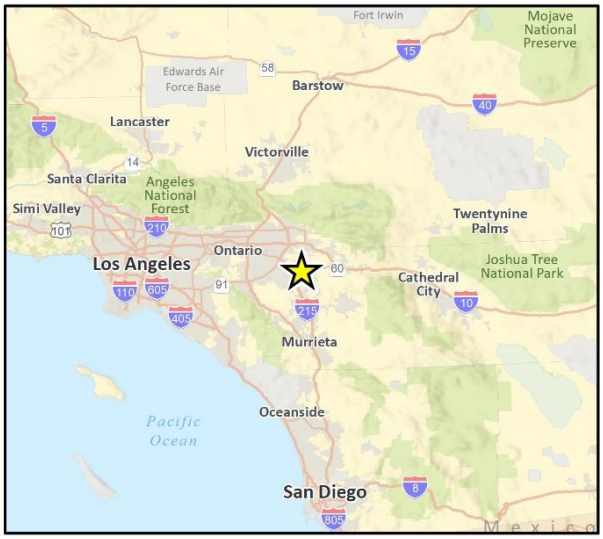

Figure 2 Project Location

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Figure 3 USDA NRCS Soils Map

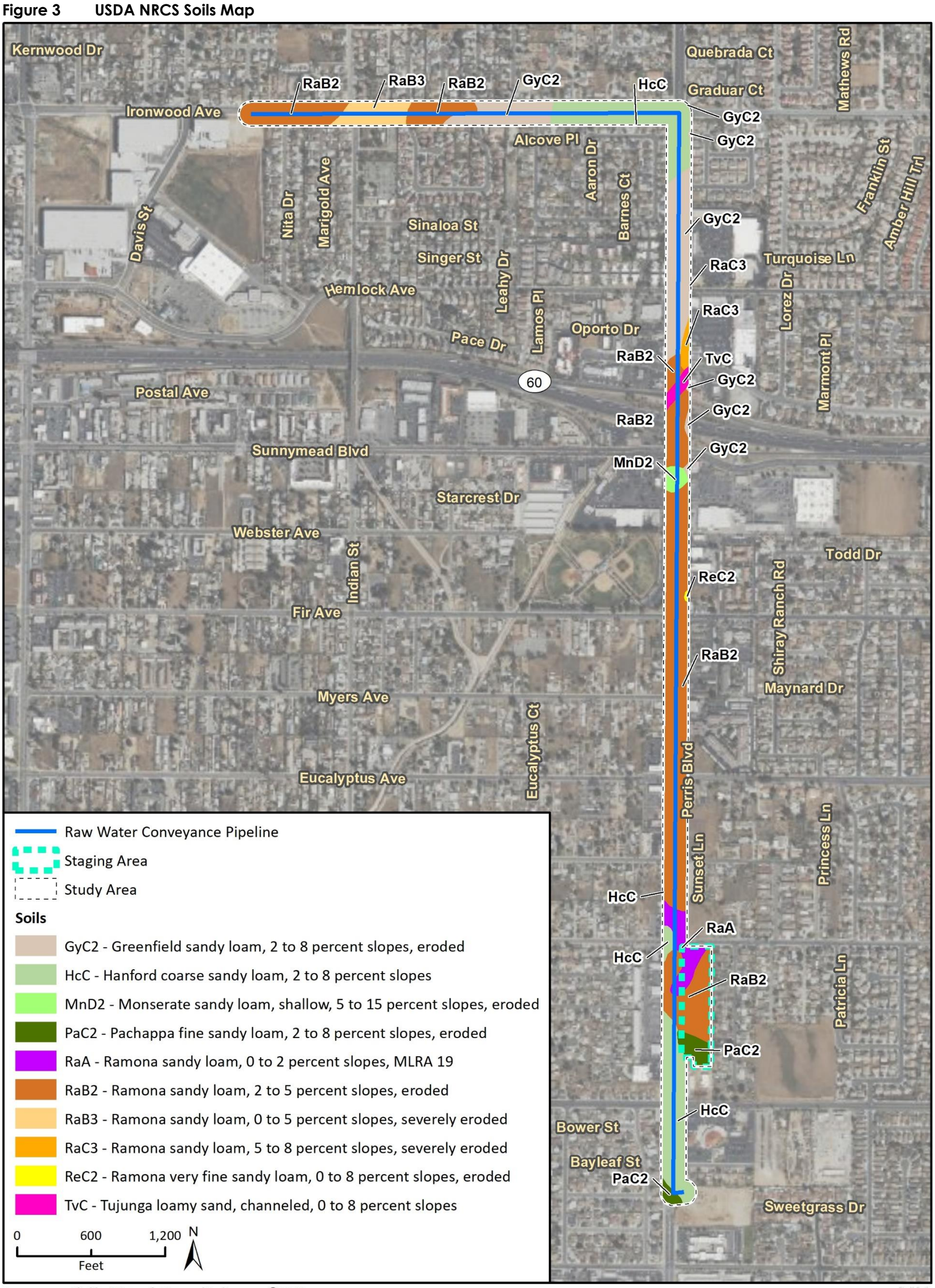

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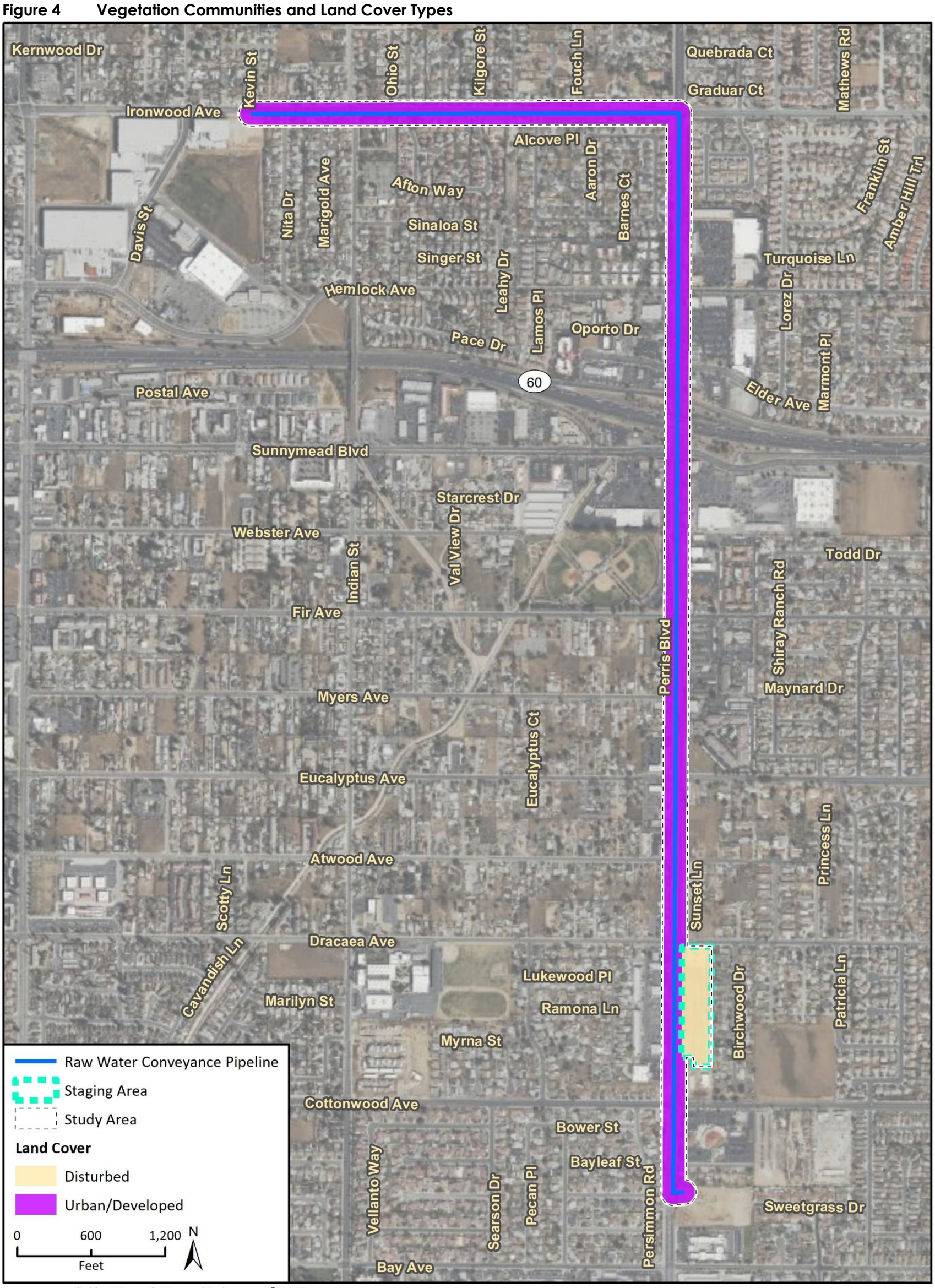
Figure 4 Vegetation Communities and Land Cover Types



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Attachment 1

Project Site Photographs

Photograph 1. Staging/laydown area, at northern edge, south of Dracaea Avenue. View to the south. Site is completely disturbed with ornamental trees and grasses in the adjacent residential community.

Photograph 2. Staging/laydown area, at the northern edge, center of the site. View to the south with scattered non-native vegetation. Site is completely disturbed and recently tilled.

Photograph 3. Pipeline segment at intersection of Perris Blvd and St Christopher Lane, facing north. Note Tree of Heaven and Peruvian pepper trees) alongside the road.

Photograph 4. Pipeline segment at the intersection of Perris Blvd and Fir Avenue, facing south. Sunnymead Park, to off camera to the right, is characterized by landscape vegetation such as Mexican fan palm, London plane, and treasure flower.

Photograph 5. Pipeline segment at Abbey Lane and Perris Blvd, facing south. Area developed with commercial infrastructure and resident communities; landscaped vegetation scattered throughout both.

Photograph 6. Abandoned structure at Ironwood Avenue and Kilgore Street. Entire area was fenced off and inaccessible.

Photograph 7. End of the project site at Well 66. Photo taken at northern section facing southwest, showing completely disturbed and graded conditions.

Photograph 8. End of pipeline segment at Ironwood Avenue and Nita Drive, adjacent to Well 66. Photo facing east, displaying the ornamental oleander (*Nerium oleander*) and lemon gum eucalyptus (*Corymbia citriodora*), with residential homes along the perimeter.

Attachment 2

Observed Species List

Observed Animal Species List

Scientific Name	Common Name	Status (if applicable)[1]	Native or Introduced
Birds			
Archilochus alexandri	black-chinned hummingbird		Native
Calypte anna	Anna's hummingbird		Native
Corvus brachyrhynchos	American crow		Native
Corvus corax	common raven		Native
Haemorhous mexicanus	house finch		Native
Melospiza melodia	song sparrow		Native
Mimus polyglottos	northern mockingbird		Native
Passer domesticus	house sparrow		Introduced
Petrochelidon pyrrhonota	cliff swallow		Native
Zenaida macroura	mourning dove		Native

[1] Listed on the Special Animal List (July 2022) (CDFW 2022d).

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Observed Plant Species List

Scientific Name	Common Name	Status (if applicable)[1]	Native or Introduced[2]
Agave americana	century plant		Introduced
Ailanthus altissima	Tree of Heaven		Introduced, Cal-IPC Moderate
Ambrosia spp.	bursage		Native
Avena fatua	wild oat		Introduced, Cal-IPC Moderate
Brassica nigra	black mustard		Introduced; Cal-IPC Moderate
Bromus diandrus	ripgut brome		Introduced; Cal-IPC Moderate
Callistemon citrinus	crimson bottlebrush		Introduced
Cinnamomum camphora	camphor tree		Introduced
Corymbia citriodora	lemon gum eucalyptus		Introduced
Datura wrightii	jimson weed		Native
Dietes iridioides	African iris		Introduced
Gazania rigens	treasure flower		Introduced
Helianthus annuus	common sunflower		Introduced
Hirschfeldia incana	short pod mustard		Introduced, Cal-IPC Moderate
Jacaranda mimosifolia	Jacaranda		Introduced
Juniperus horizontalis	creeping juniper		Native
Koelreuteria paniculata	goldenrain		Introduced
Lactuca serriola	prickly lettuce		Introduced
Lantana camara	lantana		Introduced; Cal-IPC Watch
Legerstroemia	crepe myrtle		Introduced
Ligustrum lucidum	glossy privet		Introduced; Cal-IPC Limited
Liquidambar styraciflua	Liquid gum		Introduced
Nerium oleander	oleander		Introduced
Olea europaea	European olive		Introduced; Cal-IPC Limited
Pennisetum setaceum	fountain grass		Introduced; Cal-IPC High
Phoenix canariensis	canary island date palm		Introduced; Cal-IPC Limited
Pittosporum undulatum	Pittosporum		Introduced; Cal-IPC Watch
Plantanus x acerifolia	London plane		Native (hybrid)
Salsola tragus	Prickly russian thistle		Introduced; Cal-IPC Limited
Schinus molle	Peruvian pepper		Introduced; Cal-IPC Limited
Silybum marianum	milk thistle		Introduced; Cal-IPC Limited
Syagrus romanzoffiana	Queen palm		Introduced
Taraxacum officinale	common dandelion		Native
Trachelospermum jasminoides	star jasmine		Introduced
Washingtonia robusta	Mexican fan palm		Introduced; Cal-IPC Moderate

[1] CRPR: California Rate Plant Rank

[1] Listed on the Special Vascular Plants, Bryophytes, And Lichens List (July 2022) (CDFW 2022c).

[2] Jepson 2012 and Cal-IPC 2022

Attachment 3

Special Status Species Potential for Occurrence

Table 2 Special Status Species Potential for Occurrence

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Plants and Lichens				
Abronia villosa var. aurita chaparral sand-verbena"	None/None G5T2?/S2 1B.1"	Annual herb. Chaparral, coastal scrub, desert dunes. Sandy. Elevations: 245-5250ft. (75-1600m.) Blooms (Jan)Mar-Sep.	No potential	Project site does not provide suitable habitat to support species
Allium munzii Munz's onion	FE/SCT G1/S1 1B.1	Perennial bulbiferous herb. Chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland. Clay, mesic. Elevations: 975-3510ft. (297-1070m.) Blooms Mar-May.	No potential	Project site does not provide suitable habitat to support species
Artemisia palmeri San Diego sagewort	None/None G3?/S3? 4.2	Perennial deciduous shrub. Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland. Mesic, sandy. Elevations: 50-3000ft. (15-915m.) Blooms (Feb)May-Sep.	No potential	Project site does not provide suitable habitat to support species
Asplenium vespertinum western spleenwort	None/None G4/S4 4.2	Perennial rhizomatous herb. Chaparral, cismontane woodland, coastal scrub. Rocky. Elevations: 590-3280ft. (180-1000m.) Blooms Feb-Jun.	No potential	Project site does not provide suitable habitat to support species
Astragalus hornii var. hornii Horn's milk-vetch	None/None GUT1/S1 1B.1	Annual herb. Meadows and seeps, playas. Alkaline, lake margins. Elevations: 195-2790ft. (60-850m.) Blooms May-Oct.	No potential	Project site does not provide suitable habitat to support species
Astragalus pachypus var. jaegeri Jaeger's milk-vetch	None/None G4T1/S1 1B.1	Perennial shrub. Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. Rocky (sometimes), sandy (sometimes). Elevations: 1200-3200ft. (365-975m.) Blooms Dec-Jun.	No potential	Project site does not provide suitable habitat to support species
Atriplex coronata var. notatior San Jacinto Valley crownscale	FE/None G4T1/S1 1B.1	Annual herb. Playas, valley and foothill grassland, vernal pools. Alkaline. Elevations: 455-1640ft. (139-500m.) Blooms Apr-Aug.	No potential	Project site does not provide suitable habitat to support species
Atriplex parishii Parish's brittlescale	None/None G1G2/S1 1B.1	Annual herb. Chenopod scrub, playas, vernal pools. Alkaline. Elevations: 80-6235ft. (25-1900m.) Blooms Jun-Oct.	No potential	Project site does not provide suitable habitat to support species
Berberis nevinii Nevin's barberry	FE/SCE G1/S1 1B.1	Perennial evergreen shrub. Chaparral, cismontane woodland, coastal scrub, riparian scrub. Gravelly (sometimes), sandy (sometimes). Elevations: 230-2705ft. (70-825m.) Blooms (Feb)Mar-Jun.	No potential	Project site does not provide suitable habitat to support species

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Brodiaea filifolia thread-leaved brodiaea	"FT/SCE G2/S2 1B.1"	Perennial bulbiferous herb. Chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools. Clay (often). Elevations: 80-3675ft. (25-1120m.) Blooms Mar-Jun.	No potential	Project site does not provide suitable habitat to support species
Calochortus plummerae Plummer's mariposa-lily	"None/None G4/S4 4.2"	Perennial bulbiferous herb. Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Granitic, rocky. Elevations: 330-5580ft. (100-1700m.) Blooms May-Jul.	No potential	Project site does not provide suitable habitat to support species
Carex comosa bristly sedge	"None/None G5/S2 2B.1"	Perennial rhizomatous herb. Coastal prairie, marshes and swamps, valley and foothill grassland. Lake margins, wet places; site below sea level is on a Delta island. Elevations: 0-2050ft. (0-625m.) Blooms May-Sep.	No potential	Project site does not provide suitable habitat to support species
Caulanthus simulans Payson's jewelflower	"None/None G4/S4 4.2"	Annual herb. Chaparral, coastal scrub. Granitic, sandy. Elevations: 295-7220ft. (90-2200m.) Blooms (Feb)Mar-May(Jun).	No potential	Project site does not provide suitable habitat to support species
Centromadia pungens ssp. laevis smooth tarplant	"None/None G3G4T2/S2 1B.1"	Annual herb. Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland. Alkaline. Elevations: 0-2100ft. (0-640m.) Blooms Apr-Sep.	No potential	Alhtough last occurrence recorded approximately 4 miles away; habitat and sandy loam soils not suitable to support species
Chorizanthe leptotheca Peninsular spineflower	"None/None G3/S3 4.2"	Annual herb. Chaparral, coastal scrub, lower montane coniferous forest. Granitic. Elevations: 985-6235ft. (300-1900m.) Blooms May-Aug.	No potential	Project site does not provide suitable habitat to support species
Chorizanthe parryi var. parryi Parry's spineflower	"None/None G3T2/S2 1B.1"	Annual herb. Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. Openings, Rocky (sometimes), sandy (sometimes). Elevations: 900-4005ft. (275-1220m.) Blooms Apr-Jun.	No potential	Project site does not provide suitable habitat to support species
Chorizanthe polygonoides var. longispina long-spined spineflower	"None/None G5T3/S3 1B.2"	Annual herb. Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools. Clay (often). Elevations: 100-5020ft. (30-1530m.) Blooms Apr-Jul.	No potential	Project site does not provide suitable habitat to support species
Chorizanthe xanti var. leucotheca white-bracted spineflower	"None/None G4T3/S3 1B.2"	Annual herb. Coastal scrub, mojavean desert scrub, pinyon and juniper woodland. Gravelly (sometimes), sandy (sometimes). Elevations: 985-3935ft. (300-1200m.) Blooms Apr-Jun.	No potential	Project site does not provide suitable habitat to support species

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Convolvulus simulans small-flowered morning-glory	"None/None G4/S4 4.2"	Annual herb. Chaparral, coastal scrub, valley and foothill grassland. Clay, seeps, serpentinite. Elevations: 100-2430ft. (30-740m.) Blooms Mar-Jul.	No potential	Project site does not provide suitable habitat to support species
Deinandra paniculata paniculate tarplant	"None/None G4/S4 4.2"	Annual herb. Coastal scrub, valley and foothill grassland, vernal pools. Usually in vernally mesic sites. Sometimes in vernal pools or on mima mounds near them. Elevations: 80-3085ft. (25-940m.) Blooms (Mar)Apr-Nov.	No potential	Project site does not provide suitable habitat to support species
Diplacus clevelandii Cleveland's bush monkeyflower	"None/None G4/S4 4.2"	Perennial rhizomatous herb. Chaparral, cismontane woodland, lower montane coniferous forest. Disturbed gravelly roadsides and slopes. Gabbro soils. Elevations: 1475-6560ft. (450-2000m.) Blooms Apr-Jul.	No potential	Project site does not provide suitable habitat to support species
Dodecahema leptoceras slender-horned spineflower	"FE/SCE G1/S1 1B.1"	Annual herb. Chaparral, cismontane woodland, coastal scrub. Flood deposited terraces and washes; associates include Encelia, Dalea, Lepidospartum, etc. Sandy soils. Elevations: 655-2495ft. (200-760m.) Blooms Apr-Jun.	No potential	Project site does not provide suitable habitat to support species
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woollystar	FE/SCE G4T1/S1 1B.1	Perennial herb. Chaparral, coastal scrub. In sandy soils on river floodplains or terraced fluvial deposits. Elevations: 300-2000ft. (91-610m.) Blooms Apr-Sep.	No potential	Project site does not provide suitable habitat to support species
Galium californicum ssp. *primum* Alvin Meadow bedstraw	None/None G5T2/S2 1B.2	Perennial herb. Chaparral, lower montane coniferous forest. Grows in shade of trees and shrubs at the lower edge of the pine belt, in pine forest-chaparral ecotone. Granitic, sandy soils. Elevations: 4430-5580ft. (1350-1700m.) Blooms May-Jul.	No potential	Project site does not provide suitable habitat to support species
Harpagonella palmeri Palmer's grapplinghook	None/None G4/S3 4.2	Annual herb. Chaparral, coastal scrub, valley and foothill grassland. Clay soils; open grassy areas within shrubland. Elevations: 65-3135ft. (20-955m.) Blooms Mar-May.	No potential	Project site does not provide suitable habitat to support species
Helianthus nuttallii ssp. *parishii* Los Angeles sunflower	None/None G5TX/SX 1A	Perennial rhizomatous herb. Marshes and swamps. Elevations: 35-5005ft. (10-1525m.) Blooms Aug-Oct.	No potential	Project site does not provide suitable habitat to support species

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Hordeum intercedens vernal barley	None/None G3G4/S3S4 3.2	Annual herb. Coastal dunes, coastal scrub, valley and foothill grassland, vernal pools. Vernal pools, dry, saline streambeds, alkaline flats. 5-. Elevations: 15-3280ft. (5-1000m.) Blooms Mar-Jun.	No potential	Project site does not provide suitable habitat to support species
Horkelia cuneata var. *puberula* mesa horkelia	None/None G4T1/S1 1B.1	Perennial herb. Chaparral, cismontane woodland, coastal scrub. Sandy or gravelly sites. Elevations: 230-2660ft. (70-810m.) Blooms Feb-Jul(Sep).	No potential	Project site does not provide suitable habitat to support species
Imperata brevifolia California satintail	None/None G4/S3 2B.1	Perennial rhizomatous herb. Chaparral, coastal scrub, meadows and seeps, mojavean desert scrub, riparian scrub. Mesic sites, alkali seeps, riparian areas. 3-. Elevations: 0-3985ft. (0-1215m.) Blooms Sep-May.	No potential	Project site does not provide suitable habitat to support species
Juglans californica Southern California black walnut	None/None G4/S4 4.2	Perennial deciduous tree. Chaparral, cismontane woodland, coastal scrub, riparian woodland. Slopes, canyons, alluvial habitats. Elevations: 165-2955ft. (50-900m.) Blooms Mar-Aug.	Not present	Tree not present on site
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	None/None G4T2/S2 1B.1	Annual herb. Marshes and swamps, playas, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. 1-. Elevations: 5-4005ft. (1-1220m.) Blooms Feb-Jun.	No potential	Project site does not provide suitable habitat to support species
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	None/None G5T3/S3 4.3	Annual herb. Chaparral, coastal scrub. Dry soils, shrubland. 4-. Elevations: 5-2905ft. (1-885m.) Blooms Jan-Jul.	No potential	Project site does not provide suitable habitat to support species
Lilium humboldtii ssp. *ocellatum* ocellated Humboldt lily	None/None G4T4?/S4? 4.2	Perennial bulbiferous herb. Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland. Yellow-pine forest or openings, oak canyons. Elevations: 100-5905ft. (30-1800m.) Blooms Mar-Jul(Aug).	No potential	Project site does not provide suitable habitat to support species
Lycium parishii Parish's desert-thorn	None/None G4/S1 2B.3	Perennial shrub. Coastal scrub, sonoran desert scrub. Elevations: 445-3280ft. (135-1000m.) Blooms Mar-Apr.	No potential	Project site does not provide suitable habitat to support species
Myosurus minimus ssp. *apus* little mousetail	None/None G5T2Q/S2 3.1	Annual herb. Valley and foothill grassland, vernal pools. Alkaline soils. Elevations: 65-2100ft. (20-640m.) Blooms Mar-Jun.	No potential	Project site does not provide suitable habitat to support species

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Nama stenocarpa mud nama	None/None G4G5/S1S2 2B.2	Annual/perennial herb. Marshes and swamps. Lake shores, river banks, intermittently wet areas. Elevations: 15-1640ft. (5-500m.) Blooms Jan-Jul.	No potential	Project site does not provide suitable habitat to support species
Navarretia fossalis spreading navarretia	FT/None G2/S2 1B.1	Annual herb. Chenopod scrub, marshes and swamps, playas, vernal pools. San Diego hardpan and San Diego claypan vernal pools; in swales and vernal pools, often surrounded by other habitat types. Elevations: 100-2150ft. (30-655m.) Blooms Apr-Jun.	No potential	Project site does not provide suitable habitat to support species
Pseudorontium cyathiferum Deep Canyon snapdragon	None/None G4G5/S1 2B.3	Annual herb. Sonoran desert scrub. Rocky sites. Elevations: 0-2625ft. (0-800m.) Blooms Feb-Apr.	No potential	Project site does not provide suitable habitat to support species
Quercus engelmannii Engelmann oak	None/None G3/S3 4.2	Perennial deciduous tree. Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Elevations: 165-4265ft. (50-1300m.) Blooms Mar-Jun.	No potential	Project site does not provide suitable habitat to support species
Romneya coulteri Coulter's matilija poppy	None/None G4/S4 4.2	Perennial rhizomatous herb. Chaparral, coastal scrub. In washes and on slopes; also after burns. Elevations: 65-3935ft. (20-1200m.) Blooms Mar-Jul(Aug).	No potential	Project site does not provide suitable habitat to support species
Senecio aphanactis chaparral ragwort	None/None G3/S2 2B.2	Annual herb. Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. Elevations: 50-2625ft. (15-800m.) Blooms Jan-Apr(May).	No potential	Project site does not provide suitable habitat to support species
Sidalcea neomexicana salt spring checkerbloom	None/None G4/S2 2B.2	Perennial herb. Chaparral, coastal scrub, lower montane coniferous forest, mojavean desert scrub, playas. Alkali springs and marshes. Elevations: 50-5020ft. (15-1530m.) Blooms Mar-Jun.	No potential	Project site does not provide suitable habitat to support species
Sphenopholis obtusata prairie wedge grass	None/None G5/S2 2B.2	Perennial herb. Cismontane woodland, meadows and seeps. Open moist sites, along rivers and springs, alkaline desert seeps. Elevations: 985-6560ft. (300-2000m.) Blooms Apr-Jul.	No potential	Project site does not provide suitable habitat to support species
Texosporium sancti-jacobi woven-spored lichen	None/None G3/S2 3	Crustose lichen (terricolous). Chaparral. Open sites; in California with Adenostoma fasciculatum, Eriogonum, Selaginella. Found on soil, small mammal pellets, dead twigs, and on Selaginella. Elevations: 195-2165ft. (60-660m.)	No potential	Project site does not provide suitable habitat to support species

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Tortula californica California screw moss	None/None G2G3/S2? 1B.2	Moss. Chenopod scrub, valley and foothill grassland. Moss growing on sandy soil. Elevations: 35-4790ft. (10-1460m.)	No potential	Project site does not provide suitable habitat to support species
Invertebrates				
Bombus crotchii Crotch bumble bee	None/None G2/S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	No potential	Last occurrence recorded approx. 1.4 miles northwest of project in 2020. Habitat not suitable to support species due to lack of food plant genera
Neolarra alba white cuckoo bee	None/None GH/SH	Known only from localities in Southern California. Cleptoparasitic in the nests of perdita bees.	No potential	Project site does not provide suitable habitat to support species
Rhaphiomidas terminatus abdominalis Delhi Sands flower-loving fly	FE/None G1T1/S1	Found only in areas of the Delhi Sands formation in southwestern San Bernardino and northwestern Riverside counties. Requires fine, sandy soils, often with wholly or partly consolidated dunes and sparse vegetation. Oviposition req. shade.	No potential	Project site does not provide suitable habitat to support species
Streptocephalus woottoni Riverside fairy shrimp	FE/None G1G2/S1S2	Endemic to Western Riverside, Orange, and San Diego counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	No potential	Project site does not provide suitable habitat to support species
Amphibians				
Spea hammondii western spadefoot	None/None G2G3/S3 SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	No potential	Project site does not provide suitable habitat to support species
Reptiles				
Anniella stebbinsi Southern California legless lizard	None/None G3/S3 SSC	Generally south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County. Variety of habitats; generally in moist, loose soil. They prefer soils with a high moisture content.	No potential	Project site does not provide suitable habitat to support species

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Aspidoscelis hyperythra orange-throated whiptail	None/None G5/S2S3 WL	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major food: termites.	No potential	Project site does not provide suitable habitat to support species
Aspidoscelis tigris stejnegeri coastal whiptail	None/None G5T5/S3 SSC	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	Low potential	Project site's staging area provides limited suitable habitat to support species due to large open space staging area; however, site is highly developed/disturbed, lacking riparian and woodland areas
Charina umbratica southern rubber boa	None/ST G2G3/S2S3	Known from the San Bernardino and San Jacinto mtns; found in a variety of montane forest habitats. Snakes resembling C. umbratica reported from Mt. Pinos and Tehachapi mtns group with C. bottae based on mtDNA. Further research needed. Found in vicinity of streams or wet meadows; requires loose, moist soil for burrowing; seeks cover in rotting logs, rock outcrops, and under surface litter.	No potential	Project site does not provide suitable habitat to support species
Crotalus ruber red-diamond rattlesnake	None/None G4/S3 SSC	Chaparral, woodland, grassland, and desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	No potential	Project site does not provide suitable habitat to support species
Phrynosoma blainvillii coast horned lizard	None/None G3G4/S3S4 SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	No potential	Project site does not provide suitable habitat to support species
Salvadora hexalepis virgultea coast patch-nosed snake	None/None G5T4/S2S3 SSC	Brushy or shrubby vegetation in coastal Southern California. Require small mammal burrows for refuge and overwintering sites.	No potential	Project site does not provide suitable habitat to support species

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Birds				
Accipiter cooperii Cooper's hawk	None/None G5/S4 WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Low potential	Mature tree adjacent to project site provides suitable nesting habitat to support species
Aimophila ruficeps canescens southern California rufous-crowned sparrow	None/None G5T3/S3 WL	Resident in Southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	No potential	Project site does not provide suitable habitat to support species
Artemisiospiza belli belli Bell's sage sparrow	None/None G5T2T3/S3 WL	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range. Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yds apart.	No potential	suitable habitat present approx. 1.5 miles away; therefore, species may fly over, but site not suitable for nesting. Last recorded occurrence in 2002
Athene cunicularia burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low Potential	Suitable habitat present within open space staging area to support species. Last recorded occurrence approx. 2 miles away in the last 10 years
Buteo regalis ferruginous hawk	None/None G4/S3S4 WL	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	No potential	Project site lacks suitable habitat. Last occurrence recorded in 2005 approximately 3.2 miles from site.
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE G5T2T3/S1	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	No potential	Project site does not provide suitable habitat to support species
Eremophila alpestris actia California horned lark	None/None G5T4Q/S4 WL	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Low Potential	Limited suitable habitat exists on the project site to support species due to open space within the staging area. Last recorded occurrence approx. 4.8 miles from site

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Icteria virens yellow-breasted chat	None/None G5/S3 SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	No potential	Project site does not provide suitable habitat to support species
Lanius ludovicianus loggerhead shrike	None/None G4/S4 SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Low potential	Suitable foraging and scanning habitat on site to support species due to open space in staging area; nesting habitat not present.
Polioptila californica californica coastal California gnatcatcher	FT/None G4G5T3Q/S2 SSC	Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	No potential	Project site does not provide suitable habitat to support species
Setophaga petechia yellow warbler	None/None G5/S3S4 SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	No potential	Project site does not provide suitable habitat to support species
Spinus lawrencei Lawrence's goldfinch	None/None G3G4/S4	Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding. Closely associated with oaks.	No potential	Project site does not provide suitable habitat to support species
Vireo bellii pusillus least Bell's vireo	FE/SE G5T2/S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	No potential	Project site does not provide suitable habitat to support species
Mammals				
Chaetodipus fallax fallax northwestern San Diego pocket mouse	None/None G5T3T4/S3S4 SSC	Inhabits coastal sage scrub, sagebrush scrub, grasslands, and chaparral communities. Found in open, sandy areas in southwestern California and northern Baja California. Prefers moderately gravelly and rocky substrates.	No potential	Last recorded occurrence in 1999; however no suitable coastal sage scrub or brush habitat exists on project site

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Dipodomys merriami parvus San Bernardino kangaroo rat	FE/SCE G5T1/S1 SSC	Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains. Needs early to intermediate seral stages.	Not expected	Marginally suitable soil type within staging area has potential to support species; however, vegetation and land cover is not suitable.
Dipodomys stephensi Stephens' kangaroo rat	FE/ST G2/S2	Found primarily in annual & perennial grasslands, but also occurs in coastal scrub & sagebrush with sparse canopy cover. Prefers buckwheat, chamise, brome grass & filaree. Will burrow into firm soil and use the burrows of California ground squirrels and pocket gophers. Occurs only in southern California.	Not expected	Limited suitable soil type within staging area has potential to support species; however, area has recently been tilled, and is highly disturbed.
Eumops perotis californicus western mastiff bat	None/None G4G5T4/S3S4 SSC	Occurs in open, semi-arid to arid habitats, including coniferous and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces and caves, and buildings. Roosts typically occur high above ground.	No potential	Project site does not provide suitable habitat to support species
Lasiurus xanthinus western yellow bat	None/None G4G5/S3 SSC	Occurs in arid regions of the southwestern United States. Typically found in riparian woodlands, oak or pinyon-juniper woodland, desert wash, palm oasis habitats, and urban or suburban areas. Roosts in trees, often between palm fronds.	Low potential	Vacant structure and scattered palm trees adjacent to the project may provide limited habitat to support species; last occurrence recorded in 1980s.
Lepus californicus bennettii San Diego black-tailed jackrabbit	None/None G5T3T4/S3S4	Occurs in Los Angeles, San Bernardino, Riverside, and San Diego Counties of southern California. Typically found in open shrub habitats. Will also occur in woodland habitats with open understory adjacent to shrublands.	No potential	Project site does not provide suitable habitat to support species
Nyctinomops femorosaccus pocketed free-tailed bat	None/None G5/S3 SSC	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.	No potential	Project site does not provide suitable habitat to support species
Onychomys torridus ramona southern grasshopper mouse	None/None G5T3/S3 SSC	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover. Feeds almost exclusively on arthropods, especially scorpions and orthopteran insects.	No potential	Project site does not provide suitable habitat to support species

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Perognathus longimembris brevinasus Los Angeles pocket mouse	None/None G5T2/S1S2 SSC	Lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin. Open ground with fine, sandy soils. May not dig extensive burrows, hiding under weeds and dead leaves instead.	Low potential	Last occurrence recorded immediately adjacent to project in 1991. Only marginally suitable habitat within staging area.
Taxidea taxus American badger	None/None G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	No potential	Project site does not provide suitable habitat to support species

Status: Federal/State

FE = Federal Endangered
FT = Federal Threatened
CFT = Candidate Federal Threatened
FDL = Federal Delisted
SE = State Endangered
ST = State Threatened
SCE = Candidate State Endangered
SR = State Rare
SDL = State Delisted
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List

CRPR (CNPS California Rare Plant Rank)

1A = Presumed Extinct in California
1B = Rare, Threatened, or Endangered in California and elsewhere
2 = Rare, Threatened, or Endangered in California, but more common elsewhere
3 = Need more information (a Review List)
4 = Plants of Limited Distribution (a Watch List)

CRPR Threat Code Extension

.1 = Seriously endangered in California (>80% of occurrences threatened/high degree and immediacy of threat)
.2 = Fairly endangered in California (20-80% of occurrences threatened)
.3 = Not very endangered in California (<20% of occurrences threatened)

Other Statuses

G1 or S1	Critically Imperiled Globally or Subnationally (state)
G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common, and abundant
GH or SH	Possibly Extirpated – missing; known from only historical occurrences but still some hope of rediscovery

Additional notations may be provided as follows

T – Intraspecific Taxon (subspecies, varieties, and other designations below the level of species)
Q – Questionable taxonomy that may reduce conservation priority
? – Inexact numeric rank

APPENDIX C: HISTORICAL PROPERTIES IDENTIFICATION REPORT

Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project

Historic Properties Identification Report

prepared for

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Appendices

Executive Summary

Woodard & Curran retained Rincon Consultants, Inc. (Rincon) to prepare a Historic Properties Identification Report (HPIR) for the Eastern Municipal Water District's (EMWD) Raw Water Conveyance Pipeline Phase III Project (proposed project) in the city of Moreno Valley, Riverside County, California. The proposed project is part of the larger Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The proposed project, together with the other facilities of the Cactus Avenue Corridor Groundwater Wells Project, is part of the Perris North Basin Contamination Prevention and Remediation Program, which has an overall goal of cleaning up contamination areas of concern in the Perris North Groundwater Basin while also increasing EMWD local potable water supplies. The proposed project involves the installation of an 18-inch transmission pipeline along Ironwood Avenue from Well 65/66 to Perris Boulevard then south along Perris Boulevard from Ironwood Avenue to the site of a future centralized treatment plant.

This HPIR includes a cultural resources records search of the California Historical Resources Information System (CHRIS), a Sacred Lands File (SLF) search, additional background research, a pedestrian field survey, and the preparation of this HPIR. EMWD is likely to seek funding from the State Water Resources Control Board; therefore, this study has been completed in accordance with the requirements of a California Environmental Quality Act (CEQA)-Plus investigation, which includes an evaluation of project impacts under CEQA, Section 106 of the National Historic Preservation Act (NHPA), and the National Environmental Policy Act in case a federal nexus is established during the project (i.e., federal funding and/or permitting).

The CHRIS records search conducted by the Eastern Information Center identified nine previously recorded cultural resources within 0.5-mile of the proposed project Area of Potential Effects (APE). The recorded boundary of one resource (P-33-028824) is located 75 feet north of the APE across an adjacent roadway. P-33-028824 consists of an historic-period 15-foot by 6-foot foundation slab, a utility pole with 1930 and 1947 inspection nails, and a single clear glass bottle fragment.

A search of the SLF by the Native American Heritage Commission (NAHC) the returned negative results. Subsequently, outreach efforts were conducted with local Native American groups to obtain information on known Native American resources located in the project APE or vicinity. A total of nine responses have been received as of the date of this report. Seven tribes (Agua Caliente Band of Cahuilla Indians, Augustine Band of Cahuilla Mission Indians, Cahuilla Band of Indians, Pechanga Band of Luiseño Indians, Rincon Band of Luiseño Indians, Soboba Band of Luiseño Indians, and Serrano Nation of Mission Indians) expressed concerns, requested additional information, made suggestions, and/or requested consultation with the lead federal agency. One tribe (The Yuhaaviatam of San Manuel Nation) commented the proposed project is not located near any known cultural resources, and another tribe (The Fort Yuma Quechan) responded with no comments and stated they will defer to local tribes.

In addition, Rincon also conducted outreach with local historical groups to obtain additional information on historic-period cultural resources in the area. One response was received as of the date of this report (from the March Field Air Museum), with no comments or concerns in regard to the proposed project.

The pedestrian field survey of the proposed project APE did not identify any new archaeological or built environment resources. A Rincon archaeologist attempted to relocate the previously recorded

resource documented 75 feet north of the project APE (P-33-028824); however, the resource is located on a private plot of land with fencing blocking access. As this site is outside of the APE and will not be impacted by the project it requires no further management consideration.

The SLF search was returned with negative results and no cultural resources were identified within the proposed project APE as a result of the records search. Though several Tribes expressed concerns related to the proposed project, no specific Native American archaeological resources were identified within the APE as a result of the outreach conducted. Given the level of previous ground disturbance within the project area (i.e., grading and construction activities) the proposed project APE is considered to have low archaeological sensitivity. Based on the results of the records search, SLF search, Native American and local historical group outreach, and pedestrian field survey, no known unique archaeological resources, historical resources, or historic properties are located within the APE. Therefore, Rincon recommends a finding of ***no impact to historical resources and less-than-significant impact to archaeological resources*** under CEQA and ***no historic properties affected*** under Section 106 of NHPA. No further cultural resources work is recommended for the project.

Rincon presents the following recommendation in case of unanticipated discovery of cultural resources during project development. The project is also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

Unanticipated Discovery of Cultural Resources

In the event that archaeological resources are unexpectedly encountered during ground-disturbing activities, work within 50 feet of the find shall halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) shall be contacted immediately to evaluate the resource. If the resource is determined by the qualified archaeologist to be prehistoric, then a Native American representative shall also be contacted to participate in the evaluation of the resource. If the qualified archaeologist and/or Native American representative determines it to be appropriate, archaeological testing for California Register of Historical Resources (CRHR) eligibility shall be completed. If the resource proves to be eligible for the CRHR and significant impacts to the resource cannot be avoided via project redesign, a qualified archaeologist shall prepare a data recovery plan tailored to the physical nature and characteristics of the resource, per the requirements of California Code of Regulations (CCR) Guidelines Section 15126.4(b)(3)(C). The data recovery plan shall identify data recovery excavation methods, measurable objectives, and data thresholds to reduce any significant impacts to cultural resources related to the resource. Pursuant to the data recovery plan, the qualified archaeologist and Native American representative, as appropriate, shall recover and document the scientifically consequential information that justifies the resource's significance. EMWD shall review and approve the treatment plan and archaeological testing as appropriate, and the resulting documentation shall be submitted to the regional repository of the CHRIS, per CCR Guidelines Section 15126.4(b)(3)(C).

Human Remains

If human remains are found, regulations outlined in the State of California Health and Safety Code Section 7050.5 state no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified

immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of being granted access and provide recommendations as to the treatment of the remains to the landowner.

1 Introduction

Woodard & Curran retained Rincon Consultants, Inc. (Rincon) to prepare a Historic Properties Identification Report (HPIR) for the Eastern Municipal Water District (EMWD) Raw Water Conveyance Pipeline Phase III (project) located in the cities of Moreno Valley, Riverside County, California. The purpose of this report is to document the tasks Rincon conducted; specifically, a cultural resources records search, a Sacred Lands File (SLF) search, Native American outreach, local historical group outreach, historical imagery review, and a pedestrian field survey. Rincon understands EMWD may seek funding from the State Water Resources Control Board (SWRCB) for the project, and that federals funds may be used. Therefore, this cultural resources study was completed in accordance with California Environmental Quality Act (CEQA)-Plus standards for compliance with CEQA, the National Environmental Policy Act, and Section 106 of the National Historic Preservation Act (NHPA).

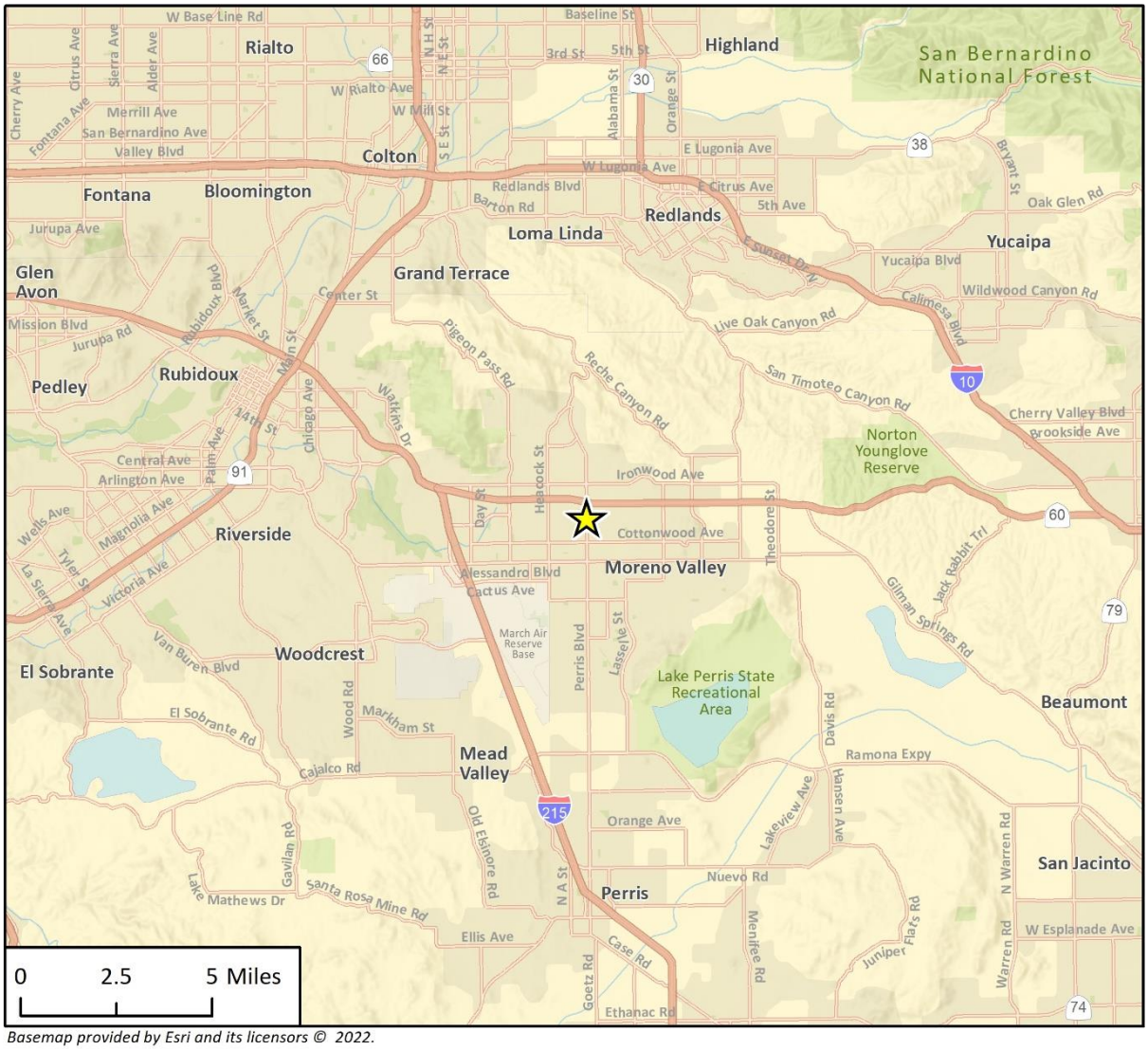
1.1 Project Undertaking Location

The proposed project Area of Potential Effects (APE) lies within the city of Moreno Valley in western Riverside County, California (see Figure 1, Figure 2, and Figure 3). More specifically, it lies in Township 2 South, Range 3 West, Section 31 and 32, and Township 3 South, Range 3 West, Sections 5-8 of the United States Geological Survey of *Sunnymead, California* 7.5-minute topographic quadrangle. The APE is in an area characterized by a mix of agricultural, residential, commercial, and light industrial development.

1.2 Project Undertaking Description

The proposed project consists of an 18-inch transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 65/66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program. The pipeline, which would be approximately 12,500 linear feet in total length, would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using “bore and jack” methods. One approximately 5-acre temporary construction staging area is also proposed, which will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue.

Figure 1 Regional Location Map



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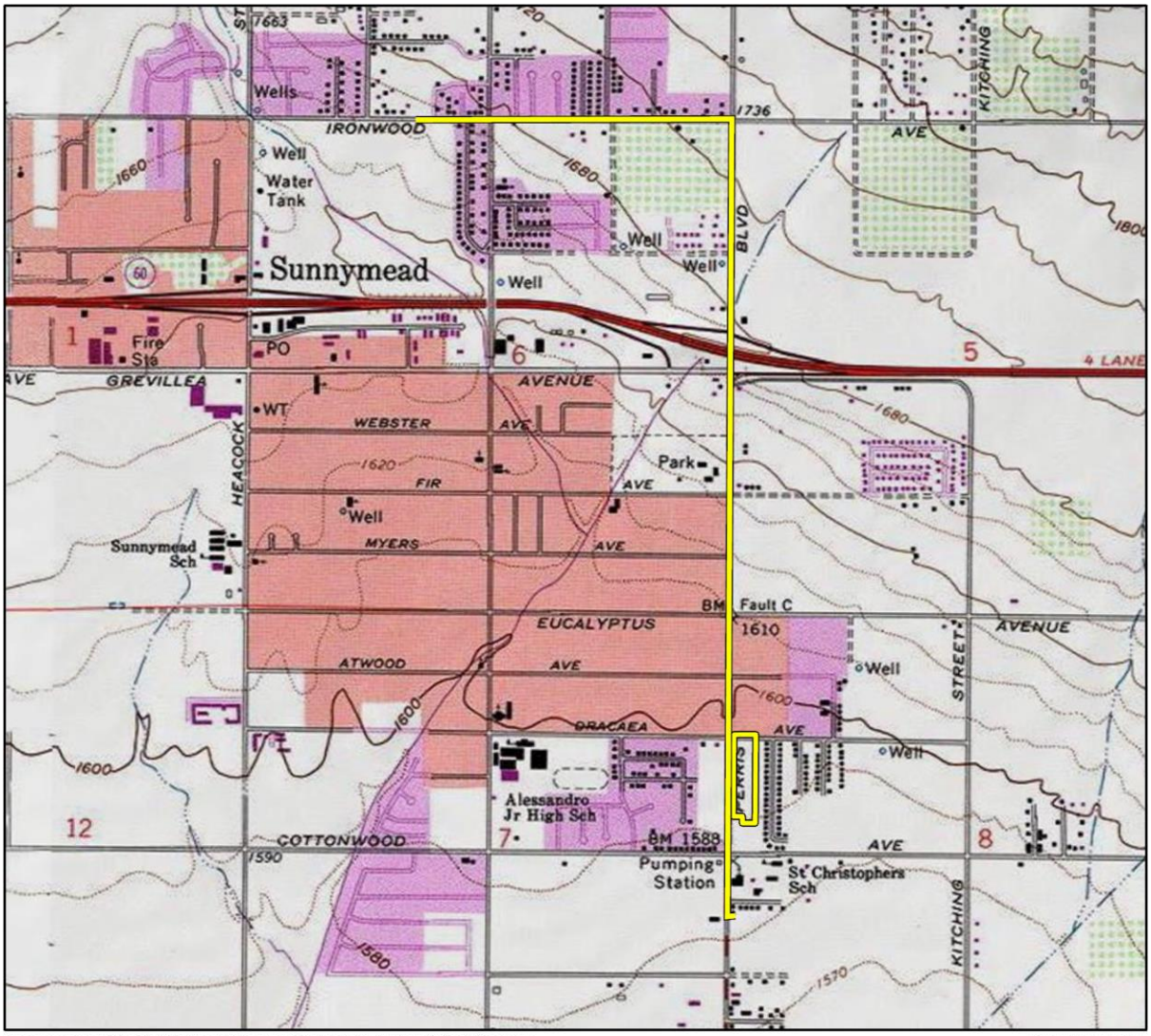
Project Location

N

Figure 2 Project Location Map



Basemap provided by National Geographic Society, Esri and their licensors © 2022. Sunnymead Quadrangle. T02S R03W S31,32 & T03S R03W S05-08. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

CRFig 1 Proj Locn Map

Project Location

0 1,000 2,000 Feet

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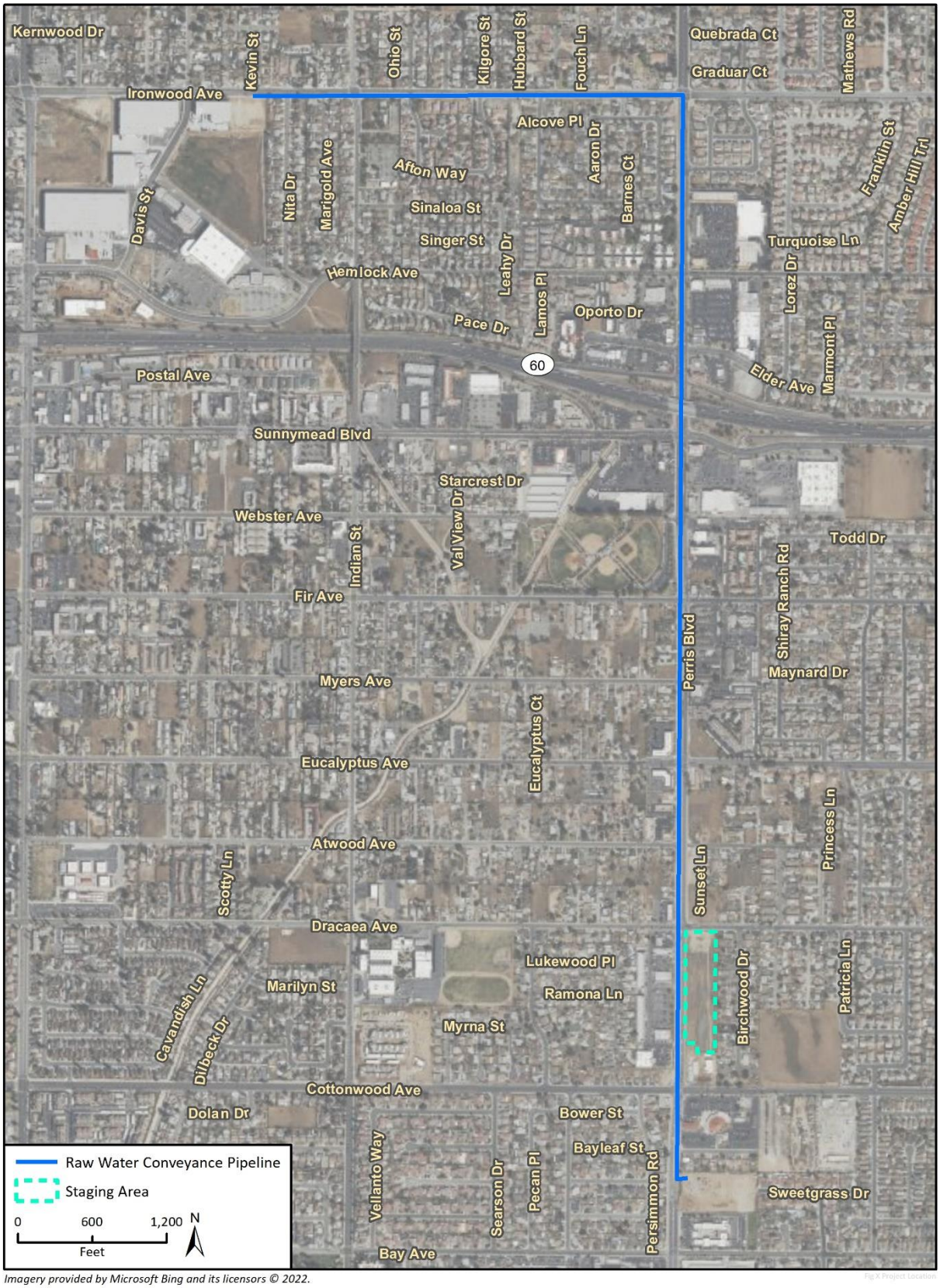
Figure 3 Raw Water Conveyance Pipeline and Staging Area



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The proposed project is part of the larger Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The proposed project, together with the other facilities of the Cactus Avenue Corridor Groundwater Wells Project, is part of the Perris North Basin Contamination Prevention and Remediation Program, which has an overall goal of cleaning up contamination areas of concern in the Perris North Groundwater Basin while also increasing EMWD local potable supplies. Currently, groundwater in the Perris North Groundwater Management Zone is contaminated. Potential contamination sources were identified by EMWD through implementation of the Drinking Water Source Assessment Program, as well as the SWRCB's GeoTracker and Department of Toxic Substances Control's EnviroStor database research, in developing a map of the comingled plume. The proposed project, together with the other facilities of the Cactus Corridor Groundwater Wells Project, would also augment local water supply in the EMWD service area. In doing so, it would reduce EMWD's need to purchase additional imported water.

1.3 Area of Potential Effects and Area of Direct Impact

The APE is the geographic area or areas in which an undertaking may directly or indirectly cause changes in the character or use of historic properties. Determination of the APE is influenced by the undertaking's setting, the scale and nature of the undertaking, and the different kinds of effects that may result from the undertaking (36 CFR 800.16[d]). The APE for the proposed project was developed in consultation with EMWD to identify resources in the area that have potential for historic significance, that should be evaluated for eligibility for the National Register of Historical Places (NRHP), and that may be directly or indirectly affected by the undertaking, pursuant to 36 CFR 800.16(d).

For the proposed project, the APE is coterminous with the proposed undertaking footprint (See Appendix A). In total, the acreage of the horizontal APE is approximately 53 acres. With the exception of the staging area, the APE is already developed, consisting of the rights-of-way for both Perris Boulevard and Ironwood Ave. The staging area consists of an empty dirt lot that has been heavily graded.

The APE must be considered as a three-dimensional space including any ground disturbance associated with construction. The below ground vertical APE is assumed to be a maximum of 40 feet below ground surface to account for the pits that may be necessary should the "bore and jack" method be utilized where trenchless installation techniques may be required; the maximum depth is limited to 40 feet due to the low potential for any intact cultural resources finds below that level.

The above ground vertical APE is assumed to be a maximum of 3 feet above ground surface to account for the height of the pipeline valve covers that will be installed to enclose air release and vacuum valves. After construction is complete, all pipeline construction areas would be restored to pre-construction conditions (i.e., no permanent disturbance footprint), with exception of the valve covers. Because most of the project elements will be subterranean, no indirect effects (i.e., visual, auditory, or atmospheric) are anticipated for the project.

1.4 Project Personnel

Rincon Principal Christopher Duran, MA, Registered Professional Archaeologist (RPA), reviewed this report for quality control. Mr. Duran meets the Secretary of the Interior's (SOI) Professional Qualifications Standards for historic and prehistoric archaeology (National Park Service 1983). Rincon Cultural Resources Program Manager Breana Campbell-King, MA, RPA, provided oversight

and reviewed the project for archaeological resources. Rincon Archaeologist and Cultural Resources Project Manager Leanna Flaherty, MA, RPA, provided project management, conducted Native American and historical group outreach, and is the primary author of this report. Both Ms. Campbell-King and Ms. Flaherty meet the SOI's Professional Qualifications Standards for prehistoric and historic archaeology. Archaeologist Laura Maldonado, MA, conducted Native American and historical group outreach and is a contributing author of this report. John C. Bergner IV, MA, RPA, was the field lead for this project. Geographic Information Systems Analyst Allysen Valencia prepared the figures found in this report.

2 Regulatory Setting

This section includes a discussion of the applicable federal, state, and local laws, ordinances, regulations, and standards governing cultural resources, to which the proposed project should adhere before and during implementation.

2.1 CEQA-Plus Studies

A CEQA-Plus study includes compliance with state regulations, as well as specific federal cross-cutting regulations pursuant to the requirements of the NEPA, in the event a federal nexus is established during the course of the undertaking's execution. A federal nexus may be established if federal funding and/or permitting is obtained or required. Compliance with both regulations allows the lead agency to apply the results of this technical study to both levels of regulation should a nexus be established later.

2.2 Federal

National Historic Preservation Act

The proposed project is considered a federal undertaking due to the potential for federal funding; it is, therefore, subject to Section 106 of the NHPA, which applies when a project, activity, or program is funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including projects carried out by or on behalf of a federal agency; those carried out with federal financial assistance; and those requiring a federal permit, license, or approval. Cultural resources are considered during federal undertakings chiefly under Section 106 of the NHPA of 1966 (as amended) and through one of its implementing regulations, 36 CFR 800 (Protection of Historic Properties), and the National Environmental Policy Act. Properties of traditional, religious, and cultural importance to Native Americans are considered under Section 101 (d)(6)(A) and Section 106 (36 CFR 800.3-800.10) of the NHPA. Other federal laws governing cultural resources include the Archaeological Data Preservation Act of 1974, the American Indian Religious Freedom Act of 1978, the Archaeological Resources Protection Act of 1979, and the Native American Graves Protection and Repatriation Act of 1989, among others.

Section 106 of the NHPA (16 United States Code 470f) requires federal agencies to take into account the effects of their undertakings on historic properties and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, the significance is assessed of any adversely affected historic property and mitigation measures are proposed to resolve the adverse effects to an acceptable level. Historic properties are those significant cultural resources listed in or are eligible for listing in the National Register of Historic Properties (NRHP). Generally, districts, sites, buildings, structures, and object that possess integrity are eligible for inclusion in the NRHP if they meet the following the criteria (36 CFR 60.4):

a. Are associated with events that have made a significant contribution to the broad patterns of our history
b. Are associated with the lives of persons significant in our past

c. Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
d. Have yielded, or may be likely to yield, information important in prehistory or history

Ordinarily, cemeteries, birthplaces, or graves of historic figures; properties owned by religious institutions or used for religious purposes; structures having been moved from their original locations; reconstructed historic buildings; and properties that are primarily commemorative in nature are not considered eligible for NRHP listing, unless they satisfy certain conditions. In general, a resource must be 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

National Register of Historic Places

Although the project does not have a federal nexus, properties which are listed in or have been formally determined eligible for listing in the NRHP are automatically listed in the CRHR. The following is therefore presented to provide applicable regulatory context. The NRHP was authorized by Section 101 of the National Historic Preservation Act and is the nation's official list of cultural resources worthy of preservation. The NRHP recognizes the quality of significance in American, state, and local history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects. Per 36 CFR Part 60.4, a property is eligible for listing in the NRHP if it meets one or more of the following criteria:

Criterion A: Are associated with events that have made a significant contribution to the broad patterns of our history

Criterion B: Are associated with the lives of persons significant in our past

Criterion C: Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction

Criterion D: Have yielded, or may be likely to yield, information important in prehistory or history

In addition to meeting at least one of the above designation criteria, resources must also retain integrity. The National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity. To retain integrity, a property must possess several, if not all, of these seven qualities, defined as follows:

Location: The place where the historic property was constructed or the place where the historic event occurred

Design: The combination of elements that create the form, plan, space, structure, and style of a property

Setting: The physical environment of a historic property

Materials: The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property

Workmanship: The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory

Feeling: A property's expression of the aesthetic or historic sense of a particular period of time

Association: The direct link between an important historic event or person and a historic property

Certain properties are generally considered ineligible for listing in the NRHP, including cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions, relocated structures, or commemorative properties. Additionally, a property must be at least 50 years of age to be eligible for listing in the NRHP. The National Park Service states that 50 years is the general estimate of the time needed to develop the necessary historical perspective to evaluate significance (National Park Service 1997:41). Properties which are less than 50 years must be determined to have "exceptional importance" to be considered eligible for NRHP listing.

2.3 State

California Environmental Quality Act

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1) or tribal cultural resources (PRC Section 21074[a][1][A]-[B]). A historical resource is a resource listed or determined to be eligible for listing in the CRHR, a resource included in a local register of historical resources, or an object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be *historically significant* (*CEQA Guidelines*, Section 15064.5[a][1-3]). A site can be defined as a location that has historic, cultural or archaeological value due to observed material evidence of events, activities, and/or structural remains (Office of Historic Preservation [OHP] 1995: 7). An *isolate resource* is an archaeological artifact that cannot be directly tied to an archaeological site (OHP 1995: 3). A cultural resource may or may not be considered a historical resource or tribal cultural resource pursuant to CEQA.

A resource shall be considered *historically significant* if it meets any of the following criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
2) Is associated with the lives of persons important to our past
3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
4) Has yielded, or may be likely to yield, information important in prehistory or history

Generally, a cultural resource must be at least 50 years of age to be considered for listing on the CRHR. Resources that have achieved significance in the past 50 years may also be eligible for inclusion in the CRHR, provided that enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource (OHP n.d.: 3).

If it can be demonstrated that a project will cause damage to a *unique archaeological resource*, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b]).

PRC Section 21083.2(g) defines a *unique archaeological resource* as an artifact, object, or site about which it can be demonstrated clearly that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

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

California Assembly Bill (AB) 52 was enacted July 1, 2015; it expands CEQA by defining a new resource category called *tribal cultural resources* (TCR). AB 52 establishes "a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment" (PRC Section 21084.2). It further states the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a TCR, when feasible (PRC Section 21084.3).

PRC Section 21074(a)(1)(A) and (B) defines TCR as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" and meets either of the following criteria:

1) Listed or eligible for listing in the CRHR, or in a local register of historical resources, as defined in PRC Section 5020.1(k)
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American Tribe.

California Register of Historical Resources

The CRHR was established in 1992 and codified by PRC §§5024.1 and 4852. The CRHR is an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change (Public Resources Code, 5024.1(a)). The criteria for eligibility for the CRHR are consistent with the NRHP criteria but have been modified for state use in order to include a range of historical resources that better reflect the history of California (Public Resources Code, 5024.1(b)). Unlike the NRHP however, the CRHR does not have a defined age threshold for eligibility; rather, a resource may be eligible for the CRHR if it can be demonstrated sufficient time has passed to understand its historical or architectural significance (California Office of Historic Preservation 2006). Furthermore, resources may still be eligible for listing in the CRHR even if they do not retain sufficient integrity for NRHP eligibility (California Office of Historic Preservation 2006). Generally, the California Office of Historic Preservation recommends resources over 45 years of age be recorded and evaluated for historical resources eligibility (California Office of Historic Preservation 1995:2).

A properties is eligible for listing in the CRHR if it meets one of more of the following criteria:

Criterion 1: Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

Criterion 2: Is associated with the lives of persons important to our past

Criterion 3: Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values

Criterion 4: Has yielded, or may be likely to yield, information important in prehistory or history

California Health and Safety Code

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined if the remains are subject to the Coroner's authority. If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification.

California Public Resources Code §5097.98

Section 5097.98 of the California Public Resources Code states that the NAHC, upon notification of the discovery of Native American human remains pursuant to Health and Safety Code §7050.5, shall immediately notify those persons (i.e., the Most Likely Descendant [MLD]) that it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

3 Natural and Cultural Setting

3.1 Natural Setting

The project APE lies within the Moreno Valley, which is bounded by the Badlands to the east, a series of low-lying granitic hills (including Box Spring Mountains) to the north and west, and the San Jacinto River to the south. The elevation of the project site ranges from 1,450 to 1,660 feet above mean sea level. Most of the project APE is developed and is characterized by a mix of agricultural, residential, commercial, and industrial uses.

3.2 Cultural Setting

During the twentieth century, many archaeologists developed chronological sequences to explain prehistoric cultural changes in all or portions of southern California (c.f., Jones and Klar 2007; Moratto 1984). Wallace (1955, 1978) devised a prehistoric chronology for the southern California region based on early studies and focused on data synthesis that included four horizons: Early Man, Milling Stone, Intermediate, and Late Prehistoric. Though initially lacking the chronological precision of absolute dates (Moratto 1984: 159), Wallace's (1955) synthesis has been modified and improved using thousands of radiocarbon dates obtained by southern California researchers over recent decades (Byrd and Raab 2007: 217; Koerper and Drover 1983; Koerper et al. 2002; Mason and Peterson 1994). The composite prehistoric chronological sequence for southern California is based on Wallace (1955), Warren (1968), and later studies including Koerper and Drover (1983).

Early Man Horizon (10,000 – 6000 BCE)

Numerous pre-8000 BCE sites have been identified along the mainland coast and Channel Islands of southern California (c.f., Erlandson 1991; Johnson et al. 2002; Jones and Klar 2007; Moratto 1984; Rick et al. 2001: 609). The Arlington Springs site on Santa Rosa Island produced human femurs dated to approximately 13,000 years ago (Arnold et al. 2004; Johnson et al. 2002). On nearby San Miguel Island, human occupation at Daisy Cave (SMI-261) has been dated to nearly 13,000 years ago and included basketry greater than 12,000 years old, the earliest on the Pacific Coast (Arnold et al. 2004).

Although few Clovis- or Folsom-style fluted points have been found in southern California (e.g., Dillon 2002; Erlandson et al. 1987), Early Man Horizon sites are associated generally with a greater emphasis on hunting than later horizons. Recent data indicate the Early Man economy was a diverse mixture of hunting and gathering, including a significant focus on aquatic resources in coastal areas (e.g., Jones et al. 2002) and on inland Pleistocene lakeshores (Moratto 1984). A warm and dry 3,000-year period called the Altithermal began around 6000 BCE. The conditions of the Altithermal are likely responsible for the change in human subsistence patterns at this time, including a greater emphasis on plant foods and small game.

Milling Stone Horizon (6000 – 3000 BCE)

The Milling Stone Horizon is defined as "marked by extensive use of milling stones and mullers, a general lack of well-made projectile points, and burials with rock cairns" (Wallace 1955: 219). The dominance of such artifact types indicates a subsistence strategy oriented around collecting plant foods and small animals. A broad spectrum of food resources was consumed including small and

large terrestrial mammals, sea mammals, birds, shellfish and other littoral and estuarine species, near-shore fishes, yucca, agave, and seeds and other plant products (Kowta 1969; Reinman 1964). Variability in artifact collections over time and from the coast to inland sites indicates Milling Stone Horizon subsistence strategies adapted to environmental conditions (Byrd and Raab 2007: 220). Locally available tool stone dominates lithic artifacts associated with Milling Stone Horizon sites; ground stone tools, such as manos and metates, and chopping, scraping, and cutting tools, are common. Kowta (1969) attributes the presence of numerous scraper-plane tools in Milling Stone Horizon collections to the processing of agave or yucca for food or fiber. The mortar and pestle, associated with acorns or other foods processed through pounding, were first used during the Milling Stone Horizon and increased dramatically in later periods (Wallace 1955, 1978; Warren 1968).

Two types of artifacts considered diagnostic of the Milling Stone period are the cogged stone and discoidal, most of which have been found on sites dating between 4000 and 1000 BCE (Moratto 1984: 149), though possibly as far back as 5500 BCE (Couch et al. 2009). The cogged stone is a ground stone object that has gear-like teeth on the perimeter and is produced from a variety of materials. The function of cogged stones is unknown, but many scholars have postulated ritualistic, or ceremonial uses (c.f., Dixon 1968: 64-65; Eberhart 1961: 367) based on the materials used and their location near to burials and other established ceremonial artifacts as compared to typical habitation debris. Similar to cogged stones, discoidals are found in the archaeological record subsequent to the introduction of the cogged stone. Cogged stones and discoidals were often buried purposefully, or "cached." They are most common in sites along the coastal drainages from southern Ventura County southward and are particularly abundant at some Orange County sites, although a few specimens have been found inland as far east as Cajon Pass (Dixon 1968: 63; Moratto 1984: 149). Cogged stones have been collected in Riverside County and their distribution appears to center on the Santa Ana River basin (Eberhart 1961), within which the project site lies.

Intermediate Horizon (3000 BCE – CE 500)

Wallace's Intermediate Horizon dates from approximately 3000 BCE to CE 500 and is characterized by a shift toward a hunting and maritime subsistence strategy, as well as greater use of plant foods. During the Intermediate Horizon, a noticeable trend occurred toward greater adaptation to local resources including a broad variety of fish, land mammal, and sea mammal remains along the coast. Tool kits for hunting, fishing, and processing food and materials reflect this increased diversity, with flake scrapers, drills, various projectile points, and shell fishhooks being manufactured.

Mortars and pestles became more common during this transitional period, gradually replacing manos and metates as the dominant milling equipment. Many archaeologists believe this change in milling stones signals a change from the processing and consuming of hard seed resources to the increasing reliance on acorn (c.f., Glassow et al. 1988; True 1993). Mortuary practices during the Intermediate typically included fully flexed burials oriented toward the north or west (Warren 1968: 2-3).

Late Prehistoric Horizon (CE 500 – Historic Contact)

During Wallace's (1955, 1978) Late Prehistoric Horizon the diversity of plant food resources and land and sea mammal hunting increased even further than during the Intermediate Horizon. More classes of artifacts were observed during this period and high-quality exotic lithic materials were used for small finely worked projectile points associated with the bow and arrow. Steatite containers were made for cooking and storage and an increased use of asphalt for waterproofing is

noted. More artistic artifacts were recovered from Late Prehistoric sites and cremation became a common mortuary custom. Larger, more permanent villages supported an increased population size and social structure (Wallace 1955: 223).

Warren (1968) attributes this dramatic change in material culture, burial practices, and subsistence focus to the westward migration of desert people he called the Takic, or Numic, Tradition in Los Angeles, Orange, and western Riverside counties. This Takic Tradition was formerly referred to as the "Shoshonean wedge" (Warren 1968), but this nomenclature is no longer used to avoid confusion with ethnohistoric and modern Shoshonean groups (Heizer 1978: 5; Shipley 1978: 88, 90). The Takic expansion remains a major question in southern California prehistory and has been a matter of debate in archaeological and linguistic research. Linguistic, biological, and archaeological evidence supports the hypothesis Takic peoples from the Southern San Joaquin Valley and/or western Mojave Desert entered southern California ca. 3,500 years ago to occupy the Los Angeles/Orange County area (Sutton 2009). Modern Gabrieleño/Tongva in western Riverside County are generally considered by archaeologists to be descendants of these prehistoric Uto-Aztecan, Takic-speaking populations who settled along the California coast during the Late Prehistoric Horizon. Sutton argues surrounding Cupan groups (Serrano, Cahuilla, Cupeño, and Luiseño), were biologically Yuman peoples who were in the area prior to the Takic expansion but adopted Takic languages around 1,500 years ago.

3.3 Ethnographic Context

The project site is situated in an area near the boundaries of several Native American groups documented by anthropologists in the early twentieth century (e.g., Kroeber 1908). The historically identified territories occupied by the Cahuilla, Luiseño, Serrano, and Gabrieleño all exist within a 25-mile range of the project site. While these boundaries are based on interviews with informants and research in archives, such as the records of the Hispanic Catholic Missions in the region, it is likely such boundaries were not static; rather, they were probably fluid and may have changed through time. Below are synopses of ethnographic data for each of the four Native American groups.

Cahuilla

The project site is situated in the vicinity historically occupied by a Native American group known as the Cahuilla, though near the boundary with the Juaneño and Luiseño (Bean 1978; Heizer 1978; Kroeber 1925). The term Cahuilla likely derived from the native word káwiya, meaning "master" or "boss" (Bean 1978: 575). Traditional Cahuilla ethnographic territory extended west to east from the present-day city of Riverside to the central portion of the Salton Sea in the Colorado Desert, and south to north from the San Jacinto Valley to the San Bernardino Mountains.

The Cahuilla, like their neighbors to west, the Luiseño and Juaneño, and the Cupeño to the south, are speakers of a Cupan language. The Cupan languages are part of the Takic linguistic subfamily of the Uto-Aztecan language family. Anthropologists posit the Cahuilla migrated to southern California approximately 2,000 to 3,000 years ago, most likely from the southern Sierra Nevada mountain ranges of east-central California with other Takic speaking social groups (Moratto 1984: 559).

Cahuilla social organization was hierarchical and contained three primary levels (Bean 1978: 580). The highest level was the cultural nationality, encompassing everyone speaking a common language. The next level included the two patrimoieties of the Wildcats (tuktum) and the Coyotes ('istam). Every clan of the Cahuilla was in one or the other of these moieties. The lowest level

consisted of the numerous political-ritual-corporate units called sibs, or a patrilineal clan (Bean 1978: 580).

Cahuilla villages were usually located in canyons or on alluvial fans near a source of accessible water. Each lineage group maintained their own houses (kish) and granaries, and constructed ramadas for work and cooking. Sweathouses and song houses (for non-religious music) were also often present. Each community also had a separate house for the lineage or clan leader. Ceremonial houses associated with clan leaders were where major religious ceremonies were held. Houses and ancillary structures were often spaced apart, and a "village" could extend over a mile or two. Each lineage had ownership rights to various resource collecting locations, "including food collecting, hunting, and other areas. Individuals also owned specific areas or resources, e.g., plant foods, hunting areas, mineral collecting places, or sacred spots used only by shamans, healers and the like" (Bean 1990:2).

The Cahuilla hunted a variety of game, including mountain sheep, cottontail, jackrabbit, mice, and wood rats, as well as predators such as mountain lion, coyote, wolf, bobcat, and fox. Various birds were consumed, including quail, duck, and dove, plus various types of reptiles, amphibians, and insects. The Cahuilla employed a wide variety of tools and implements to gather and collect food resources. For hunting, these included the bow and arrow, traps, nets, slings and blinds for hunting land mammals and birds, and nets for fishing. Rabbits and hares were commonly brought down by the throwing stick, but when communal hunts were organized, the Cahuilla often utilized clubs and very large nets to capture these animals.

Foodstuffs were processed using a variety of tools, including portable stone mortars, bedrock mortars and pestles, basket hopper mortars, manos and metates, bedrock grinding slicks, hammerstones and anvils, and many others. Food was consumed from a number of woven and carved wood vessels and pottery vessels. The ground meal and unprocessed hard seeds were stored in large finely woven baskets, and the unprocessed mesquite beans were stored in large granaries woven of willow branches and raised off the ground on platforms to keep them from vermin. The Cahuilla made pottery vessels and traded with the Yuman-speaking groups across the Colorado River and to the south.

The Cahuilla had adopted limited agricultural practices by the time Euro-Americans traveled into their territory. Bean has suggested their "proto-agricultural techniques and a marginal agriculture" consisting of beans, squash and corn may have been adopted from the Colorado River groups to the east (Bean 1978: 578). Certainly, by the time of the first Romero Expedition in 1823-24, the Cahuilla were observed growing corn, pumpkins, and beans in small gardens around springs near the town of Thermal in the Coachella Valley (Bean and Mason 1962: 104). The introduction of European plants, such as barley and other grain crops, suggest an interaction with the missions or local Mexican rancheros. Despite the increasing use and diversity of crops, no evidence indicates small-scale agriculture was anything more than a supplement to Cahuilla subsistence, and it apparently did not alter social organization.

By 1819, several Spanish mission outposts, known as *asistencias*, were established near Cahuilla territory at San Bernardino and San Jacinto, including the asistencia near Redlands. Cahuilla interaction with Europeans at this time was not as intense as it was for native groups living along the coast, likely due to the local topography and lack of water which made the area less attractive to colonists. By the 1820s, European interaction increased as mission ranchos were established in the region and local Cahuilla were employed to work on them.

The Bradshaw Trail was established in 1862 and was the first major east-west stage and freight route through the Coachella Valley. Traversing the San Gorgonio Pass, the trail connected gold mines on the Colorado River with the coast. Bradshaw based his trail on the Cocomaricopa Trail, with maps and guidance provided by local Native Americans. Journals by early travelers along the Bradshaw Trail told of encountering Cahuilla villages and walk-in wells during their journey through the Coachella Valley. The continued influx of immigrants into the region introduced the Cahuilla to European diseases. The single worst recorded event was a smallpox epidemic which swept through Southern California in 1862-63, significantly reducing the Cahuilla population. By 1891, only 1,160 Cahuilla remained in what was left of their territory, down from an aboriginal population of 6,000–10,000 (Bean 1978: 583-584). By 1974, approximately 900 people claimed Cahuilla descent, most of whom resided on reservations.

Between 1875 and 1891, the United States established ten reservations for the Cahuilla in their traditional territory. These include the Agua Caliente, Augustine, Cabazon, Cahuilla, Los Coyotes, Morongo, Ramona, Santa Rosa, Soboba, and Torres-Martinez reservations (Bean 1978: 585). Other groups share four of the reservations, including the Chemehuevi, Cupeño, and Serrano.

Luiseño

The project site is located at the northern extent of the area traditionally occupied by the Luiseño, who inhabited the north half of San Diego County and western edge of Riverside County (Bean and Shipek 1978; Heizer 1978; Kroeber 1925). The term Luiseño was applied to the Native Americans managed by Mission San Luis Rey and later used for the Payomkawichum nation living in the area where the mission was founded (Mithun 2001: 539-540). Luiseño territory encompassed the drainages of the San Luis Rey River and the Santa Margarita River, covering numerous ecological zones (Bean and Shipek 1978).

Prior to European contact, the Luiseño lived in permanent, politically autonomous villages, ranging in size from 50 to 400 people, and associated seasonal camps. Each village controlled a larger resource territory and maintained ties to other villages through trade and social networks. Trespassing in another village's resource area was cause for war (Bean and Shipek 1978). Villages consisted of dome-shaped dwellings (*kish*), sweat lodges, and a ceremonial enclosure (*vamkech*). Leadership in the villages focused on the chief, or Nota, and a council of elders (*puuplem*). The chief controlled religious, economic, and war-related activities (Bean and Shipek 1978).

The Luiseño religion was focused on Chinigchinich, a mythological hero. Religious rituals took place in a brush enclosure housing a representation of Chinigchinich. Ritual ceremonies included puberty initiation rites, burial and cremation ceremonies, hunting rituals, and peace rituals (Bean and Shipek 1978).

Luiseño subsistence focused on the acorn and was supplemented by gathering other plant resources, and shellfish, fishing, and hunting. Plant foods typically included pine nuts, seeds from various grasses, manzanita, sunflower, sage, chía, lemonade berry, prickly pear, and lamb's-quarter. Acorns were leached and served in various ways. Seeds were ground. Prey included deer, antelope, rabbit, quail, ducks, and other birds. Fish were caught in rivers and creeks. Fish and sea mammals were taken from the shore or dugout canoes. Shellfish were collected from the shore and included abalone, turbans, mussels, clams, scallops, and other species (Bean and Shipek 1978).

Serrano

The Serrano are another Native American group who occupied territory near the project site. The Serrano occupied an area in and around the San Bernardino Mountains between approximately 450 and 3,350 meters (1,500 to 11,000 feet) above mean sea level. Their territory extended west of the Cajon Pass, east past Twentynine Palms, north of Victorville, and south to Yucaipa Valley. The Serrano language is part of the Serran division of a branch of the Takic family of the Uto-Aztecan linguistic stock (Mithun 2006: 539, 543). The two Serran languages, Kitanemuk and Serrano, are closely related. Kitanemuk lands were northwest of Serrano lands. Serrano was spoken originally by a relatively small group located in the San Bernardino and Sierra Madre mountains, and the term "Serrano" has come to be ethnically defined as the name of the people in the San Bernardino Mountains (Kroeber 1925: 611). The Vanyume, who lived along the Mojave River and associated Mojave Desert areas and are also referred to as the Desert Serrano, spoke either a dialect of Serrano or a closely related language (Mithun 2001: 543). Year-round habitation tended to be located on the desert floor, at the base of the mountains, and up into the foothills, with all habitation areas requiring year-round water sources (Bean and Smith 1978; Kroeber 1908).

Most Serrano lived in small villages located near water sources (Bean and Smith 1978: 571). Houses measured 3.7 to 4.3 meters (12 to 14 feet) in diameter. They were domed and constructed of willow branches and tule thatching; they were occupied by a single, extended family. Many of the villages had a ceremonial house, used both as a religious center and as the residence of the lineage leaders. Additional structures in a village might include granaries and a large circular subterranean sweathouse. The sweathouses were typically built along streams or pools. A village was usually composed of at least two lineages. The Serrano were loosely organized along patrilineal lines and associated themselves with one of two exogamous moieties or "clans"—the Wahiyam (coyote) or the Tukum (wildcat).

The subsistence economy of the Serrano was one of hunting and collecting plant goods, with occasional fishing (Bean and Smith 1978: 571). They hunted large and small animals, including mountain sheep, deer, antelope, rabbits, small rodents, and various birds, particularly quail. Plant staples consisted of seeds; acorn nuts of the black oak; piñon nuts; bulbs and tubers; and shoots, blooms, and roots of various plants, including yucca, berries, barrel cacti, and mesquite. The Serrano used fire as a management tool to increase yields of specific plants, particularly chía.

Trade and exchange were an important aspect of the Serrano economy. Those living in the lower-elevation, desert floor villages traded foodstuffs with people living in the foothill villages who had access to a different variety of edible resources. In addition to inter-village trade, ritualized communal food procurement events, such as rabbit and deer hunts and piñon, acorn, and mesquite nut-gathering events, integrated the economy and helped distribute resources available in different ecozones.

Contact between Serrano and Europeans was minimal prior to the early 1800s. As early as 1790, however, Serrano began to be drawn into mission life (Bean and Vane 2002). More Serrano were relocated to Mission San Gabriel in 1811 after a failed indigenous attack on the mission. Most of the remaining western Serrano were moved to an asistencia built near Redlands in 1819 (Bean and Smith 1978: 573).

A smallpox epidemic in the 1860s killed many indigenous southern Californians, including many Serrano (Bean and Vane 2002). Oral history accounts of a massacre in the 1860s at Twentynine Palms may have been part of a larger American military campaign lasting 32 days (Bean and Vane 2002: 10). Surviving Serrano sought shelter at Morongo with their Cahuilla neighbors; Morongo later

became a reservation (Bean and Vane 2002). Other survivors followed the Serrano leader Santos Manuel down from the mountains and toward the valley floors and eventually settled what later became the San Manuel Band of Mission Indians Reservation, formally established in 1891.

In 2003, most Serrano lived either on the Morongo or San Manuel reservations (California Indian Assistance Program 2003). The Morongo Band of Mission Indians of the Morongo Reservation, established through presidential executive orders in 1877 and 1889, includes both Cahuilla and Serrano members. Established in 1891, the San Manuel Band of Mission Indians Reservation includes Serrano. Both Morongo and San Manuel are federally recognized tribes. People of both reservations participate in cultural programs to revitalize traditional languages, knowledge, and practices.

Gabrieleño

The project site is also located at the eastern edge of an area historically occupied by the Gabrieleño. Archaeological evidence points to the Gabrieleño arriving in the Los Angeles Basin sometime around 500 BCE; however, this has been a subject of debate. Many contemporary Gabrieleño identify themselves as descendants of the indigenous people living across the plains of the Los Angeles Basin and use the native term Tongva (King 1994). This term is used in the remainder of this section to refer to the pre-contact inhabitants of the Los Angeles Basin and their descendants. Surrounding native groups included the Chumash and Tataviam to the northwest, the Serrano and Cahuilla to the northeast, and the Juaneño and Luiseño to the southeast.

Tongva lands encompassed the greater Los Angeles Basin and three Channel Islands, San Clemente, San Nicolas, and Santa Catalina. The Tongva established large, permanent villages in the fertile lowlands along rivers and streams, and in sheltered areas along the coast, stretching from the foothills of the San Gabriel Mountains to the Pacific Ocean. A total tribal population has been estimated of at least 5,000 (Bean and Smith 1978: 540), but recent ethnohistoric work suggests a number approaching 10,000 (O'Neil 2002). Houses constructed by the Tongva were large, circular, domed structures made of willow poles thatched with tule holding up to 50 people (Bean and Smith 1978). Other structures served as sweathouses, menstrual huts, ceremonial enclosures, and probably communal granaries. Cleared fields for races and games, such as lacrosse and pole throwing, were created adjacent to Tongva villages (McCawley 1996: 27). Archaeological sites composed of villages with various sized structures have been identified.

The Tongva subsistence economy was centered on gathering and hunting. The surrounding environment was rich and varied, and the tribe exploited mountains, foothills, valleys, deserts, riparian, estuarine, and open and rocky coastal eco-niches. Like most native Californians, acorns were the staple food (an established industry by the time of the early Intermediate Period). Acorns were supplemented by the roots, leaves, seeds, and fruits of a wide variety of flora (e.g., islay, cactus, yucca, sages, and agave). Fresh water and saltwater fish, shellfish, birds, reptiles, and insects, as well as large and small mammals, were also consumed (Bean and Smith 1978: 546; Kroeber 1925: 631–632; McCawley 1996: 119–123, 128–131).

A wide variety of tools and implements were used by the Tongva to gather and collect food resources. These included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Groups residing near the ocean used oceangoing plank canoes and tule balsa canoes for fishing, travel, and trade between the mainland and the Channel Islands (McCawley 1996: 7). Tongva people processed food with a variety of tools, including hammerstones and anvils, mortars and pestles, manos and metates, strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks. Food was consumed from a variety of vessels. Catalina Island steatite was

used to make ollas and cooking vessels (Blackburn 1963; Kroeber 1925: 629; McCawley 1996: 129–138).

At the time of Spanish contact, the basis of Tongva religious life was the Chinigchinich cult, centered on the last of a series of heroic mythological figures. Chinigchinich gave instruction on laws and institutions, and taught the people how to dance, the primary religious act for this society. He later withdrew into heaven, where he rewarded the faithful and punished those who disobeyed his laws (Kroeber 1925: 637–638). The Chinigchinich religion seems to have been relatively new when the Spanish arrived. It was spreading south into the Southern Takic groups even as Christian missions were being built and may represent a mixture of native and Christian belief and practices (McCawley 1996: 143–144).

Deceased Tongva were either buried or cremated, with inhumation more common on the Channel Islands and the neighboring mainland coast and cremation predominating on the remainder of the coast and in the interior (Harrington 1942; McCawley 1996: 157). At the behest of the Spanish missionaries, cremation essentially ceased during the post-Contact period (McCawley 1996: 157).

3.4 History

The post-contact history of California is generally divided into three epochs: the Spanish period (1769–1822), the Mexican period (1822–1848), and the American period (1848–present). Each of these periods is described briefly below.

Spanish Period (1769–1822)

Spanish exploration of what was then known as Alta (upper) California began when Juan Rodriguez Cabrillo led the first European expedition into the region in 1542. For more than 200 years after his initial expedition, Spanish, Portuguese, British, and Russian explorers sailed the Alta California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968, Rolle 2003). Spanish entry into what was to become Riverside County did not occur until 1774 when Juan Bautista de Anza led an expedition from Sonora, Mexico to Monterey in northern California (Lech 1998).

In 1769, Gaspar de Portolá and Franciscan Father Junipero Serra established the first Spanish settlement at Mission San Diego de Alcalá. This was the first of 21 missions erected by the Spanish between 1769 and 1823. The establishment of the missions marks the first sustained occupation of Alta California by the Spanish. In addition to the missions, four presidios and three pueblos (towns) were established throughout the state (State Lands Commission 1982). In 1819, an asistencia was established near present-day Redlands to serve as an outpost for cattle grazing activities carried out by Mission San Gabriel's Rancho San Bernardino (County of San Bernardino 2017). Around the same time, Native Americans living at the asistencia were directed to dig a zanja (irrigation ditch) to serve the asistencia and surrounding area.

During this period, Spain also deeded ranchos to prominent citizens and soldiers, though very few in comparison to the subsequent Mexican Period. To manage and expand their herds of cattle on these large ranchos, colonists enlisted the labor of the surrounding Native American population (Engelhardt 1927a). The missions were responsible for administrating to the local indigenous people as well as converting the population to Christianity (Engelhardt 1927b). The influx of European settlers brought the local Native American population in contact with European diseases which they had no immunity against, resulting in catastrophic reduction in native populations throughout the state (McCawley 1996).

Mexican Period (1822–1848)

The Mexican Period commenced when news of the success of the Mexican War of Independence (1810-1821) reached California in 1822. This period saw the federalization of mission lands in California with the passage of the Secularization Act of 1833. This enabled Mexican governors in California to distribute former mission lands to individuals in the form of land grants. Successive Mexican governors made more than 700 land grants between 1822 and 1846, putting most of the state's lands into private ownership for the first time. About 15 land grants (ranchos) were located in Riverside County. The project area is situated in what was once Rancho San Jacinto, which included much of the San Jacinto Plains stretching from Box Springs to the San Jacinto Mountains and between the Badlands and Temecula (Shumway 2007).

American Period (1848–Present)

The American Period officially began with the signing of the Treaty of Guadalupe Hidalgo in 1848, in which the United States agreed to pay Mexico $15 million for ceded territory, including California, Nevada, Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming, and pay an additional $3.25 million to settle American citizens claims against Mexico. Settlement of southern California increased dramatically in the early American Period. Many ranchos in the county were sold or otherwise acquired by Americans, and most were subdivided into agricultural parcels or towns.

The discovery of gold in northern California in 1848 led to the California Gold Rush, despite the first California gold being previously discovered in southern California at Placerita Canyon in 1842 (Guinn 1977; Workman 1935: 26). Southern California remained dominated by cattle ranches in the early American period, though droughts and increasing population resulted in farming and more urban professions supplanting ranching through the late nineteenth century. In 1850, California was admitted into the United States and by 1853, the population of California exceeded 300,000.

Local History

Throughout the second half of the nineteenth century, migration throughout California increased, in particular following completion of the transcontinental railroad in 1869. The California Southern Railroad, which ran through Moreno Valley, was completed in 1882 and European settlers began to flock to the area. Early Europeans to the Moreno Valley area were primarily engaged in dry farming, as a reliable water source had not yet been secured. In 1893, Riverside County was created from portions of San Bernardino and San Diego Counties.

Following his success in the establishment of and provision of reliable water to the community of Redlands, Frank E. Brown progressed to similar successes in Alessandro, Perris, and Moreno. In 1890, he founded the Bear Valley and Alessandro Development Company and recorded the first subdivision of the area. "Map No. 1" divided roughly 21,440-acres into ten-acre farm plots, with the 280-acre town site of Moreno located at the intersection of Redlands and Alessandro Boulevard. This initial subdivision included the project site (Block No. 54; Lot/Parcel No. 1-8). In the same year and also with heavy involvement from Brown, the Alessandro Irrigation District was established, and construction began on an intricate series of pipelines to bring water to the valley (Lech 2004).

The arrival of water, via the Moreno Tunnel, in Moreno in 1891 led to increased investment in the area's agricultural economy. Following this development, large-scale fruit and citrus farms were established in the area. In 1899, lawsuits over water rights led to a loss of water delivery in the Moreno Valley. As a result, the valley's population in the area greatly decreased. Some moved their homes to the city of Riverside; those who remained engaged in the dry farming of hay, grain, and

grapes. Public and private wells were eventually produced and by 1912, the Moreno Mutual Water Company had identified a reliable source of water.

Originally established as Alessandro Flying Training Field in 1918, the nearby March Field was constructed in the Moreno Valley as the country anticipated entry into World War I. While March Field closed briefly in the 1920s, it reopened in 1927 and eventually expanded to encompass 7,000-acres. March Field has played a key role in providing skilled crews for many international conflicts and remains in operation as a reserve base today (*Riverside Magazine* 2019*)*. The founding and lasting presence of March Field has contributed to the expansion of the Moreno Valley, as amenities for those stationed there have remained a necessity since its founding.

Through the 1970s Moreno Valley experienced steady growth. As residential development increased, so too did recreational amenities. The Riverside International Raceway and the Lake Perris Recreation Area were established in 1953 and 1973, respectively. The valley experienced a boom in the 1980s; the decade saw the population increase two-fold. While votes for incorporation failed in 1968 and 1983, in 1984 the City of Moreno Valley was officially incorporated. Moreno Valley has continued to expand in recent decades and today the area is largely occupied by suburban development.

4 Literature Reviews and Outreach

4.1 California Historical Resources Information System Records Search

In July 2021, a search of the CHRIS at the EIC was conducted by EIC staff at the University of California, Riverside (Appendix B) for the Perris North Groundwater Wells Project. The EIC is the official state repository for cultural resources records and reports for the county in which the project falls. The purpose of the records search was to identify previously recorded cultural resources, as well as previously conducted cultural resources studies, within the Perris North Groundwater Wells Project APE and a 0.5-mile radius. The records search area for the Perris North Groundwater Wells Project encompasses the entirety of the current project site. As such, Rincon did not conduct a new records search and instead utilized the results of the Perris North Groundwater Wells Project records search for the current proposed project. Rincon also reviewed the NRHP, the CRHR, the California Historical Landmarks list, and the Built Environment Resources Directory, as well as its predecessor the California State Historic Property Data File. Additionally, Rincon reviewed the Archaeological Determination of Eligibility list.

Previously Conducted Studies

The CHRIS records search conducted for the Perris North Groundwater Wells Project, which have been utilized for the current proposed project, identified 88 previously conducted cultural resources studies completed within 0.5-mile of that project's APE between 1953 and 2019. Six of these previous studies overlap or are immediately adjacent to portions of the proposed project APE. Additionally, Rincon recently completed a project located immediately adjacent the proposed project APE (Perris North Groundwater Wells Project). All previously conducted studies which overlap or are immediately adjacent to the proposed project APE (Table 1) are summarized below. See Appendix B for the full CHRIS records search results.

Table 1 Cultural Resources Studies Previously Conducted within the Project Area

Report Number	Author(s)	Year	Title	Relevant Resources Discussed
RI-02061	Lerch	1986	*Archaeological Survey of Festival at Moreno Valley, Riverside County, California*	None
RI-02171	McCarthy	1987	*Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California*	None
RI-08802	Tang et al.	2012	*Phase I Archaeological Assessment: Moreno Master Drainage Plan Revision*	None
RI-09784	Kraft and Smith	2016	*Phase I Cultural Resources Survey of the Moreno Valley Festival Project*	None
RI-10445	Clark and Garcia	2014	*Cultural Resources Assessment for the Proposed Isla Verde Residential Project, City of Moreno Valley, County of Riverside, California*	None
RI-10784/RI-10802	Stropes et al.	2019	*A Class III Historic Resources Study for the Moreno Valley Festival Project for Section 106 Compliance SPL-2018-00821, City of Moreno Valley, California*	None
TBD	Flaherty et al.	2021	*Perris North Basin Groundwater Wells Project, Cultural Resources Assessment, Riverside County, California*	None

Source: Eastern Information Center, October 2021

RI-02061

This Phase I Cultural Resources Survey Report for the proposed Festival at Moreno Valley Project in Moreno Valley was prepared by Michael K. Learch in 1986 and included the northwestern portion of the APE. The proposed project involved the development of a 61.5-acre project site, in which 44 acres was devoted to retail commercial and office uses, 11 acres served as a flood control detention basin, and 6 acres served as interior circulation. No archaeological resources were identified in this study.

RI-02171

RI-02171 is a Cultural Resources Inventory Report for the City of Moreno Valley prepared by Daniel F. McCarthy in 1987 and included the entirety of the current proposed project APE. The field investigation included plotting previously recorded archaeological sites and previously surveyed areas onto topographic maps, followed by an intensive pedestrian survey. The study identified 62 new sites and relocated seven previously recorded sites, none of which were identified within the current proposed project APE.

RI-08802

RI-08802 is a Phase I Archaeological Assessment for the proposed Moreno Master Drainage Plan in the city of Moreno Valley prepared by Bai Tang, Deirdre Encarnacion, and Daniel Ballester in 2012 and included the entirety of the proposed project APE. The study included a historical/ archaeological resources records search, historical background research, Native American outreach, and a systematic field survey. The survey identified two historical-period sites, neither of which are located withing the current APE. Additionally, no archaeological resources were identified within the current APE during this study.

RI-09784

RI-09784 is a Phase I Cultural Resources Survey Report for the proposed Moreno Valley Festival Project in the city of Moreno Valley prepared by Jennifer R. Kraft and Brian F. Smith in 2016 which overlapped the northwestern portion of the current proposed project APE. The study included a records search, Sacred Lands File search, Native American outreach, and pedestrian field survey. No archaeological resources were identified within the current project APE.

RI-10445

RI-10445 is a Cultural Resources Assessment Report for the proposed Isla Verde Residential Project in the city of Moreno Valley prepared by Fatima Clark and Kyle Garcia in 2014 which overlapped the southern portion of the current proposed project APE. The study included a cultural resources records search, review of historical aerials, SLF search, Native American outreach, and pedestrian survey. No archaeological resources were identified within the current proposed project APE.

RI-10784/RI-10802

RI-10784/RI-10802 is a Phase I Cultural Resources Survey Report for the proposed Moreno Valley Festival Project in the city of Moreno Valley prepared by Tracy A. Stropes, Jennifer R.K. Stropes, and Brian F. Smith in 2019, which overlapped the northwestern portion of the APE. The study included a literature review and records search, a SLF search, Native American outreach, and pedestrian survey. No archaeological resources were identified within the current proposed project APE.

Perris North Groundwater Wells Project

This Cultural Resources Assessment Report for the proposed Perris North Basin Groundwater Wells Project was prepared by Rincon Consultants, Inc. in 2021 and includes 569 acres spread across 41 separate parcels and lies within the cities of Moreno Valley and Perris in western Riverside County, California. The study relocated one previously recorded historical resource P-33-016078, which consists of remnants of a water conveyance system and four features including a water reservoir, a concrete pad with an electric pump, a water trough, and a second larger concrete pad likely used for parking within the project APE. The site is dated to 1950 and is likely related to agricultural or ranching activities in the area. Site P-33-016078 was not evaluated as part of the study due to it not being impacted by the project. No new archaeological or built environment resources were identified. Portions of the Perris North Groundwater Wells Project are directly adjacent to the current proposed project APE.

Previously Recorded Resources

Nine previously recorded cultural resources have been identified within 0.5-mile of the APE as a result of the records search, none of which are located within the proposed project APE (Table 2). Of these, eight are historic-period built environment resources comprised of historic-period single-family properties, and one is a historic period archaeological foundation. The recorded boundary of one resource (P-33-028824) is adjacent to the proposed project APE. This resource is further summarized below.

Table 2 Previously Recorded Cultural Resources within 0.5 Mile of the Project Area

Resource Number	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status[1]	Relationship to Project Site
P-33-007280	Historic-period built environment	Single family property	Warner 1983	Unevaluated	Outside
P-33-007284	Historic-period built environment	Single family property	Warner 1983	Unevaluated	Outside
P-33-007286	Historic-period built environment	Single family property	Warner 1983	Unevaluated	Outside
P-33-007287	Historic-period built environment	Single family property	Warner 1983	Unevaluated	Outside
P-33-007288	Historic-period built environment	Single family property	Warner 1983	Unevaluated	Outside
P-33-007289	Historic-period built environment	Single family property	Warner 1983	Unevaluated	Outside
P-33-17202	Historic-period built environment	Single family property	Smallwood 2008	Recommended NRHP/CRHR ineligible	Outside
P-33-17203	Historic-period built environment	Single family property	Smallwood 2008	Recommended NRHP/CRHR ineligible	Outside
P-33-028824	Historic-period archaeological	Foundation, downed powerline pole, and refuse scatter	Goodwin 2019	Unevaluated	***Adjacent***

[1]NRHP = National Register of Historic Places; CRHR = California Register of Historical Resources

[2]Adjacent resources are located within 100 feet of the project APE (Area of Potential Effects).

Source: Eastern Information Center, October 2021

P-33-028824

Resource P-33-028824 consists of a 15-foot by 6-foot foundation slab, utility pole with 1930 and 1947 inspection nails, and a single clear glass bottle fragment. Goodwin, affiliated with LSA Associates, Inc., recorded the resource in April 2019 during an intensive pedestrian survey for the Perris Boulevard and Dracaea Avenue Commercial Retail Project. The site has not been evaluated for the NRHP/CRHR. The resource is located 75 feet north of the current project APE across Dracaea Avenue and will not be affected by the current project.

4.2 Aerial Imagery and Historical Topographic Maps Review

Rincon completed a review of historical topographic maps and aerial imagery to ascertain the development history of the project area. A review of historical maps and aerial photographs of the project area from the 1960s to the 2000s show much of the surrounding area was characterized by agricultural fields intermixed with sparse areas of residential development (NETROnline 2022). Much of the project area experienced rapid development in the 1980s and 1990s. By the early twenty-first century, most of the agricultural lands were replaced by residential, commercial, and industrial development (NETROnline 2021; FrameFinder (ucsb.edu)).

4.3 Sacred Lands File Search

Rincon contacted the NAHC on July 1, 2021, to request a SLF search for the Perris North Groundwater Wells Project, as well as a contact list of Native Americans culturally affiliated with the project area. The SLF search area encompasses the entirety of the current project APE. Therefore, Rincon did not conduct a new SLF search and instead utilized the results of the Perris North Groundwater Wells Project SLF search for the current project. On July 25, 2021, the NAHC responded the SLF search results were negative. Appendix D provides documentation of communication with the NAHC and results of the SLF search.

4.4 Native American Outreach

Rincon conducted informal outreach with Native American groups and individuals culturally affiliated with the area during preparation of this study. Rincon prepared and emailed or mailed letters on July 29, 2022, to each of the NAHC contacts included on the contact list received on July 25, 2021, requesting information regarding any Native American cultural resources within or immediately adjacent to the project site.

Four responses from Native American groups were received as a result of this initial outreach effort.

- Omar Aceves, Tribal Operations Clerk for the Augustine Band of Cahuilla Mission Indians, responded on July 29, 2022, stating they are unaware of specific cultural resources that may be affected by the proposed project but asked that – should cultural resources be discovered during the development of the project – the tribe be contacted immediately for further evaluation.
- A response letter was received from the Pechanga Band of Luiseño Indians on July 29, 2022. The letter stated they are interested in participating in this project as it is in their Ancestral Territory. They would like notification once the project begins the entitlement process and would also like copies of all archaeological reports, site records, proposed grading plans, and environmental documents. The tribe requests government-to-government consultation with the lead federal agency and suggests monitoring by a Riverside County qualified archaeologist and professional Pechanga Tribal Monitor be required during earthmoving activities. They are also interested in participating in surveys within Luiseño Ancestral territory and consulting with the project proponent and lead federal agency regarding the treatment and disposition of all artifacts.
- The office of the Fort Yuma Quechan Historic Preservation Officer responded on August 1, 2022, stating they have no comments on the project and will defer to more local Tribes and support their decisions on the project.
- Arysa Gonzalez Romero, Cultural Resources Analyst for the Agua Caliente Band of Cahuilla Indians, responded on August 10, 2022, requesting the shapefiles for the project. Rincon responded on August 12, 2022, providing the requested shapefiles.

On August 12, 2022, Rincon Archaeologist Laura Maldonado called each of the NAHC contacts listed that had not yet responded to initial outreach efforts. Ten of the contacts did not answer the phone; however, Rincon was able to leave a message on their voicemail. The same 10 contacts did not answer the phone during the second round of calls, which were made on August 22, 2022. Voicemail messages were also left that day. Rincon was unable to connect with one contact via phone because both rounds of calls were unanswered, and their voice mailbox was full on both occasions. Rincon was able to get in touch with nine other tribal contacts between August 12, 2022,

and August 25, 2022, either directly or speaking to an assistant or administrator, or receiving an email response after the call, the details of which are described below.

- On August 12, 2022, Ms. Maldonado attempted to contact Chairperson Daniel Salgado of the Cahuilla Band of Indians, but the call was forwarded to BobbyRay Esparza instead. Mr. Esparza asked to have the original letter forwarded to him, which was done immediately after the call. On August 18, 2022, Rincon received a response from Mr. Esparza stating the Cahuilla Band has an interest in this project and would like to request that a cultural monitor from Cahuilla be present for all ground disturbing activities, expressing concern cultural resources may be unearthed during construction.
- On August 12, 2022, Ms. Maldonado called and spoke to Joseph Ontiveros from the Soboba Band of Luiseño Indians Cultural Resources Department. Mr. Ontiveros stated the project location is within their tribal cultural landscape and would like to enter consultation with the lead federal agency as part of the Section 106 process.
- On August 12, 2022, Ms. Maldonado attempted to contact Bo Mazzetti, the Rincon Band of Luiseño Indians Chairperson, but Chairperson Mazzetti was unavailable. Ms. Maldonado left a voicemail and sent a follow-up email. Chairperson Mazzetti responded on August 12, 2022, stating he will check in on the status of the Tribe's response. On August 19, 2022, Rincon received an email response from Cheryl Madrigal, the THPO for the Rincon Band of Luiseño Indians, stating the Tribe would like to consult with the lead federal agency on the proposed project. Ms. Madrigal also requested additional information regarding the project such as existing GIS shapefiles/KMZ, any cultural resources assessments, record search results, overlay maps of the project and potential APE and previously recorded cultural sites. Rincon responded on August 26, 2022, providing the requested shapefiles, record search results, and project map.
- On August 22, 2022, Ms. Flaherty attempted to contact Chairperson Jeff Grubbe of the Agua Caliente Band of Cahuilla Indians but was put through to an assistant instead. The assistant stated there was a new Chairperson, Reid Milanovich, and Ms. Flaherty was subsequently able to leave a voicemail for Mr. Milanovich. No further response has been received as of the date of this report.
- On August 22, 2022, Ms. Flaherty called and spoke with Patricia Garcia, the Tribal Historic Preservation Officer (THPO) for the Agua Caliente Band of Cahuilla Indians. Ms. Garcia expressed concerns about the project and stated the Tribe is interested in consulting with the lead federal agency on impacts to resources, developing a mitigation plan, and participating in Native American monitoring. Ms. Garcia also stated the Tribe is backed up right now but will send a formal response letter soon. Rincon received a formal letter from Lacy Padilla, THPO Operations Manager on August 30, 2022. The letter stated the project area is not located within the boundaries of the ACBCI Reservation; however, it is within the Tribe's Traditional Use Area. The Tribe requests a cultural resources inventory of the project area by a qualified archaeologist prior to any development activities in this area, a copy of the records search with associated survey reports and site records from the information center, and copies of any cultural resource documentation generated in connection with this project. The documentation requested will be provided to the Tribe once it is finalized.
- On August 22, 2022, Ms. Flaherty attempted to get in touch with Chairperson Joseph Hamilton of the Ramona Band of Cahuilla, but the call was answered by an administrative person instead. The administrative person informed Ms. Flaherty that Mr. Hamilton is no longer the Chairman, and the new Chairperson is Danae Hamilton Vega. The administrative person also said she would follow-up with John Gomez, the Environmental Coordinator of the Tribe. (Note that two

voicemails were also left for Mr. Gomez on August 12 and 22, 2022 and a follow-up email had been sent on August 12, 2022.) No further response has been received as of the date of this report.

- On August 22, 2022, Ms. Flaherty attempted to get in touch with Lovina Redner, the Tribal Chair of the Santa Rosa Band of Cahuilla Indians, but the call was answered by an administrative person instead. The administrative person gave Ms. Flaherty an updated email for the Tribal Chair and stated that Ms. Redner likely did not have any concerns if she hadn't already responded. On August 25, 2022, Rincon confirmed the original letter was sent to the correct email address. No further response has been received as of the date of this report.
- On August 23, 2022, Ms. Flaherty found evidence of a new email for Chairperson Shane Chapparosa of the Los Coyotes Band of Cahuilla and Cupeño Indians. Ms. Maldonado sent a copy of the original letter to Chairperson Chapparosa's new email on September 6th, 2022. No further response has been received as of the date of this report.
- On August 25, 2022, Ryan Nordess, Cultural Resource Analyst for the Yuhaaviatam of San Manuel Nation (formerly known as the San Manuel Band of Mission Indians), emailed Rincon stating the proposed project is not located near any known cultural resources.

As of the date of this report, no other responses have been received.

As part of the current efforts, Rincon did not send formal consultation letters to the Native American contacts. As the lead CEQA agency, EMWD will conduct consultation with Native American tribes under AB 52. Rincon assumes SWRCB will conduct formal consultation with Native American tribes under Section 106 of the NHPA should funding be pursued. Appendix D provides copies of all non-confidential Native American outreach correspondence, including a summary correspondence table.

4.5 Local Historical Group Outreach

Rincon conducted informal outreach with local historical groups, including the Moreno Valley Historical Society, City of Moreno Valley Environmental and Historical Preservation Board, Perris Valley Historical Museum, Riverside African American Historical Society, and the March Field Air Museum during preparation of this study. Rincon prepared and emailed or mailed letters to each of these groups on July 29, 2022, requesting information regarding historical resources within or immediately adjacent to the proposed project APE.

On August 12, 2022, Rincon Archaeologist Laura Maldonado called the three local historical group contacts that had phone numbers listed on their websites. Two of the contacts did not answer the phone; however, Ms. Maldonado was able to leave a message on their voicemails. The same two contacts did not answer the phone during the second round of calls, which were made by Ms. Flaherty on August 22, 2022. Voicemail messages were also left that day. Follow-up emails were sent to the two contacts that did not have phone numbers listed on August 12 and 22, 2022. Ms. Maldonado was able to get in touch with one local historical group contacts, the details of which are described below.

- On August 12, 2022, Rincon called the March Field Air Museum and spoke with Museum Director Greg Kuster. Mr. Kuster had no comments or concerns on behalf of the March Field Air Museum.

As of the date of this report, no other responses to the outreach letters or follow-up calls and emails have been received.

As part of the current efforts, Rincon did not send formal consultation letters to the historical group contacts. Rincon assumes the SWRCB will conduct consultation with historical groups under Section 106 of the NHPA. Appendix E provides copies of all non-confidential historical group outreach correspondence, including a summary correspondence table.

5 Field Survey

5.1 Methods

On July 22, 2022, Rincon archaeologist John C. Bergner IV conducted a field survey of the project area. The pipeline corridor itself is located within the Perris Blvd and Ironwood Ave rights-of way, which was surveyed from vehicle due to safety concerns. Mr. Bergner attempted to conduct a pedestrian survey of the staging area; however, the area was inaccessible as it was fenced off with no trespassing signs posted. Photographs were taken of the staging area from the street. Visual inspection of the staging area from the street indicated extensive ground disturbance with most of the area being covered in gravel. Mr. Bergner also attempted to relocate previous recorded resource P-33-028824 but was unable to access the area due to construction fencing. Visual inspection of the location suggested that extensive paving and development had likely at least partially destroyed the resource. Survey accuracy was maintained using a handheld GPS unit and a georeferenced map of the project site. Field notes of survey conditions and observations were recorded using Rincon field forms and a digital camera. Copies of the original field notes and photographs are maintained at the Rincon Redlands office.

5.2 Results

The field survey did not identify any new archaeological or built environment cultural resources within the proposed project APE. The Rincon archaeologist attempted to relocate the previously recorded site P-33-028824 located adjacent to the project APE; however, the resource is located in a private plot of land with fencing blocking access.

Modern debris, trash, pavement, and gravel were observed throughout the project area. Previous ground disturbance due to tilling and construction blading is present in the plots of land that were inaccessible due to fencing. The entire project site has been previously disturbed in some manner due to ground-clearing activities such as tilling, grading, construction, landscaping, or development. An examination of a small areas with exposed ground indicates native sediments consist of loosely consolidated tan sandy silt with small gravel inclusions. Surficial sediments throughout the project area have been extensively disturbed. For overview photos of the APE, see Photographs 1-3 below.

Photograph 1 Ground Exposure at the Staging Area on Perris Boulevard near Dracaea Avenue, Facing South

Photograph 2 Ground Exposure at the East Side of Perris Boulevard between Christopher Lane and Bay Avenue, Facing South

Photograph 3 Inaccessible Plot of Land on Ironwood Avenue between Davis Street and Nita Drive, Facing Southeast

6 Conclusions and Recommendations

The results of the CHRIS search, Native American and historical society outreach, historical imagery review, and the field survey identified no cultural resources within the proposed project APE.

Rincon archaeologists were unable to revisit resource P-33-028824 due to its location on private fenced-off property. All of the features are located outside of the proposed project APE and the construction buffer does not encroach on the resource; therefore, the proposed project will not directly or indirectly affect the resource.

No new built environment resources were identified as a result of the field survey conducted for this project. Based on the current findings, no unique archaeological resources, historical resources or historic properties exist within the current APE.

Several tribes requested additional information about the project and/or indicated they would like to be a consulting party under Section 106 of the NHPA, and two tribes requested cultural monitoring. Specifically, the Pechanga Band of Luiseño Indians suggested monitoring by a Riverside County qualified archaeologist and professional Pechanga Tribal Monitor be required during earthmoving activities related to the project. The Cahuilla Band of Indians also requested a cultural monitor from the tribe be present for all ground disturbing activities, expressing concern cultural resources may be unearthed during construction but did not mention specific resources. However, the SLF search was returned with negative results and no Native American cultural resources were identified within the APE as a result of the records search or pedestrian field survey. Given the level of previous ground disturbance within the proposed project APE (i.e., grading, paving and construction activities) the APE is considered to have low archaeological sensitivity.

Rincon recommends a finding of ***no impact to historical resources and less-than-significant impact to archaeological resources*** under CEQA, and ***no historic properties affected*** under Section 106 of NHPA. The following recommendations are offered in the case of the unanticipated discovery of cultural resources during project development. The project is also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

6.1 Unanticipated Discovery of Cultural Resources

In the event archaeological resources are unexpectedly encountered during ground-disturbing activities, work within 50 feet of the find shall halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) shall be contacted immediately to evaluate the resource. If the resource is determined by the qualified archaeologist to be prehistoric, then a Native American representative shall also be contacted to participate in the evaluation of the resource. If the qualified archaeologist and/or Native American representative determines it to be appropriate, archaeological testing for CRHR eligibility shall be completed. If the resource proves to be eligible for the CRHR and significant impacts to the resource cannot be avoided via project redesign, a qualified archaeologist shall prepare a data recovery plan tailored to the physical nature and characteristics of the resource, per the requirements of CCR Guidelines Section 15126.4(b)(3)(C). The data recovery plan shall identify data recovery excavation methods, measurable objectives, and data thresholds to reduce any significant impacts to cultural resources related to the resource. Pursuant to the data recovery plan, the qualified archaeologist and Native American representative, as appropriate, shall recover and

document the scientifically consequential information that justifies the resource's significance. EMWD shall review and approve the treatment plan and archaeological testing as appropriate, and the resulting documentation shall be submitted to the regional repository of the California Historical Resources Information System, per CCR Guidelines Section 15126.4(b)(3)(C).

6.2 Human Remains

If human remains are found, regulations outlined in the State of California Health and Safety Code Section 7050.5 state no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission, which will determine and notify the MLD. The MLD shall complete the inspection of the site within 48 hours of being granted access and provide recommendations as to the treatment of the remains to the landowner.

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Appendix A

Confidential APE Map

CONFIDENTIAL APPENDIX

**To protect sensitive information about the location and nature of cultural resources, this appendix is not included in the public draft of this document.

Appendix B

Confidential Records Search Results

CONFIDENTIAL APPENDIX

**To protect sensitive information about the location and nature of cultural resources, this appendix is not included in the public draft of this document.

Appendix C

Native American Outreach

STATE OF CALIFORNIA Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Julie Tumamait-Stenslie
Chumash

COMMISSIONER
[**Vacant**]

COMMISSIONER
[**Vacant**]

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Christina Snider
Pomo

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nahc@nahc.ca.gov
NAHC.ca.gov

July 25, 2021

Leanna Flaherty
Rincon Consultants, Inc.

Via Email to: lflaherty@rinconconsultants.com

Re: Eastern Municipal Water District Perris North Groundwater Wells Project, Riverside County

Dear Ms. Flaherty:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Riverside County
7/25/2021

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Los Coyotes Band of Cahuilla and Cupeño Indians
Ray Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Road — Cahuilla, Serrano
Banning, CA, 92220
Phone: (951) 755 - 5110
Fax: (951) 755-5177
abrierty@morongo-nsn.gov

Morongo Band of Mission Indians
Ann Brierty, THPO
12700 Pumarra Road — Cahuilla, Serrano
Banning, CA, 92220
Phone: (951) 755 - 5259
Fax: (951) 572-6004
abrierty@morongo-nsn.gov

Pala Band of Mission Indians
Shasta Gaughen, Tribal Historic Preservation Officer
PMB 50, 35008 Pala Temecula Rd. — Cupeno, Luiseno
Pala, CA, 92059
Phone: (760) 891 - 3515
Fax: (760) 742-3189
sgaughen@palatribe.com

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

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Eastern Municipal Water District Perris North Groundwater Wells Project, Riverside County.

Native American Heritage Commission
Native American Contact List
Riverside County
7/25/2021

Pechanga Band of Luiseno Indians
Paul Macarro, Cultural Resources Coordinator
P.O. Box 1477 Luiseno
Temecula, CA, 92593
Phone: (951) 770 - 6306
Fax: (951) 506-9491
pmacarro@pechanga-nsn.gov

Quechan Tribe of the Fort Yuma Reservation
Manfred Scott, Acting Chairman
Kw'ts'an Cultural Committee
P.O. Box 1899 Quechan
Yuma, AZ, 85366
Phone: (928) 750 - 2516
scottmanfred@yahoo.com

Quechan Tribe of the Fort Yuma Reservation
Jill McCormick, Historic Preservation Officer
P.O. Box 1899 Quechan
Yuma, AZ, 85366
Phone: (760) 572 - 2423
historicpreservation@quechantribe.com

Ramona Band of Cahuilla
John Gomez, Environmental Coordinator
P. O. Box 391670 Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
jgomez@ramona-nsn.gov

Ramona Band of Cahuilla
Joseph Hamilton, Chairperson
P.O. Box 391670 Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramona-nsn.gov

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

Rincon Band of Luiseno Indians
Cheryl Madrigal, Tribal Historic Preservation Officer
One Government Center Lane Luiseno
Valley Center, CA, 92082
Phone: (760) 297 - 2635
crd@rincon-nsn.gov

San Manuel Band of Mission Indians
Jessica Mauck, Director of Cultural Resources
26569 Community Center Drive Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
jmauck@sanmanuel-nsn.gov

Santa Rosa Band of Cahuilla Indians
Lovina Redner, Tribal Chair
P.O. Box 391820 Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
lsaul@santarosa-nsn.gov

Serrano Nation of Mission Indians
Mark Cochrane, Co-Chairperson
P. O. Box 343 Serrano
Patton, CA, 92369
Phone: (909) 528 - 9032
serranonation1@gmail.com

Serrano Nation of Mission Indians
Wayne Walker, Co-Chairperson
P. O. Box 343 Serrano
Patton, CA, 92369
Phone: (253) 370 - 0167
serranonation1@gmail.com

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Eastern Municipal Water District Perris North Groundwater Wells Project, Riverside County.

Native American Heritage Commission
Native American Contact List
Riverside County
7/25/2021

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 Cahuilla
San Jacinto, CA, 92581 Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Soboba Band of Luiseno Indians
Isaiah Vivanco, Chairperson
P. O. Box 487 Cahuilla
San Jacinto, CA, 92581 Luiseno
Phone: (951) 654 - 5544
Fax: (951) 654-4198
ivivanco@soboba-nsn.gov

Torres-Martinez Desert Cahuilla Indians
Michael Mirelez, Cultural Resource Coordinator
P.O. Box 1160 Cahuilla
Thermal, CA, 92274
Phone: (760) 399 - 0022
Fax: (760) 397-8146
mmirelez@tmdci.org

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Eastern Municipal Water District Perris North Groundwater Wells Project, Riverside County.

EMWD Raw Water Conveyance Pipeline Phase III Project Section 106 Correspondence Tracking

Contact List Received from NAHC on 7/25/2021	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Agua Caliente Band of Cahuilla Indians ~~**Jeff Grubbe, Chairperson**~~ New Chairperson: **Reid Milanovich** 5401 Dinah Shore Drive Palm Springs, CA, 92264 Phone: (760) 699 - 6800 Fax: (760) 699-6919	July 29, 2022	Aug 12, 2022	Aug 22, 2022	8/12/22: Office redirected to new chairman's phone, Leslie Barragan. Left a voicemail for the chairman. 8.22.22 LF called and was transferred to the assistant of the new chairperson. The new chairperson's name is **Reid Milanovich**. Left a voicemail.

Contact List Received from NAHC on 7/25/2021	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Agua Caliente Band of Cahuilla Indians **Patricia Garcia-~~Plotkin~~, THPO** 5401 Dinah Shore Drive Palm Springs, CA, 92264 Phone: (760) 699 - 6907 Fax: (760) 699-6924 ACBCI-THPO@aguacaliente.net	July 29, 2022	N/A	Aug 22, 2022	Email received 8/10/22 from Arysa Gonzalez Romero, Cultural Resources Analyst: "Hi Laura, We received your letter. Can you send us the shapefiles for this project? Thank you" Shapefiles were sent on 8.12.22 by LM. 8.22.22: LF called and talked to Ms. Garcia (THPO) who expressed concerns about the project and stated that the Tribe is interested in consulting with SWRCB on impacts to resources, developing a mitigation plan, and participating in Native American monitoring. The Tribe is backed up right now but will send a formal response letter soon. 8.30.33: received email from THPO Lacy Padilla. Email stated that the project area is not located within the boundaries of the ACBCI Reservation, however it is within the Tribe's traditional use area. The ACBCI THPO requests the following: *A cultural resources inventory of the project area by a qualified archaeologist prior to any development activities in this area. *A copy of the records search with associated survey reports and site records from the information center. *Copies of any cultural resource documentation (report and site records) generated in connection with this project

Contact List Received from NAHC on 7/25/2021	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Augustine Band of Cahuilla Mission Indians **Amanda Vance, Chairperson** P.O. Box 846 Coachella, CA, 92236 Phone: (760) 398 - 4722 Fax: (760) 369-7161 hhaines@augustinetribe.com	July 29, 2022	N/A	N/A	Email received 7/29 from Victoria Martin, Tribal Vice-Chairperson: "Thank you for the opportunity to offer input concerning the development of the above identified project. We appreciate your sensitivity to the cultural resources that may be impacted by your project and the importance of these cultural resources to the Native American peoples that have occupied the land surrounding the area of your project for thousands of years. Unfortunately, increased development and lack of sensitivity to cultural resources have resulted in many significant cultural resources being destroyed or substantially altered and impacted. Your invitation to consult on this project is greatly appreciated. At this time, we are unaware of specific cultural resources that may be affected by the proposed project, however, in the event, you should discover any cultural resources during the development of this project please contact our office immediately for further evaluation."
Cabazon Band of Mission Indians **Doug Welmas, Chairperson** 84-245 Indio Springs Parkway Indio, CA, 92203 Phone: (760) 342 - 2593 Fax: (760) 347-7880 jstapp@cabazonindians-nsn.gov	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: No answer, left voicemail and sent a follow up email. 8.22.22: No answer, left voicemail.

Contact List Received from NAHC on 7/25/2021	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Cahuilla Band of Indians **Daniel Salgado, Chairperson** 52701 U.S. Highway 371 Anza, CA, 92539 Phone: (951) 763-5549 Fax: (951) 763-2808 Chairman@cahuilla.net BobbyRay Esparza Cultural Coordinator besparza@cahuilla.net	July 29, 2022	Aug 12, 2022	N/A	Aug 12: Office transferred call to Cultural Coordinator, BobbyRay Esparza. Would like letter emailed to besparza@cahuilla.net. Sent follow up email with letter attached. Received a response from BobbyRay Esparza, the Cultural Director, on 8.18.22. His response stated that "The Cahuilla Band has an interest in this project and would like to request that a cultural monitor from Cahuilla be present for all ground disturbing activities. We believe that cultural resources may be unearthed during construction."
Los Coyotes Band of Cahuilla and Cupeño Indians **Shane Chapparosa, Chairperson** P.O. Box 189 Warner Springs, CA, 92086-0189 Phone: (760) 782-0711 Fax: (760) 782-0712 Mr. Chapparosa's personal email: raypacificalarm@yahoo.com. Sent the email and letter to that address on September 6, 2022.	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: Left message with office secretary and sent follow up email to the loscoyotes@gmail.com address. 8.22.22: Left message with office secretary. 9.6.22: Because follow up email was sent to loscoyotes@gmail.com email, LM emailed letter to Mr. Chapparosa's personal email on September 6th.
Morongo Band of Mission Indians **Robert Martin, Chairperson** 12700 Pumarra Road Banning, CA, 92220 Phone: (951) 755-5110 Fax: (951) 755-5177 abrierty@morongo-nsn.gov	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: No answer, left voicemail and sent follow up email. 8.22.22: No answer, left voicemail.

Contact List Received from NAHC on 7/25/2021	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Morongo Band of Mission Indians **Ann Brierty, THPO** 12700 Pumarra Road Banning, CA, 92220 Phone: (951) 755-5259 Fax: (951) 572-6004 abrierty@morongo-nsn.gov	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: No answer, left voicemail and sent follow up email. 8.22.22: No answer, left voicemail.
Pala Band of Mission Indians **Shasta Gaughen, THPO** PMB 50, 35008 Pala Temecula Road Pala, CA. 92059 Phone: (760) 891 – 3515 Fax: (760) 742 – 3189 sgaughen@palatribe.com	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: No answer, left voicemail and sent follow up email. 8.22.22: No answer, left voicemail.
Pechanga Band of Luiseño Indians **Mark Macarro, Chairperson** P.O. Box 1477 Temecula, CA, 92593 Phone: (951) 770 - 6000 Fax: (951) 695-1778 epreston@pechanga-nsn.gov	July 29, 2022	N/A	N/A	Did not call since received a letter w/official tribe information from Paul Macarro (see below).

Contact List Received from NAHC on 7/25/2021	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Pechanga Band of Luiseño Indians **Paul Macarro, Cultural Resources Coordinator** P.O. Box 1477 Temecula, CA, 92593 Phone: (951) 770 - 6306 Fax: (951) 506-9491 pmacarro@pechanga-nsn.gov	July 29, 2022	N/A	N/A	Email Received on 7/29 from Paul Macarro. Excerpt: "At this time, we are interested in participating in this Project based upon our 'Ayelkwish/Traditional Knowledge of the area and its placement 1.37 miles from an 'Ataaxum/Luiseno Traditional Cultural Property. This Project's has a close regional-adjacency to five distinct Ancestral Placename locations, between 3.67-8.82 miles from this Project's APE. This proposed Project has four nearby (non-historic era) archaeological-cultural sites between 1.16-1.33 miles away from this APE. Further, because of multiple nearby Ancestral human-remains, ceremonial features, and through extensive previously recorded sites, and project-experience within this Project's vicinity the Tribe therefore, is interested in participating in this Project. The Pechanga Tribe believes the possibility for recovering sensitive subsurface resources, during ground disturbing activities for the Project is extremely high" "The Tribe requests the following so we may continue the consultation process and to provide adequate and appropriate recommendations for the Project: 1) Notification once the Project begins the entitlement process, if it has not already; 2) Copies of all applicable archaeological reports, site records, proposed grading plans and environmental documents (EA/IS/MND/EIR, etc); 3) Govemment-to-government consultation with the Lead Agency; and 4) The Tribe believes that monitoring by a Riverside County qualified archaeologist and a professional Pechanga Tribal Monitor may be required during earthmoving activities. Therefore, the Tribe reserves its right to make additional comments and recommendations once the environmental documents have been received and fully reviewed. Further, in the event that subsurface cultural resources are identified, the Tribe requests consultation with the Project proponent and Lead Agency regarding the treatment and disposition of all artifacts.

Contact List Received from NAHC on 7/25/2021	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Quechan Tribe of the Fort Yuma Reservation **Jill McCormick, Historic Preservation Officer** P.O. Box 1899 Yuma, AZ. 85366 Phone: (760) 572 – 2423 historicpreservation@quechantribe.com	July 29, 2022	N/A	N/A	Via email on 8/1/2022: "This email is to inform you that we have no comments on this project. We defer to the more local Tribes and support their decisions on the projects."
Quechan Tribe of the Fort Yuma Reservation **Manfred Scott, Acting Chairman, Kw'ts'an Cultural Committee** P.O. Box 1899 Yuma, AZ. 85366 Phone: (928) 750 – 2516 scottmanfred@yahoo.com	July 29, 2022	Aug 12, 2022	N/A	Aug 12: Confirmed that they received the letter and had sent a response letter (see above). He confirmed no questions or concerns.
Ramona Band of Cahuilla **John Gomez, Environmental Coordinator** P. O. Box 391670 Anza, CA, 92539 Phone: (951) 763 - 4105 Fax: (951) 763-4325 jgomez@ramona-nsn.gov	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: No answer, left voicemail and sent follow up email. 8.22.22: No answer, left voicemail.
Ramona Band of Cahuilla ~~**Joseph Hamilton, Chairperson,**~~ New Chairperson: **Danae Hamilton Vega** P.O. Box 391670 Anza, CA, 92539 Phone: (951) 763 - 4105 Fax: (951) 763-4325 admin@ramona-nsn.gov	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: Phone is same as John Gomez's, no answer, sent follow up email. 8.22.22: LF spoke with Admin person for the Chairperson who sent a message to John Gomez. Admin person also confirmed that Mr. Hamilton had passed away. New Chairperson is **Danae Hamilton Vega.**

Contact List Received from NAHC on 7/25/2021	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Rincon Band of Luiseno Indians **Cheryl Madrigal, THPO** One Government Center Lane Valley Center, CA. 92082 Phone: (760) 297 – 2635 crd@rincon-nsn.gov	July 29, 2022	Aug 12, 2022	N/A	Aug 12: Left voicemail, sent follow up email Received response from Cheryl Madrigal on 8.19.22 stating that the Rincon Band of Luiseno Indians would like to consult with the lead agency on the proposed project. Ms. Madrigal also requested additional information regarding the project such as existing GIS shapefiles/KMZ, any cultural resources assessments, record search results, overly maps of the project and potential APE and previously recorded cultural sites. Rincon responded on August 26th, 2022, providing the requested shapefiles, record search results, and project map. Notified Ms. Madrigal that Rincon will send her a copy of this cultural resource assessment once complete.
Rincon Band of Luiseno Indians **Bo Mazzetti, Chairperson** One Government Center Lane Valley Center, CA. 92082 Phone: (760) 749 – 1051 Fax: (760) 749 – 5144 bomazzetti@aol.com	July 29, 2022	Aug 12, 2022	N/A	Aug 12: Transferred to liaison, left voicemail, sent a follow up email. Mazzetti responded via email “Thanks I will check as to status of reply”. See above for the response from the Tribe.

Contact List Received from NAHC on 7/25/2021	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
San Manuel Band of Mission Indians **Jessica Mauck, Director of Cultural Resources** 26569 Community Center Drive Highland, CA, 92346 Phone: (909) 864 - 8933 jmauck@sanmanuel-nsn.gov	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: Left a voicemail, sent follow up email. 8.22.22: No answer, left voicemail. 8.25.22: Email received from Ryan Nordess, Cultural Resource Analyst: Thank you for reaching out to the Yuhaaviatam of San Manuel Nation (formerly known as the San Manuel Band of Mission Indians) concerning the proposed project area. YSMN appreciates the opportunity to review the project documentation received by the Cultural Resources Management Department on July 30th 2022. The proposed project is not located near any known cultural resources. Thank you again for your correspondence, if you have any additional questions or comments please reach out to me at your earliest convenience.
Santa Rosa Band of Cahuilla Indians **Lovina Redner, Tribal Chair** P.O. Box 391820 Anza, CA, 92539 Phone: (951) 659 - 2700 Fax: (951) 659-2228 ~~lsaul@santarosacahuillansn.gov~~ lsaul@santarosa-nsn.gov	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: No answer, left voicemail with receptionist. Sent follow up email. 8.22.22: LF spoke with Admin person. Admin person passed on correct email address for Lovina which is: lsaul@santarosa-nsn.gov *Rincon emailed letter to correct email address.
Serrano Nation of Mission Indians **Mark Cochrane, Co-Chairperson** P. O. Box 343 Patton, CA, 92369 Phone: (909) 528 – 9032 serranonation1@gmail.com	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: No answer, left voicemail. Sent follow up email. 8.22.22: No answer, left voicemail.

Contact List Received from NAHC on 7/25/2021	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
Serrano Nation of Mission Indians **Wayne Walker, Co-Chairperson** P. O. Box 343 Patton, CA, 92369 Phone: (253) 370 – 0167 serranonation1@gmail.com	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: No answer, left voicemail. Sent follow up email. 8.22.22: No answer, left voicemail.
Soboba Band of Luiseno Indians **Joseph Ontiveros, Cultural Resource Department** P.O. BOX 487 San Jacinto, CA, 92581 Phone: (951) 663-5279 Fax: (951) 654-4198 jontiveros@soboba-nsn.gov	July 29, 2022	Aug 12, 2022	N/A	Aug 12: Stated that the project location is within their tribal cultural landscape and would like to enter consultation with the SWRCB as part of the Section 106 process.
Soboba Band of Luiseno Indians **Isaiah Vivanco, Chairperson** P. O. Box 487 San Jacinto, CA, 92583 Phone: (951) 654-5544 Fax: (951) 654-4198 ivivanco@soboba-nsn.gov	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: Unable to connect to operator to leave a message. Sent a follow up email. 8.22.22: Called, but voicemail option was unavailable.
Torres-Martinez Desert Cahuilla Indians **Michael Mirelez, Cultural Resource Coordinator** P.O. Box 1160 Thermal, CA, 92274 Phone: (760) 399 - 0022 Fax: (760) 397-8146 mmirelez@tmdci.org	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: No answer, mailbox is full, unable to leave a voicemail. Sent follow up email. 8.22.22: Called but mailbox is full, unable to leave a voicemail.

Rincon Consultants, Inc.

1980 Orange Tree Ln., Ste. 105
Redlands, California 92374

909 253 07051 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

July 29, 2022

Ann Brierty, THPO
Morongo Band of Mission Indians
abrierty@morongo-nsn.gov

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Ms. Brierty,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

The Project involves funding from the State Water Resources Control Board (State Water Board) Proposition 1 Groundwater Grant Program and potentially other sources which may be considered equivalent to a federal action, thereby necessitating compliance with Section 106 of the National Historic Preservation Act (Section 106).

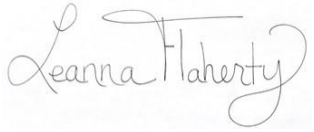
As part of the environmental compliance for the Project, your tribe has been identified as one that might attach religious and cultural significance to historic properties in the APE. Your assistance is requested with the identification of cultural resources of significance (a previous letter of inquiry was sent in January 2020 for the original groundwater extraction, conveyance, and treatment facilities

project). Your participation in the early identification of cultural resources will ensure their consideration during the Project planning phase. We welcome your recommendations regarding appropriate management or treatment of cultural resources that occur within the APE.

This letter is not intended to constitute formal consultation under Section 106; formal Section 106 consultation will be completed by the lead federal agency. If you have questions, need additional information, or wish to comment, please contact me by email at lflaherty@rinconconsultants.com or by telephone at (805) 201-9621. Please respond within 30 days of receipt of this letter.

Sincerely,

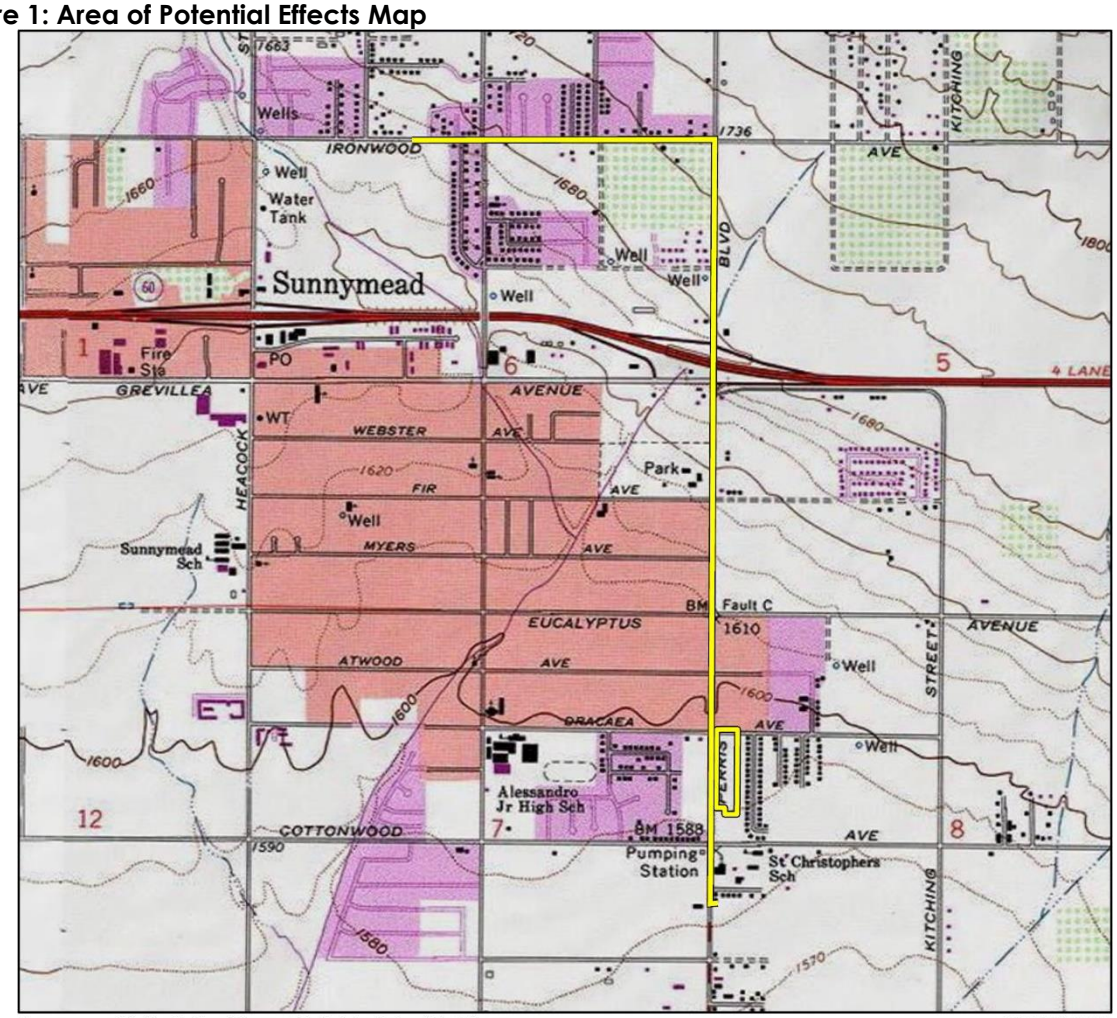
Rincon Consultants, Inc.



Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

Enclosed: Figure 1 Area of Potential Effects Map

Figure 1: Area of Potential Effects Map



Basemap provided by National Geographic Society, Esri and their licensors © 2022. Sunnymead Quadrangle. T02S R03W S31,32 & T03S R03W S05-08. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

Project Location

0 1,000 2,000 Feet

N

Rincon Consultants, Inc.

1980 Orange Tree Ln., Ste. 105
Redlands, California 92374

909 253 07051 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

July 29, 2022

Shane Chapparosa, Chairperson
Los Coyotes Band of Cahuilla and Cupeño Indians
P.O. Box 189
Warner Springs, CA. 92086-0189

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Chairperson Chapparosa,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

The Project involves funding from the State Water Resources Control Board (State Water Board) Proposition 1 Groundwater Grant Program and potentially other sources which may be considered equivalent to a federal action, thereby necessitating compliance with Section 106 of the National Historic Preservation Act (Section 106).

As part of the environmental compliance for the Project, your tribe has been identified as one that might attach religious and cultural significance to historic properties in the APE. Your assistance is requested with the identification of cultural resources of significance (a previous letter of inquiry was

sent in January 2020 for the original groundwater extraction, conveyance, and treatment facilities project). Your participation in the early identification of cultural resources will ensure their consideration during the Project planning phase. We welcome your recommendations regarding appropriate management or treatment of cultural resources that occur within the APE.

This letter is not intended to constitute formal consultation under Section 106; formal Section 106 consultation will be completed by the lead federal agency. If you have questions, need additional information, or wish to comment, please contact me by email at lflaherty@rinconconsultants.com or by telephone at (805) 201-9621. Please respond within 30 days of receipt of this letter.

Sincerely,

Rincon Consultants, Inc.

Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

Enclosed: Figure 1 Area of Potential Effects Map

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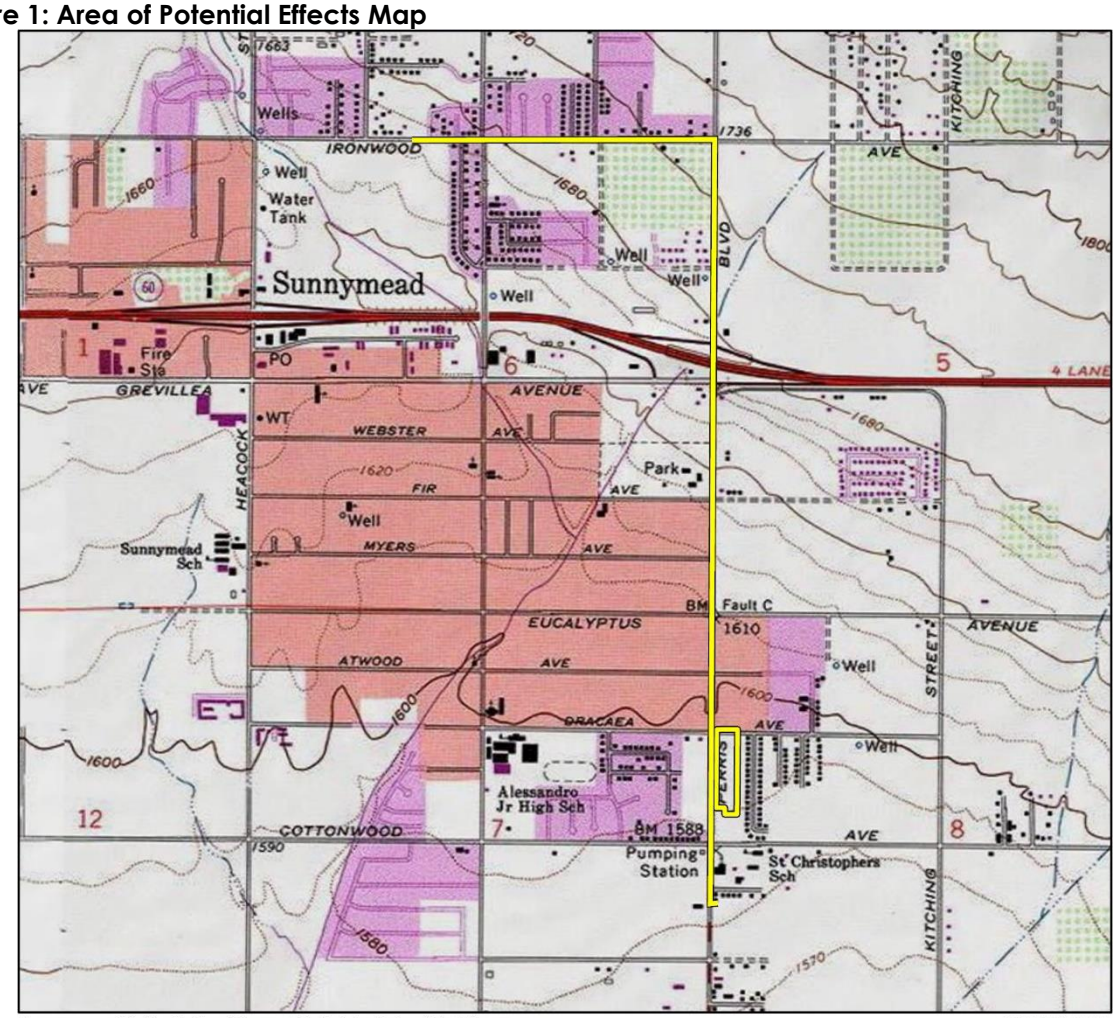

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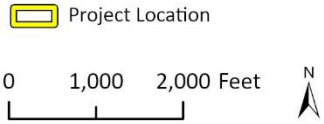

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July 29, 2022

Mark Cochrane, Co-Chairperson
Serrano Nation of Mission Indians
serranonation1@gmail.com

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Mr. Cochrane,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

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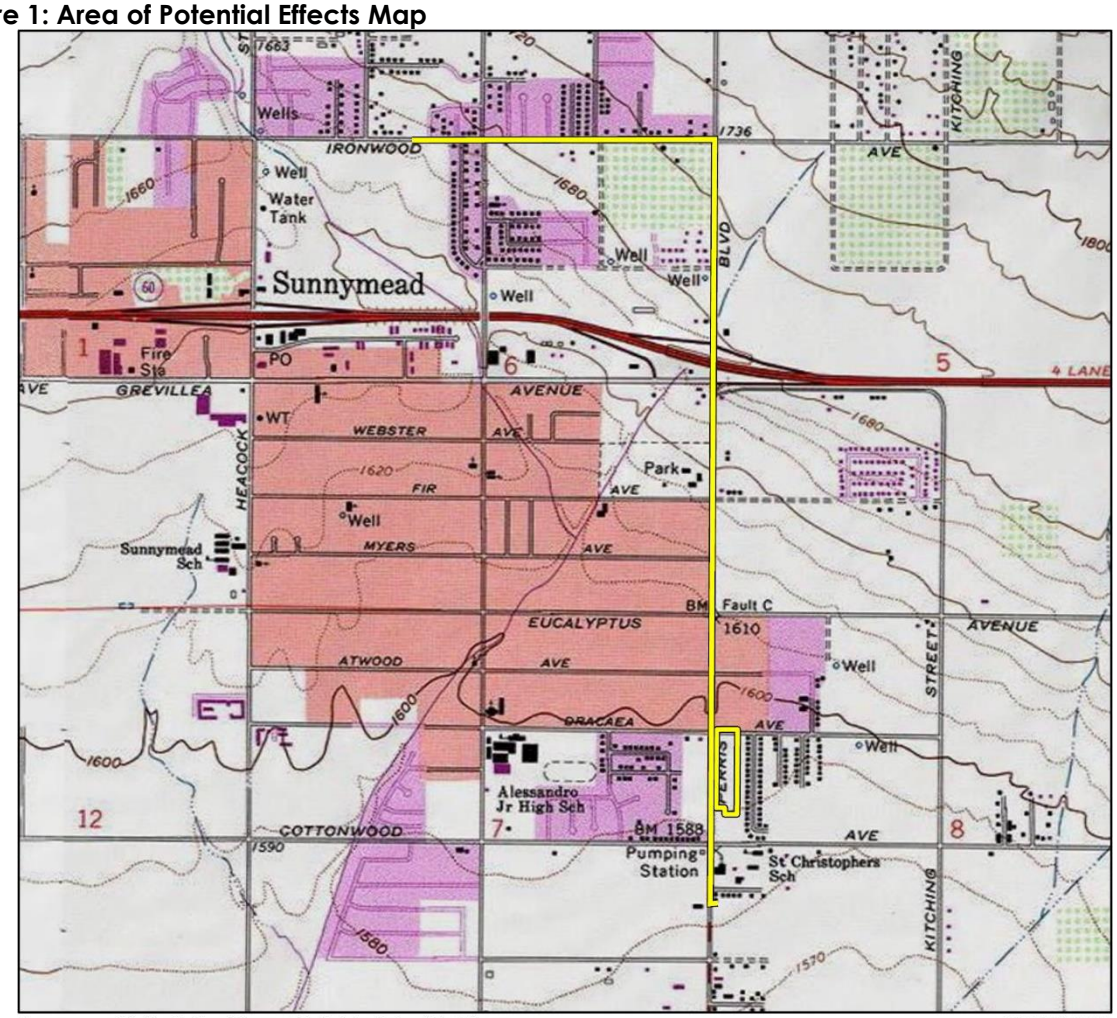

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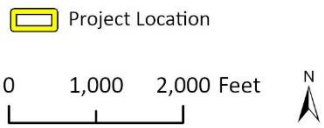

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July 29, 2022

Patricia Garcia-Plotkin, Director
Agua Caliente Band of Cahuilla Indians
ACBCI-THPO@aguacaliente.net

Subject: Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California

Dear Director Garcia-Plotkin,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

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Cultural Resources Project Manager

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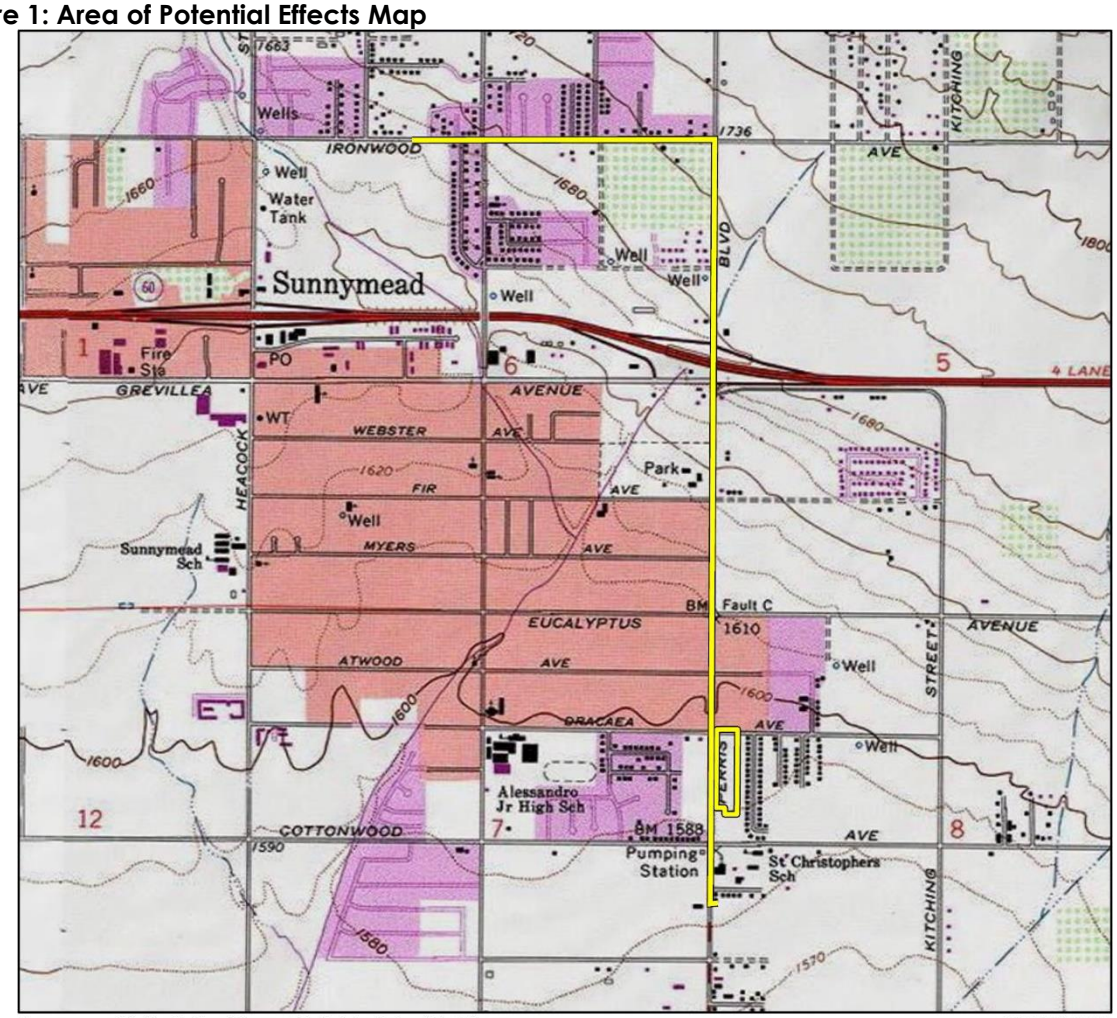

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Project Location

0 1,000 2,000 Feet

N

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July 29, 2022

Shasta Gaughen, THPO
Pala Band of Mission Indians
sgaughen@palatribe.com

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Ms. Gaughen,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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Cultural Resources Project Manager

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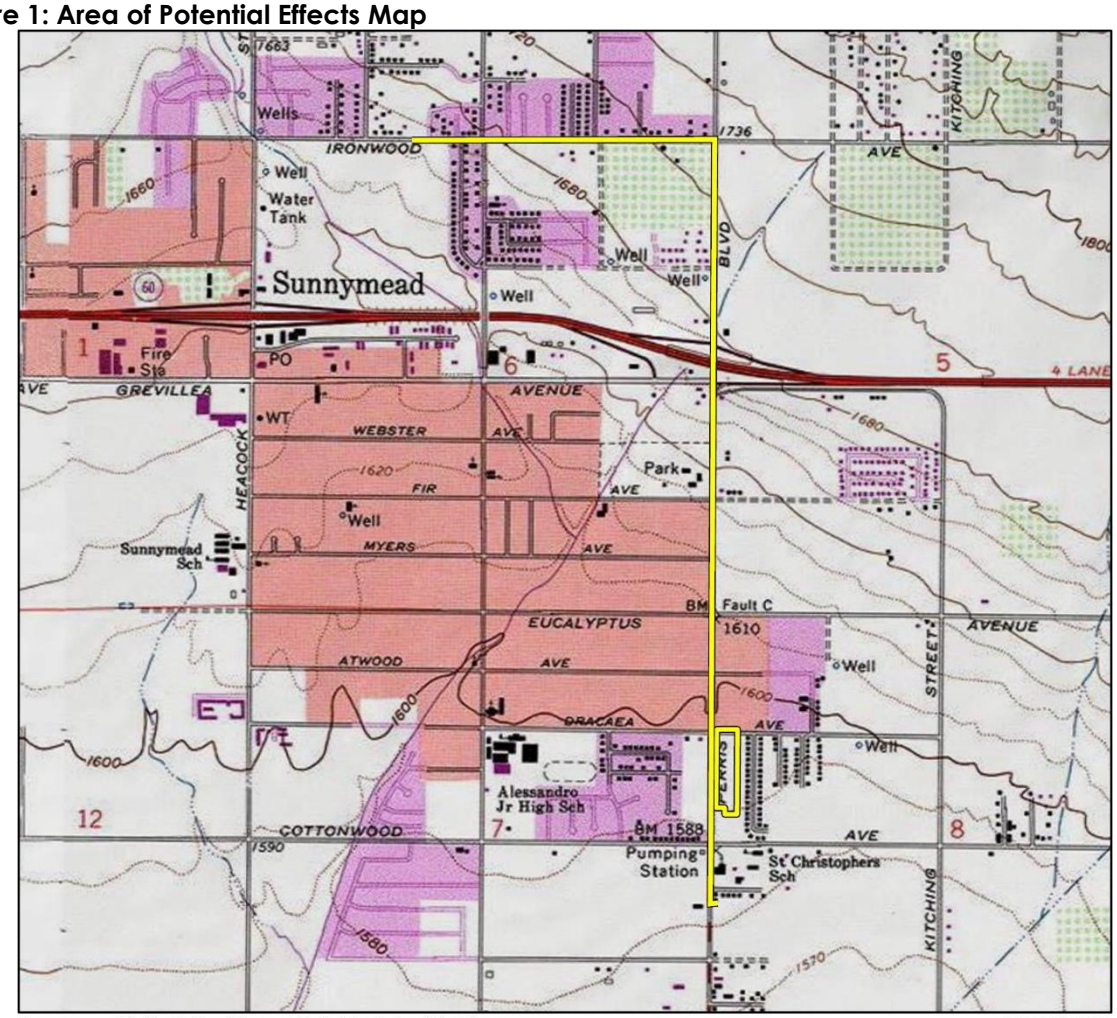

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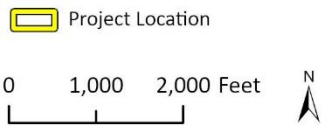

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July 29, 2022

John Gomez, Environmental Coordinator
Ramona Band of Cahuilla
jgomez@ramona-nsn.gov

Subject: Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California

Dear Mr. Gomez,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

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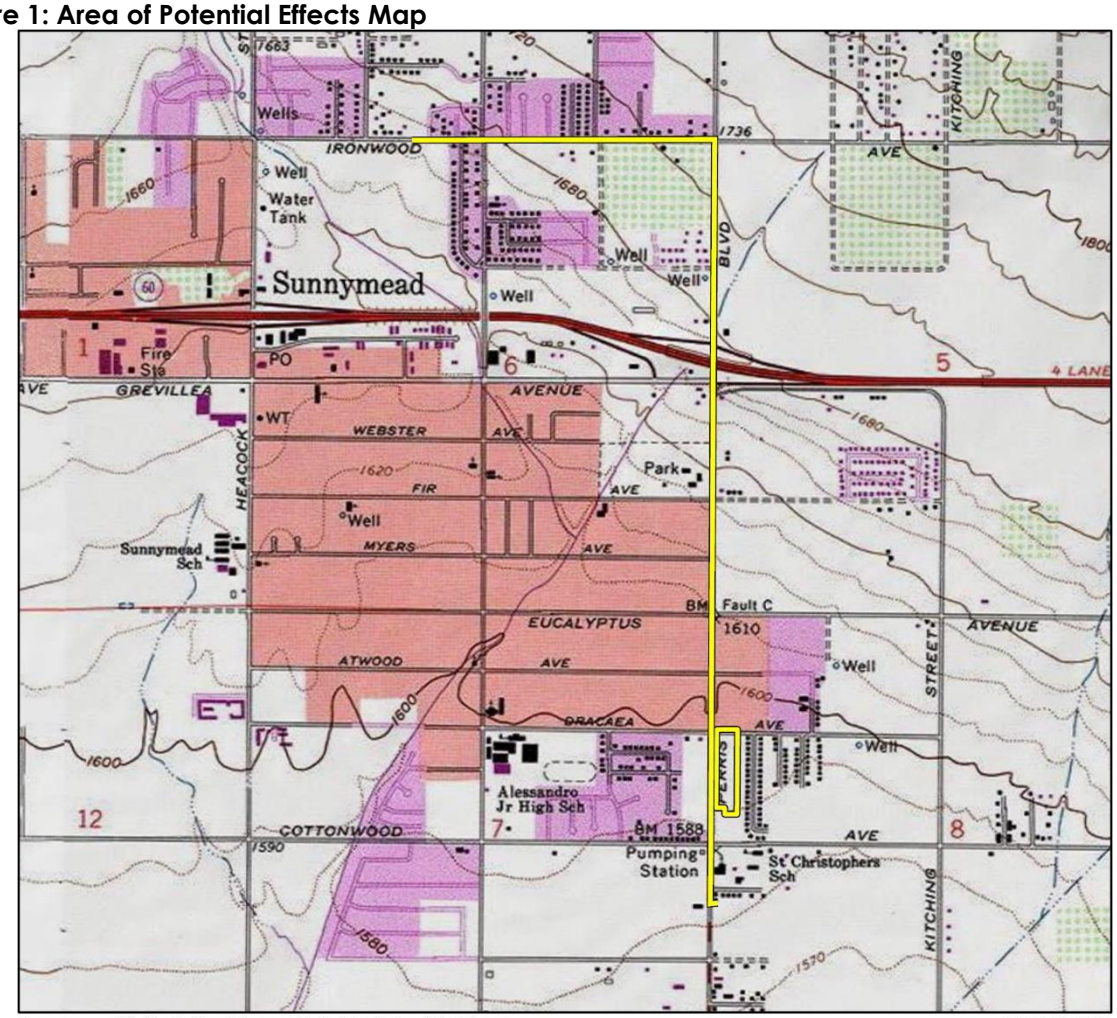

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July 29, 2022

Jeff Grubbe, Chairperson
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA. 92264

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Mr. Grubbe,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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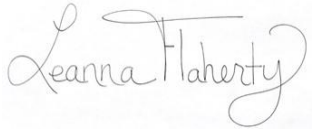

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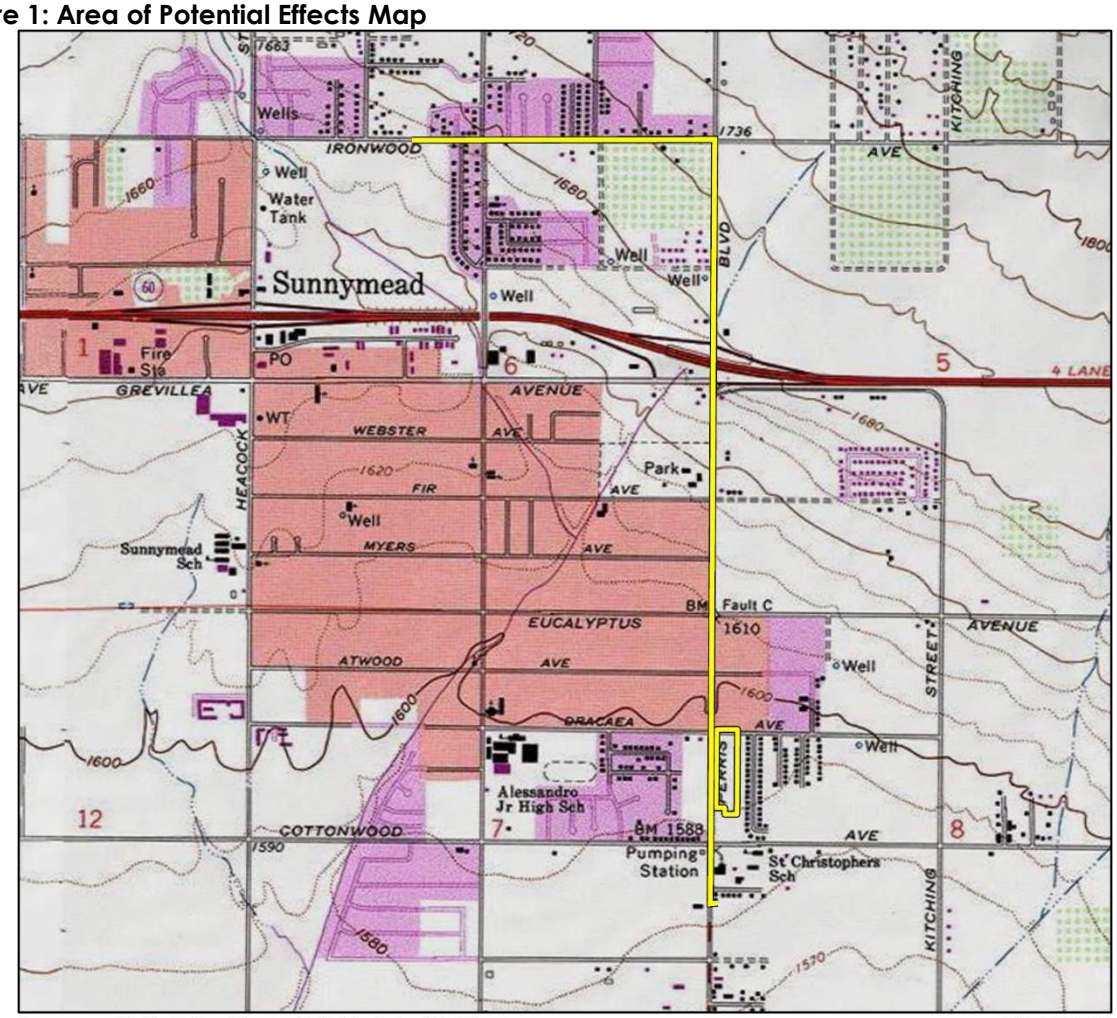

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July 29, 2022

Joseph Hamilton, Chairperson
Ramona Band of Cahuilla
admin@ramona-nsn.gov

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Chairperson Hamilton,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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Sincerely,

Rincon Consultants, Inc.

Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

Enclosed: Figure 1 Area of Potential Effects Map

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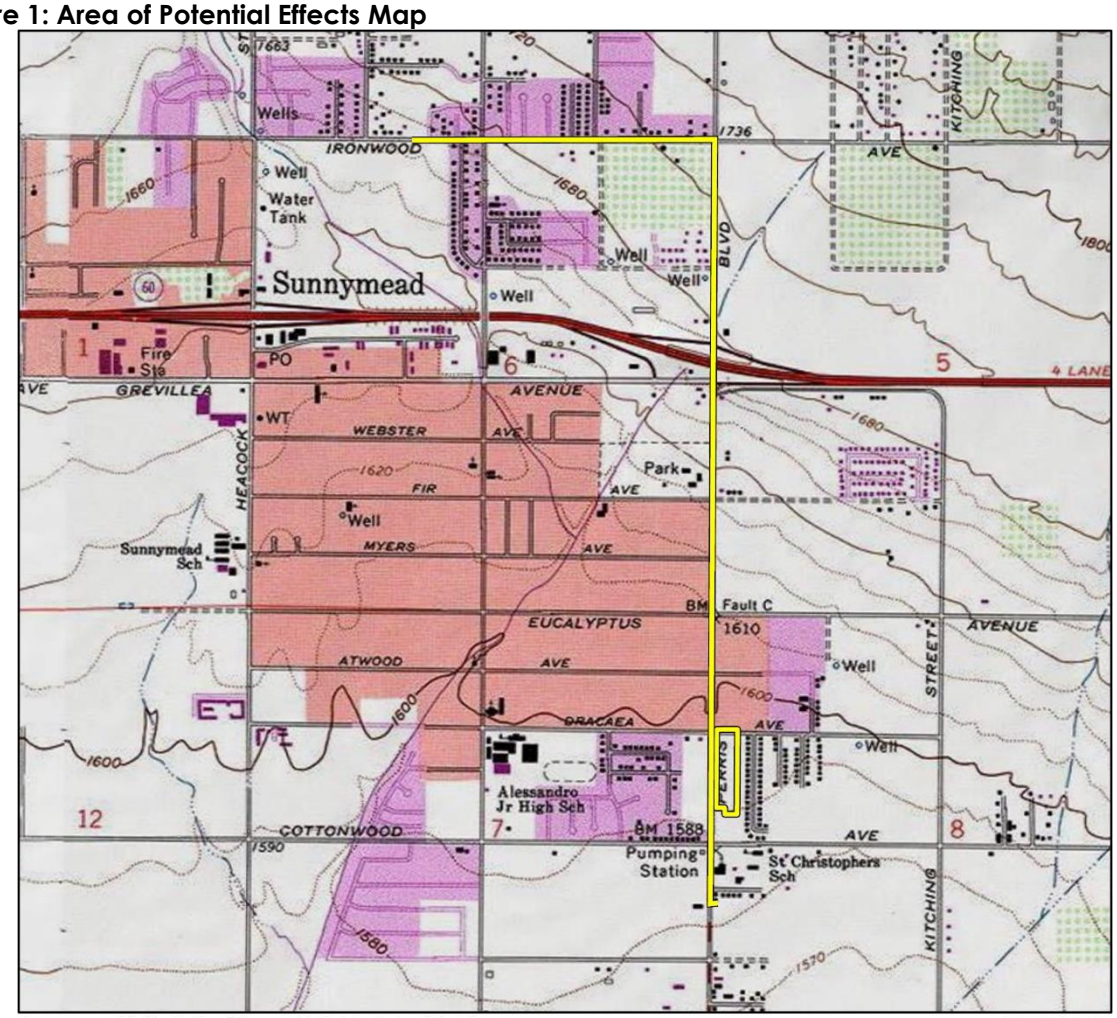

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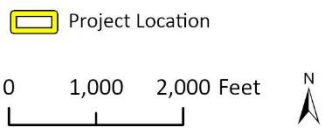

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July 29, 2022

Mark Macarro, Chairperson
Pechanga Band of Luiseno Indians
epreston@pechanga-nsn.gov

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Mr. Macarro,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

The Project involves funding from the State Water Resources Control Board (State Water Board) Proposition 1 Groundwater Grant Program and potentially other sources which may be considered equivalent to a federal action, thereby necessitating compliance with Section 106 of the National Historic Preservation Act (Section 106).

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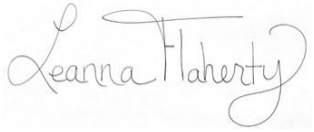

Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

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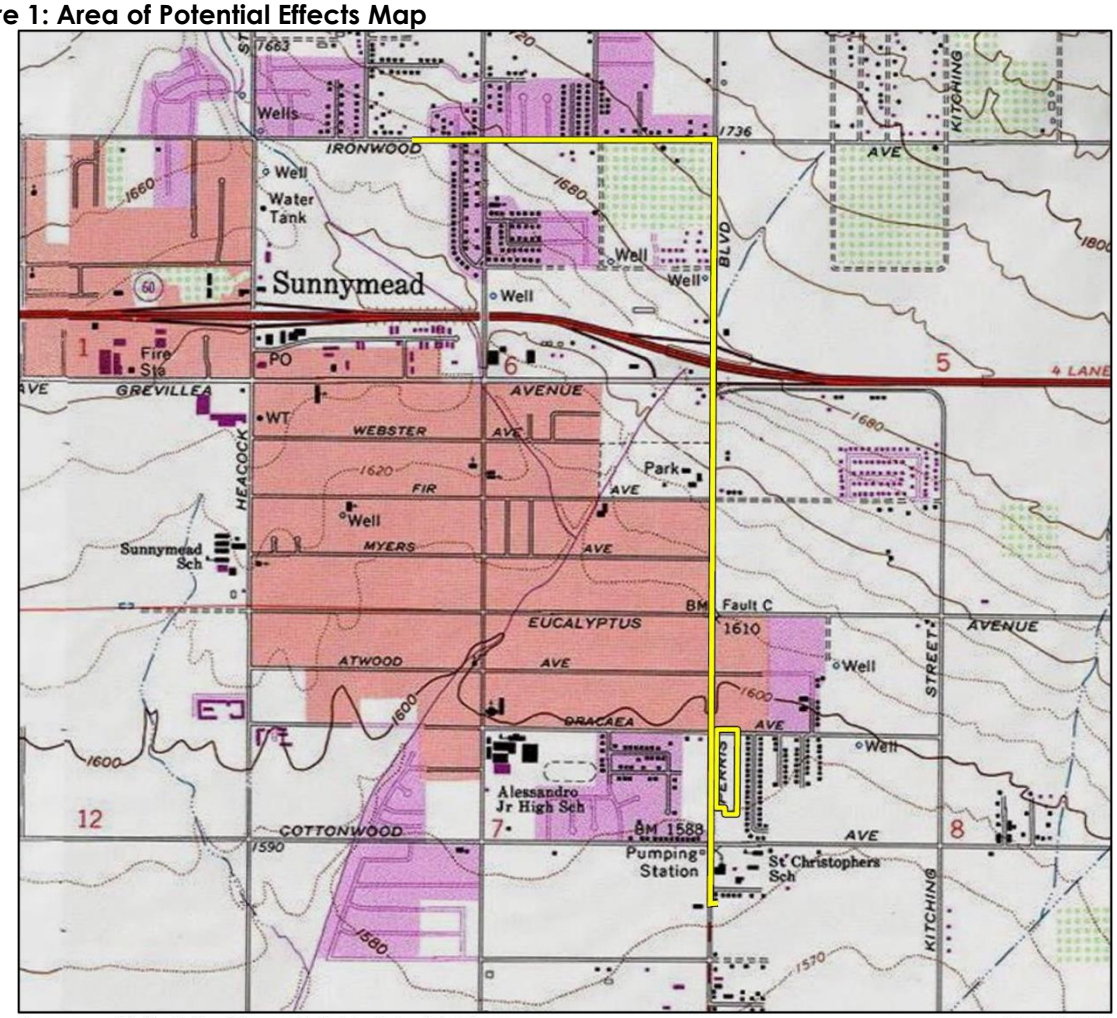

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July 29, 2022

Paul Macarro, Cultural Resources Coordinator
Pechanga Band of Luiseno Indians
pmacarro@pechanga-nsn.gov

Subject: Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California

Dear Mr. Macarro,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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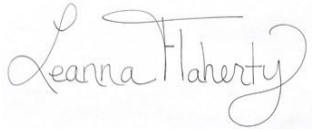

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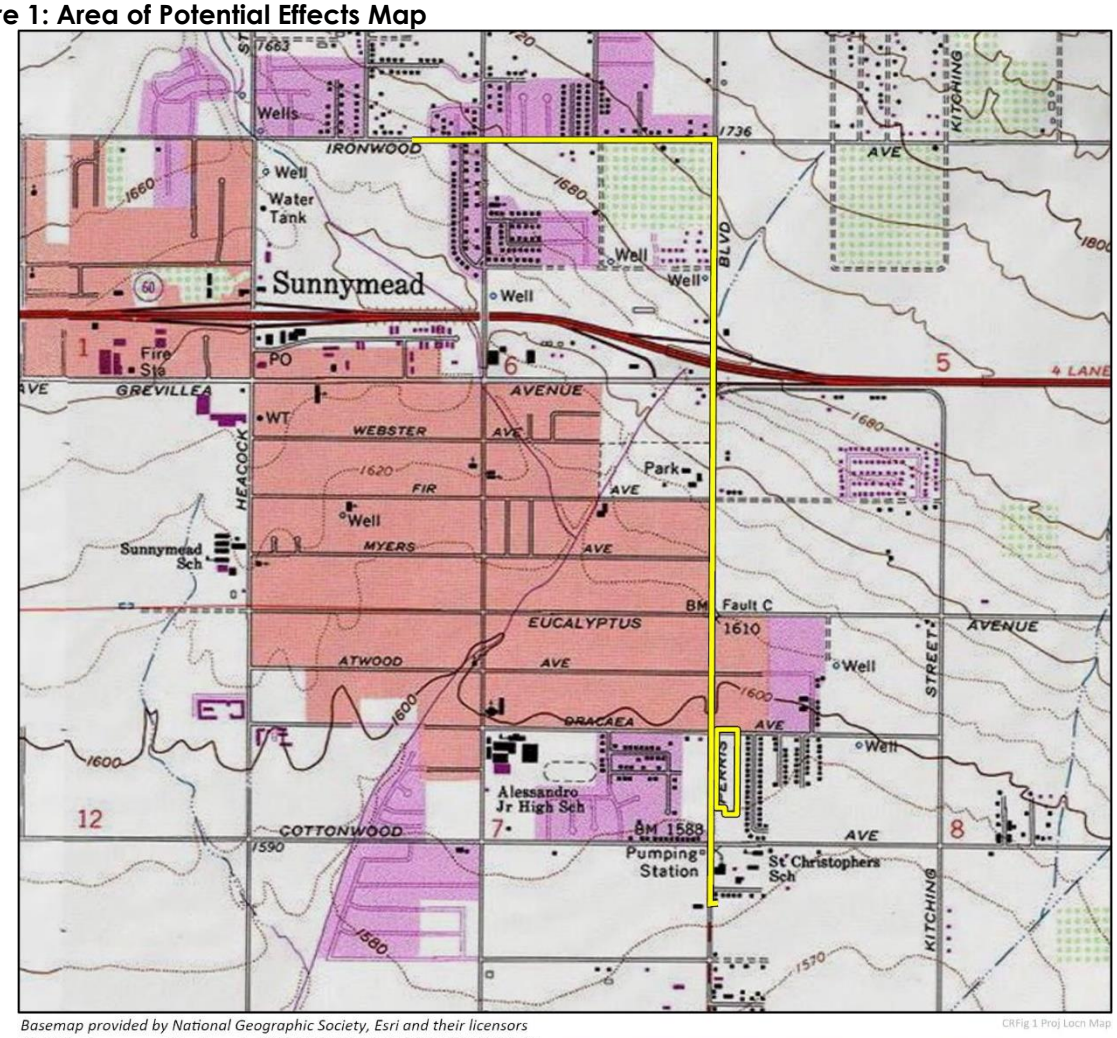

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CRFig 1 Proj Locn Map

Project Location

0 1,000 2,000 Feet

N

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July 29, 2022

Cheryl Madrigal, THPO
Rincon Band of Luiseno Indians
crd@rincon-nsn.gov

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Ms. Madrigal,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

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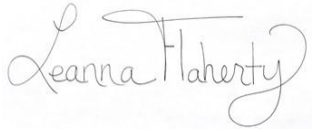

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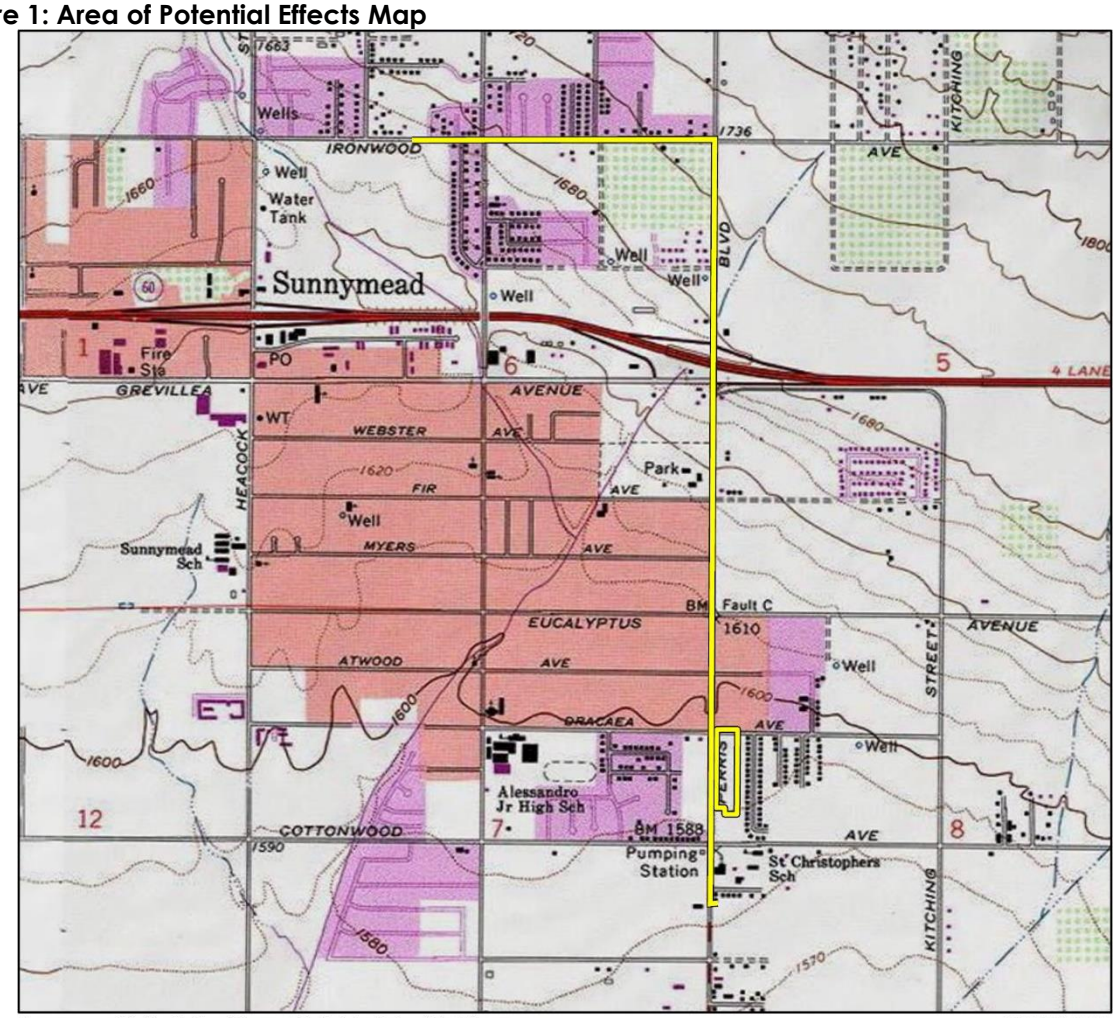

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Project Location

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July 29, 2022

Robert Martin, Chairperson
Morongo Band of Mission Indians
abrierty@morongo-nsn.gov

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Mr. Martin,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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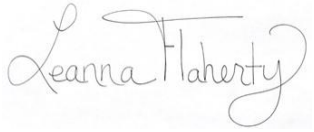

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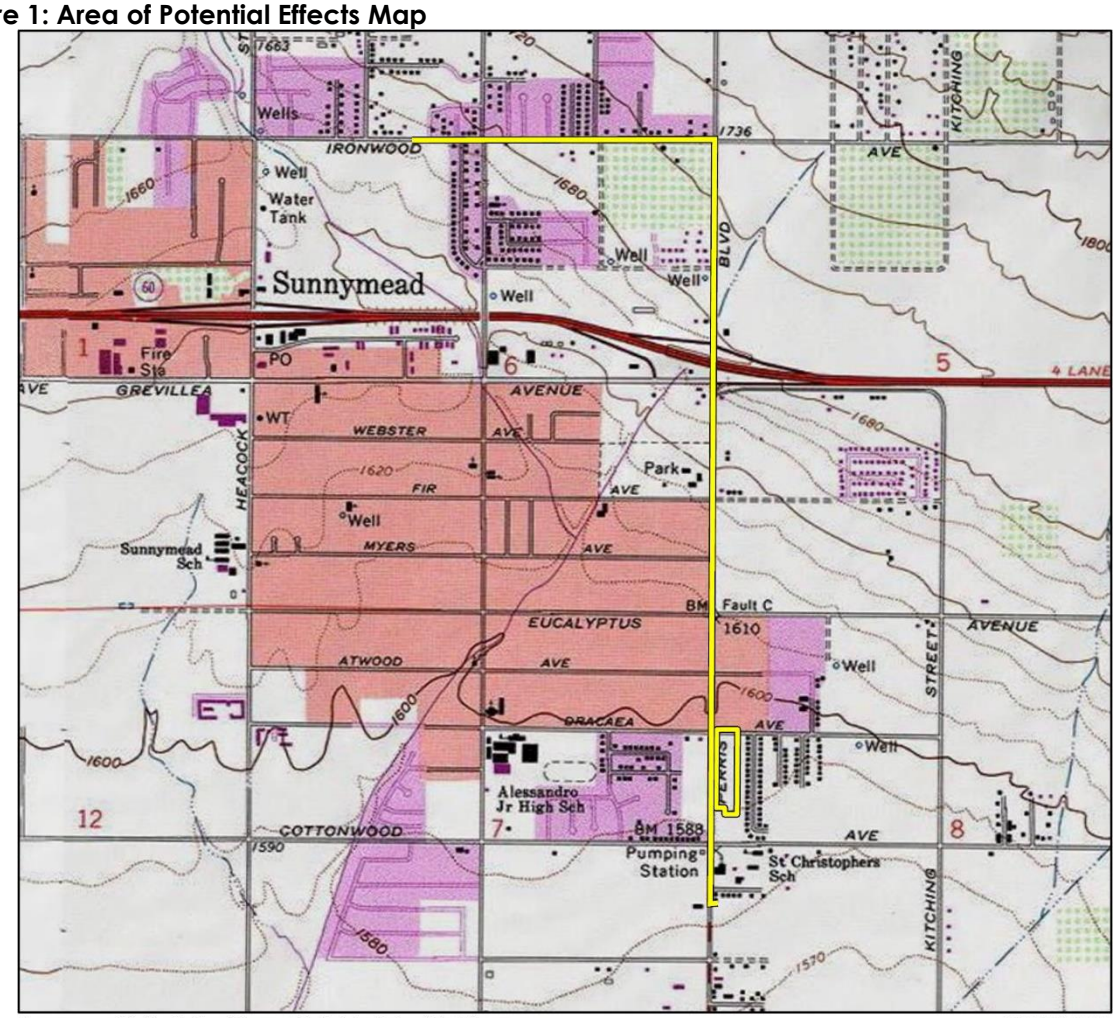

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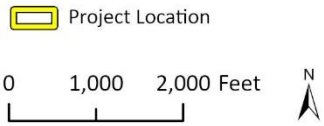

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July 29, 2022

Jessica Mauck, Director of Cultural Resources
San Manuel Band of Mission Indians
jmauck@sanmanuel-nsn.gov

Subject: Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California

Dear Ms. Mauck,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

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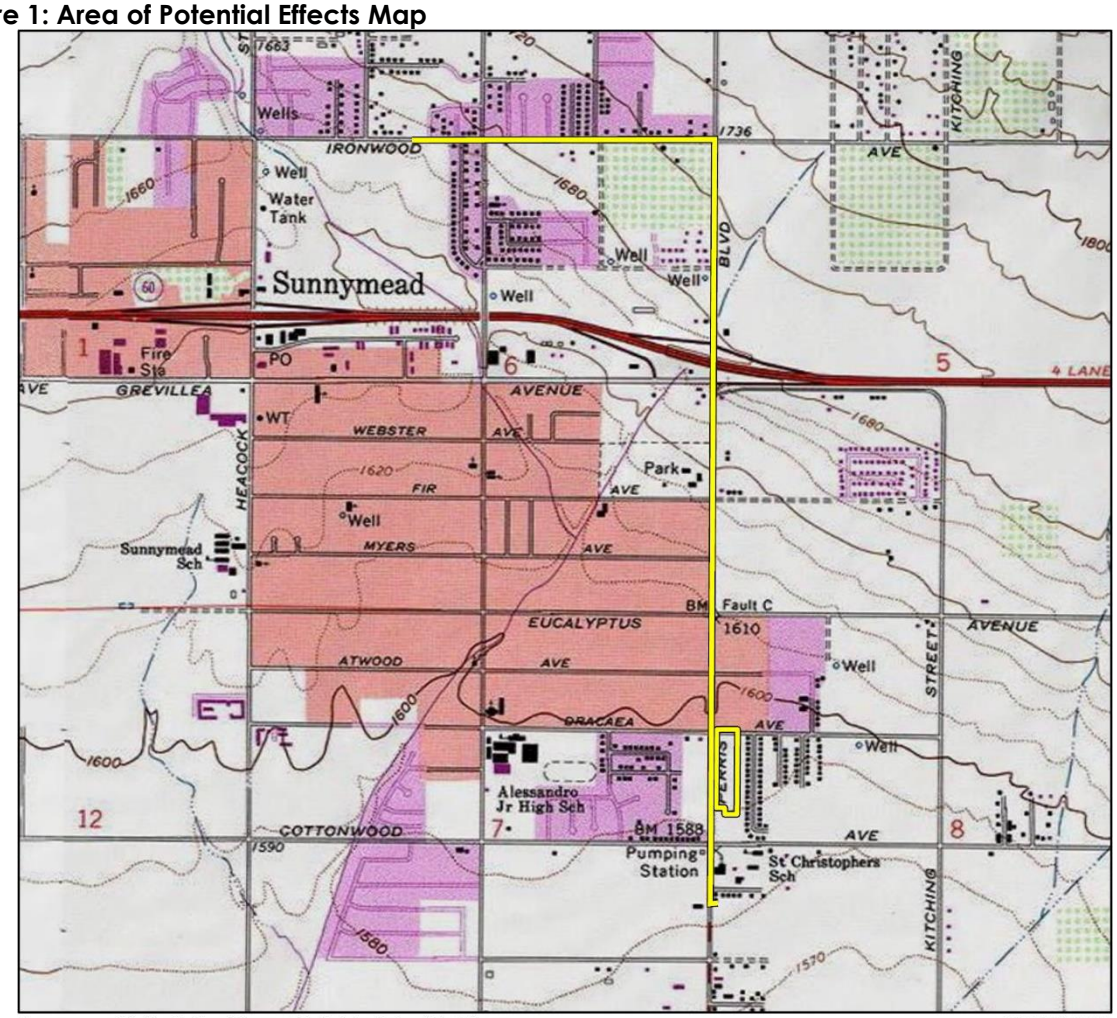

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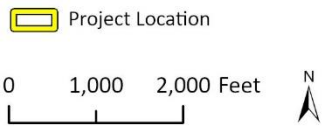

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July 29, 2022

Bo Mazzetti, Chairperson
Rincon Band of Luiseno Indians
bomazzetti@aol.com

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Chairperson Mazzetti,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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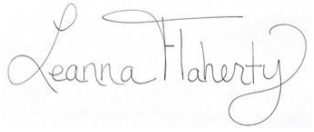
Sincerely,

Rincon Consultants, Inc.



Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

Enclosed: Figure 1 Area of Potential Effects Map

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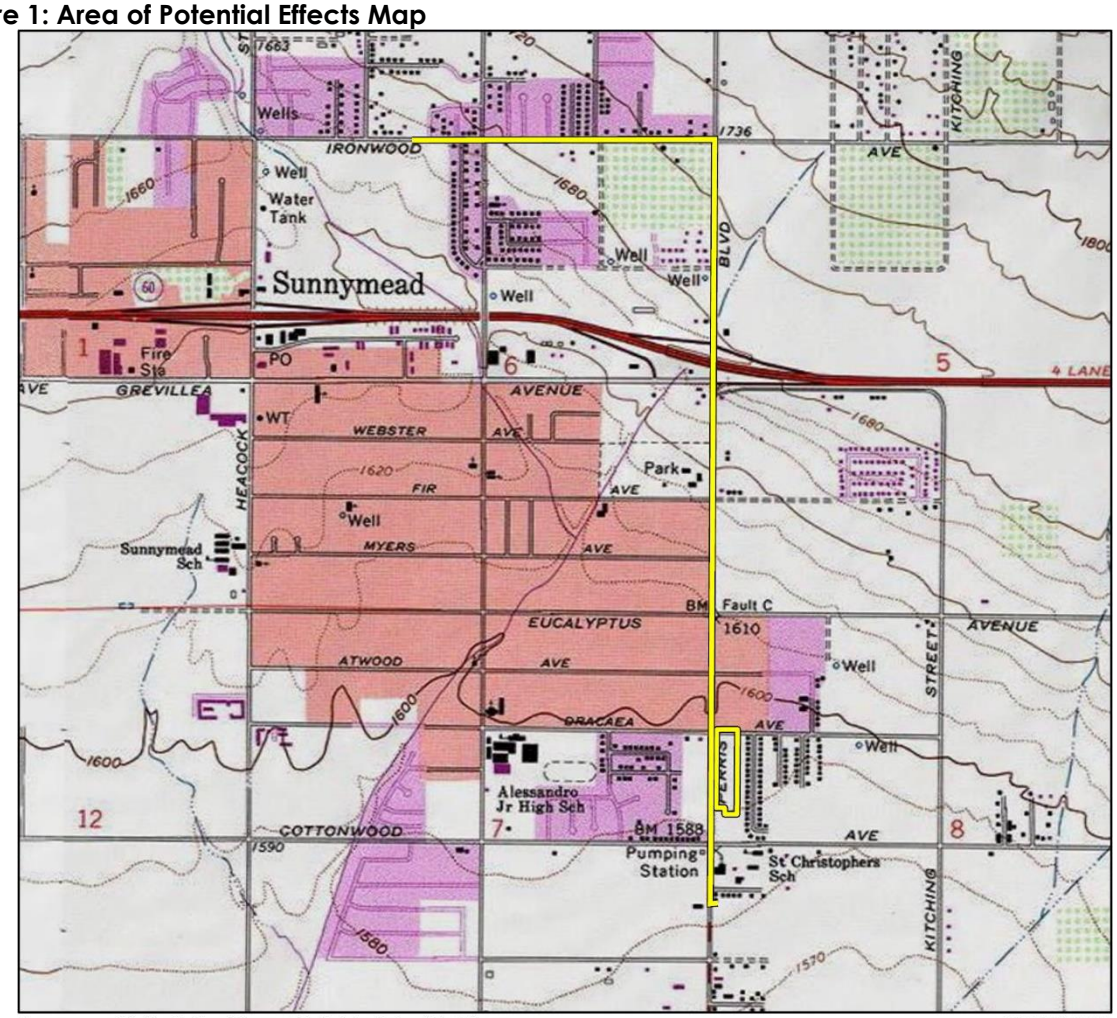

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Project Location

0 1,000 2,000 Feet

N

Rincon Consultants, Inc.

1980 Orange Tree Ln., Ste. 105
Redlands, California 92374

909 253 07051 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

July 29, 2022

Jill McCormick, Historic Preservation Officer
Quechan Tribe of the Fort Yuma Reservation
historicpreservation@quechantribe.com

Subject: Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California

Dear Mrs. McCormick,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

The Project involves funding from the State Water Resources Control Board (State Water Board) Proposition 1 Groundwater Grant Program and potentially other sources which may be considered equivalent to a federal action, thereby necessitating compliance with Section 106 of the National Historic Preservation Act (Section 106).

As part of the environmental compliance for the Project, your tribe has been identified as one that might attach religious and cultural significance to historic properties in the APE. Your assistance is requested with the identification of cultural resources of significance (a previous letter of inquiry was sent in January 2020 for the original groundwater extraction, conveyance, and treatment facilities

project). Your participation in the early identification of cultural resources will ensure their consideration during the Project planning phase. We welcome your recommendations regarding appropriate management or treatment of cultural resources that occur within the APE.

This letter is not intended to constitute formal consultation under Section 106; formal Section 106 consultation will be completed by the lead federal agency. If you have questions, need additional information, or wish to comment, please contact me by email at lflaherty@rinconconsultants.com or by telephone at (805) 201-9621. Please respond within 30 days of receipt of this letter.

Sincerely,

Rincon Consultants, Inc.

Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

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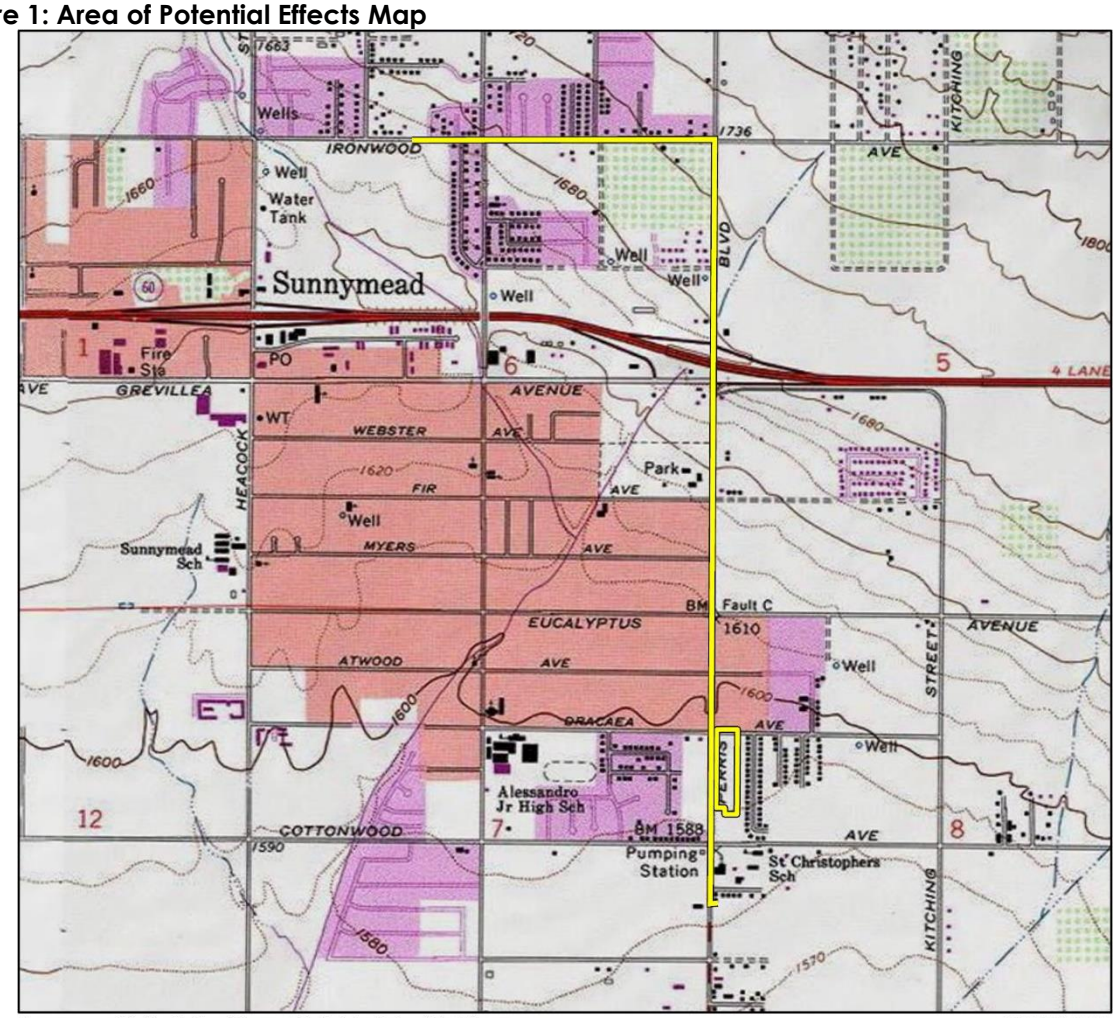

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July 29, 2022

Torres-Martinez Desert Cahuilla Indians
Michael Mirelez, Cultural Resource Coordinator
P.O. Box 1160
Thermal, CA, 92274

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Mr. Mirelez,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

The Project involves funding from the State Water Resources Control Board (State Water Board) Proposition 1 Groundwater Grant Program and potentially other sources which may be considered equivalent to a federal action, thereby necessitating compliance with Section 106 of the National Historic Preservation Act (Section 106).

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Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

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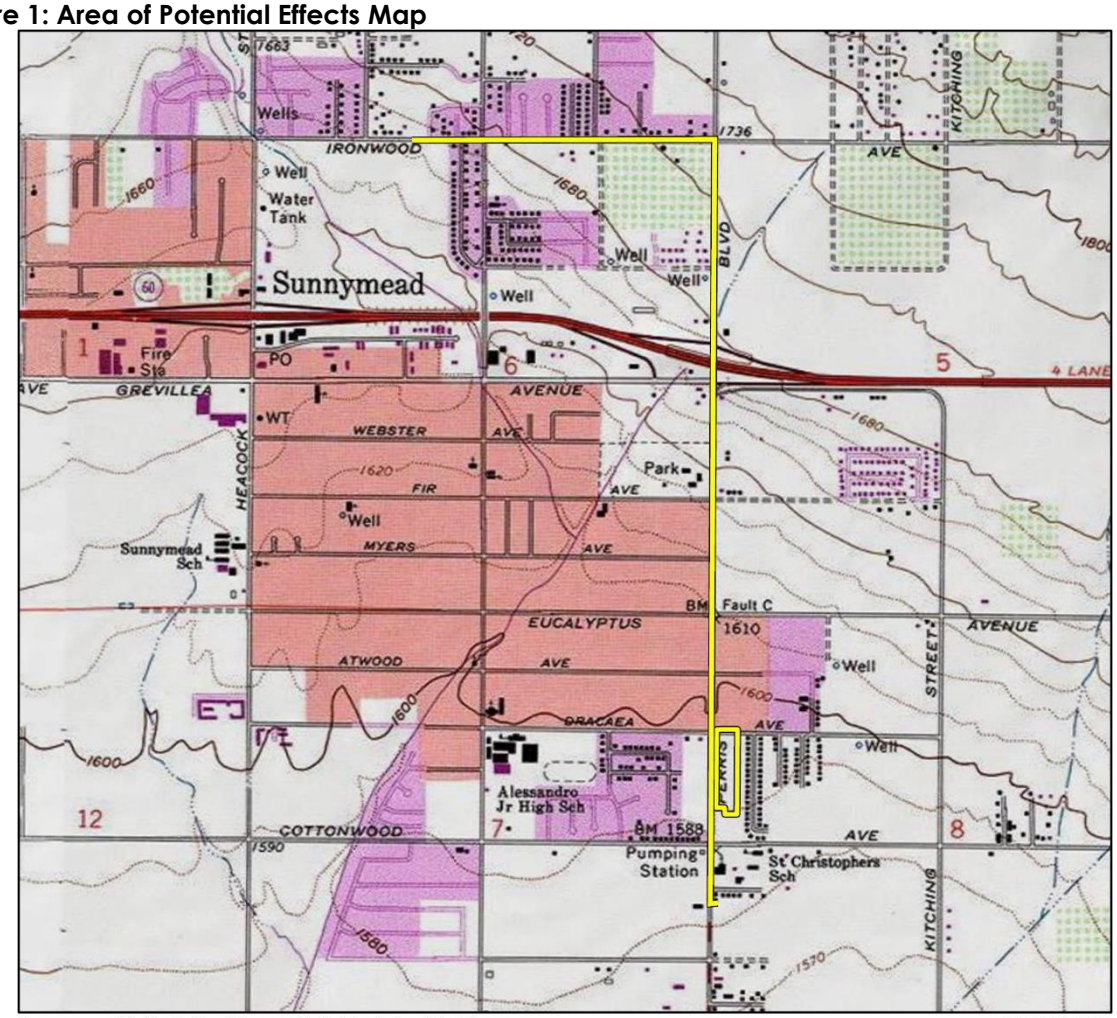

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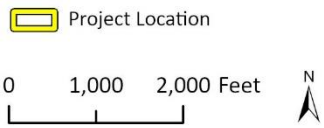

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July 29, 2022

Joseph Ontiveros, Cultural Resource Department
Soboba Band of Luiseno Indians
jontiveros@soboba-nsn.gov

Subject: Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California

Dear Mr. Ontiveros,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

The Project involves funding from the State Water Resources Control Board (State Water Board) Proposition 1 Groundwater Grant Program and potentially other sources which may be considered equivalent to a federal action, thereby necessitating compliance with Section 106 of the National Historic Preservation Act (Section 106).

As part of the environmental compliance for the Project, your tribe has been identified as one that might attach religious and cultural significance to historic properties in the APE. Your assistance is requested with the identification of cultural resources of significance (a previous letter of inquiry was

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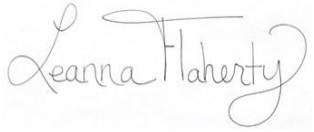
Rincon Consultants, Inc.



Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

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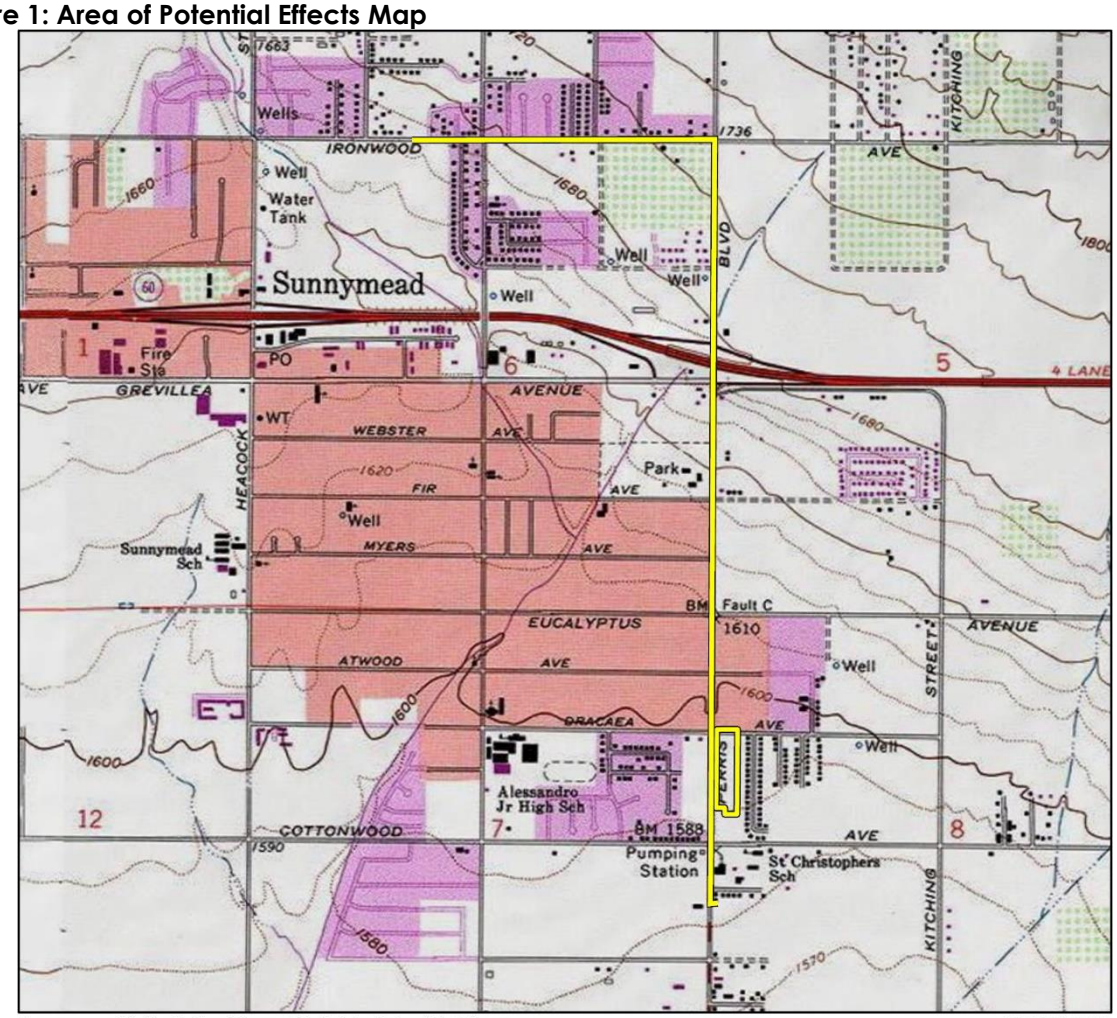

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CRFig 1 Proj Locn Map

Project Location

0 1,000 2,000 Feet

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www.rinconconsultants.com

July 29, 2022

Lovina Redner, Tribal Chair
Santa Rosa Band of Cahuilla Indians
lsaul@santarosa-nsn.gov

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Chairperson Redner,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

The Project involves funding from the State Water Resources Control Board (State Water Board) Proposition 1 Groundwater Grant Program and potentially other sources which may be considered equivalent to a federal action, thereby necessitating compliance with Section 106 of the National Historic Preservation Act (Section 106).

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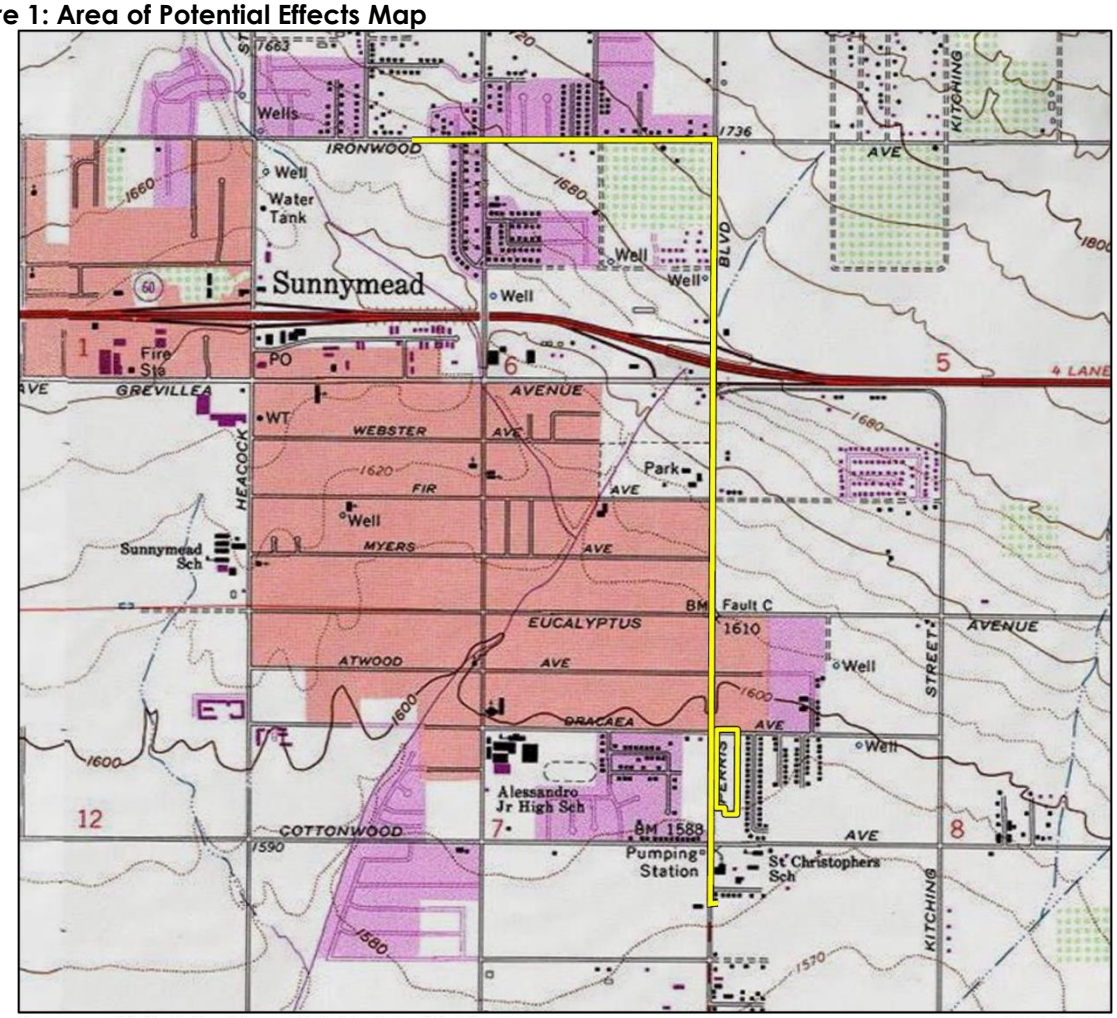
Sincerely,

Rincon Consultants, Inc.

Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

Enclosed: Figure 1 Area of Potential Effects Map

Figure 1: Area of Potential Effects Map



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July 29, 2022

Daniel Salgado, Chairperson
Cahuilla Band of Indians
Chairman@cahuilla.net

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Chairman Salgado,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

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Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

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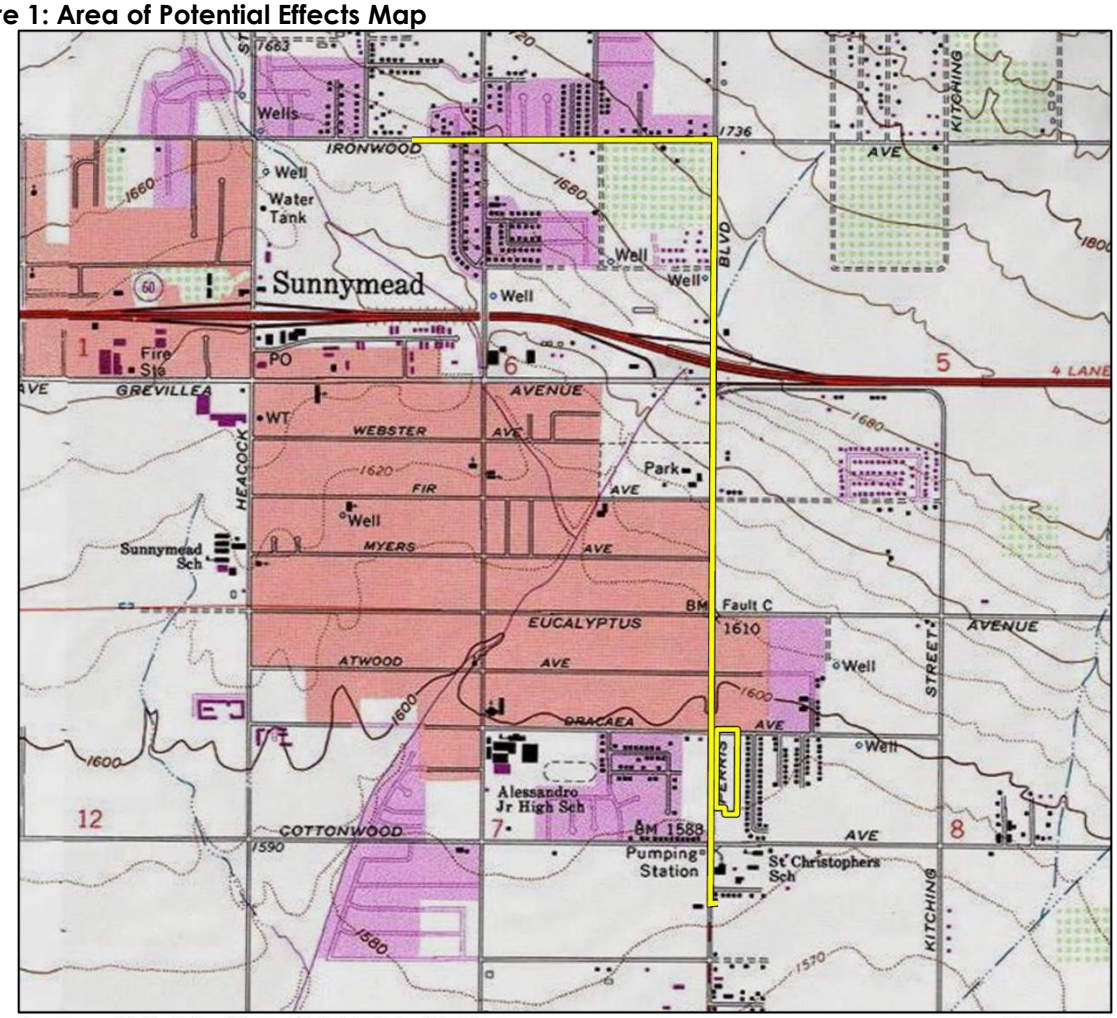

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July 29, 2022

Manfred Scott, Acting Chairman
Quechan Tribe of the Fort Yuma Reservation
Kw'ts'an Culutral Committee
scottmanfred@yahoo.com

Subject: Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California

Dear Acting Chairman Scott,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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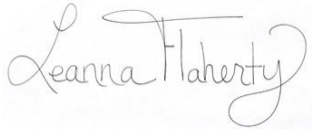

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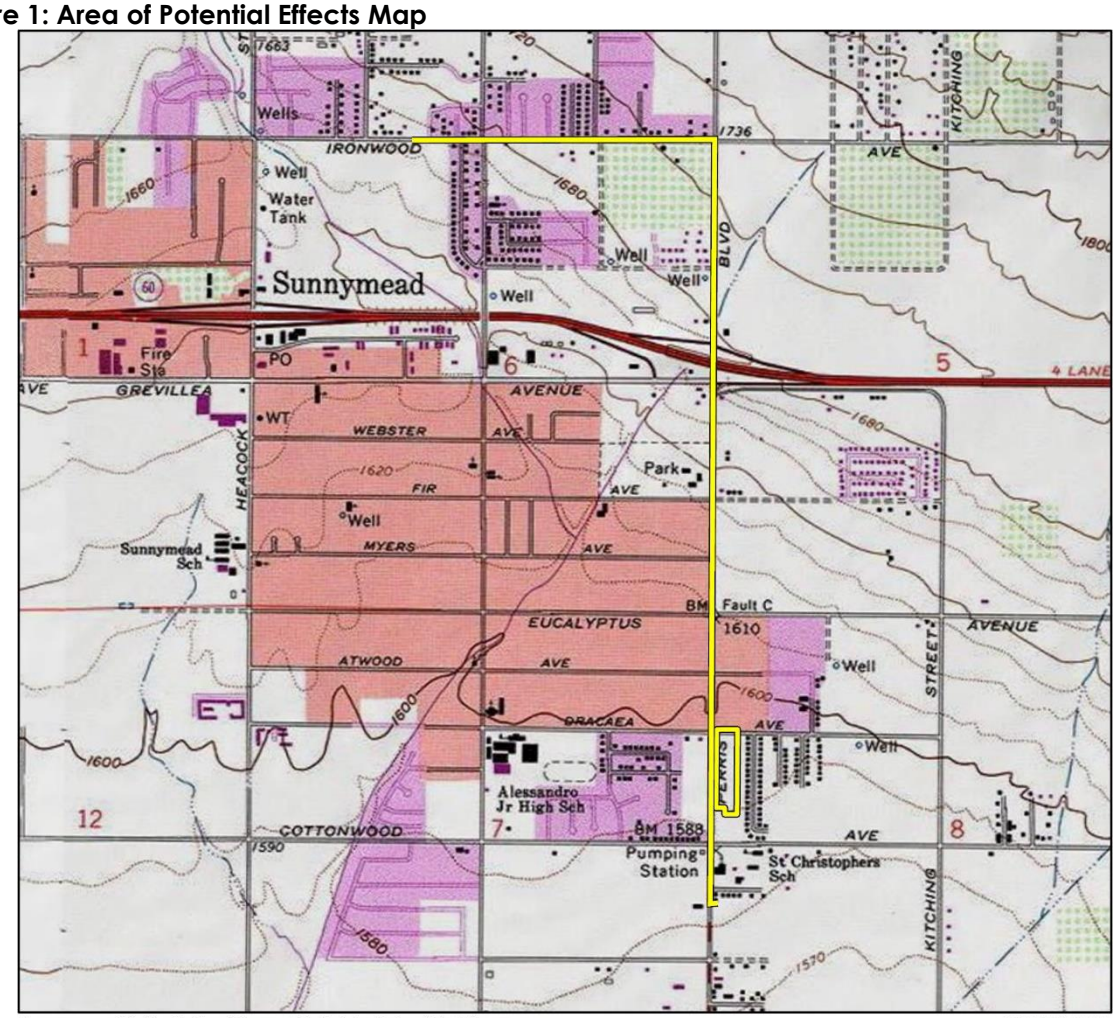

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July 29, 2022

Amanda Vance, Chairperson
Augustine Band of Cahuilla Mission Indians
hhaines@augustinetribe.com

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Chairperson Vance,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

The Project involves funding from the State Water Resources Control Board (State Water Board) Proposition 1 Groundwater Grant Program and potentially other sources which may be considered equivalent to a federal action, thereby necessitating compliance with Section 106 of the National Historic Preservation Act (Section 106).

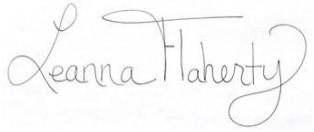
As part of the environmental compliance for the Project, your tribe has been identified as one that might attach religious and cultural significance to historic properties in the APE. Your assistance is requested with the identification of cultural resources of significance (a previous letter of inquiry was

sent in January 2020 for the original groundwater extraction, conveyance, and treatment facilities project). Your participation in the early identification of cultural resources will ensure their consideration during the Project planning phase. We welcome your recommendations regarding appropriate management or treatment of cultural resources that occur within the APE.

This letter is not intended to constitute formal consultation under Section 106; formal Section 106 consultation will be completed by the lead federal agency. If you have questions, need additional information, or wish to comment, please contact me by email at lflaherty@rinconconsultants.com or by telephone at (805) 201-9621. Please respond within 30 days of receipt of this letter.

Sincerely,

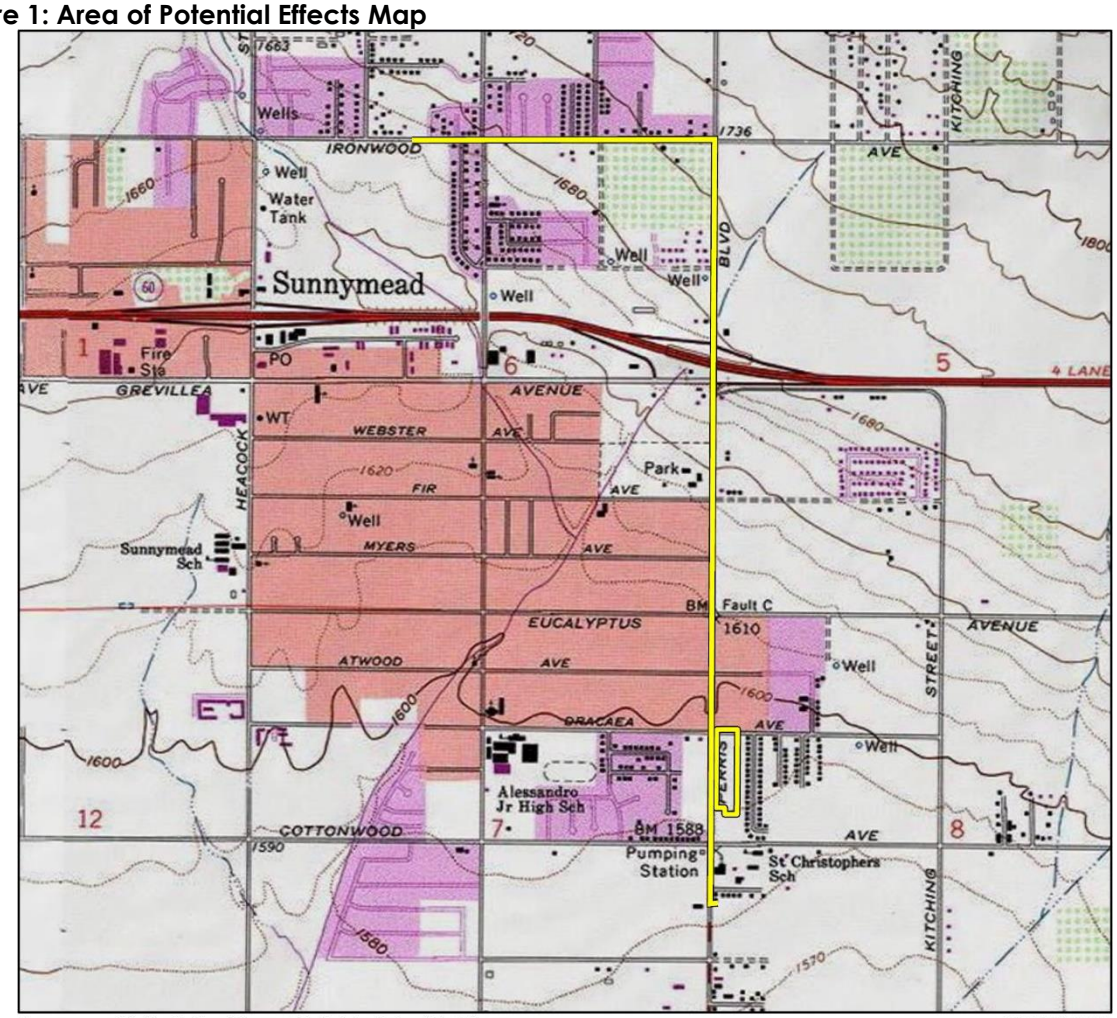
Rincon Consultants, Inc.



Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

Enclosed: Figure 1 Area of Potential Effects Map

Figure 1: Area of Potential Effects Map



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CRFig 1 Proj Locn Map

Rincon Consultants, Inc.

1980 Orange Tree Ln., Ste. 105
Redlands, California 92374

909 253 07051 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

July 29, 2022

Isaiah Vivanco, Chairperson
Soboba Band of Luiseno Indians
ivivanco@soboba-nsn.gov

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Mr. Vivanco,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

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Sincerely,

Rincon Consultants, Inc.

Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

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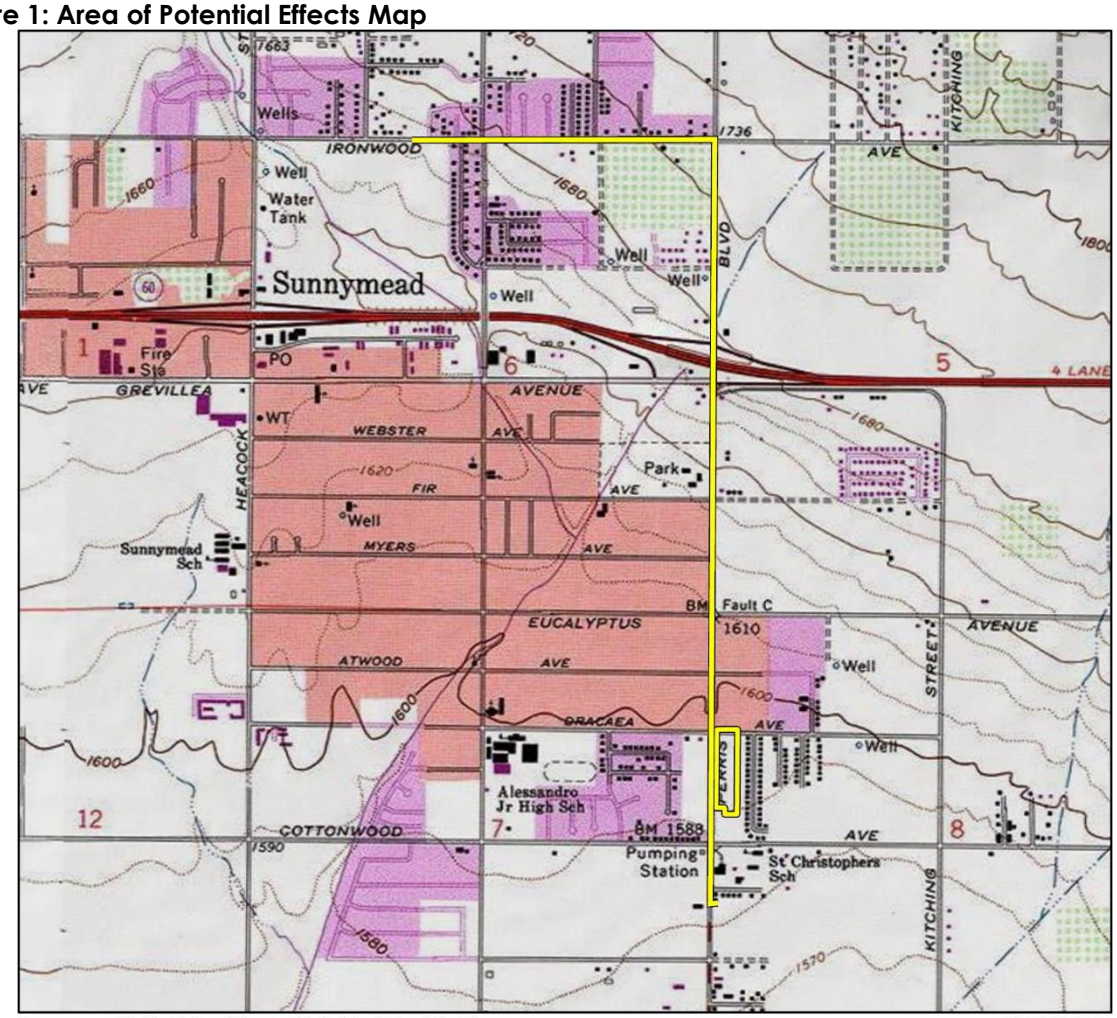

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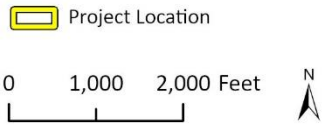

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Redlands, California 92374

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info@rinconconsultants.com
www.rinconconsultants.com

July 29, 2022

Wayne Walker, Co-Chairperson
Serrano Nation of Mission Indians
serranonation1@gmail.com

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Mr. Walker,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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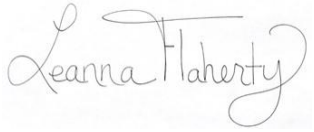
Sincerely,

Rincon Consultants, Inc.



Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

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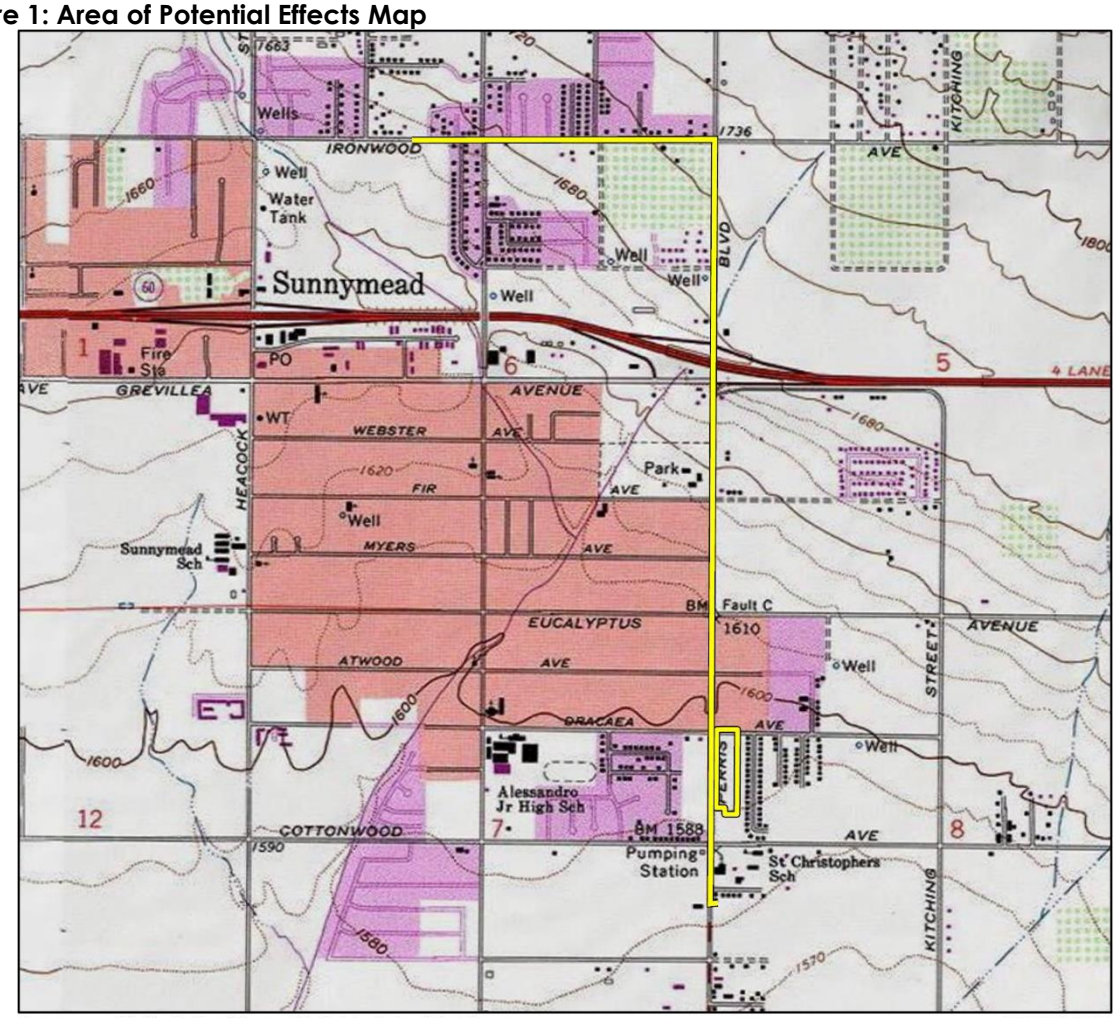

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Project Location

0 1,000 2,000 Feet

N

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1980 Orange Tree Ln., Ste. 105
Redlands, California 92374

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info@rinconconsultants.com
www.rinconconsultants.com

July 29, 2022

Doug Welmas, Chairperson
Cabazon Band of Mission Indians
jstapp@cabazonindians-nsn.gov

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Dear Chairperson Welmas,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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Rincon Consultants, Inc.

Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

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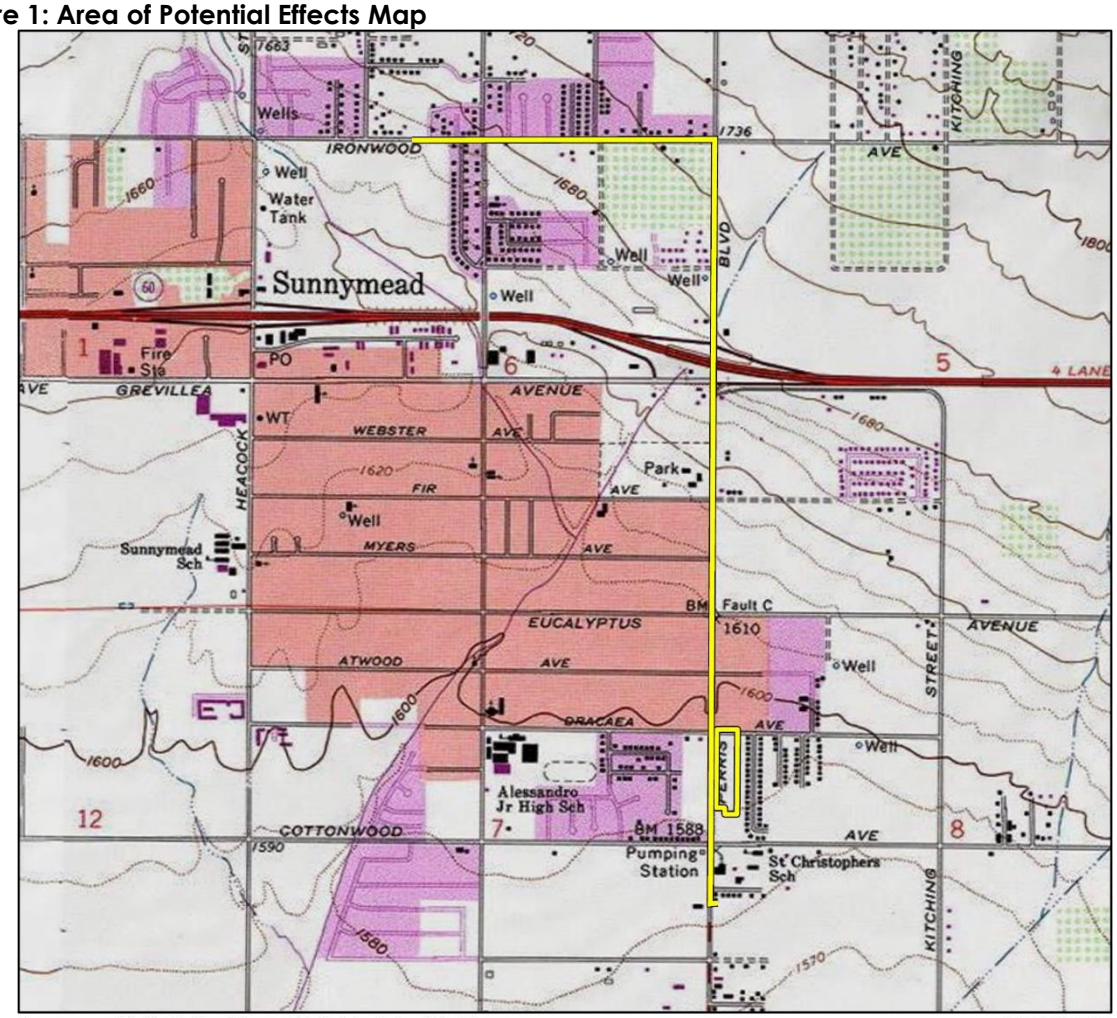

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Project Location

0 1,000 2,000 Feet

N

From: Laura Maldonado
Sent: Tuesday, July 26, 2022 1:12 PM
To: ACBCI-THPO@aguacaliente.net
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Garcia-Plotkin.pdf

Good afternoon Ms. Garcia-Plotkin,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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Environmental Scientists | Planners | Engineers

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:08 AM
To: ACBCI-THPO@aguacaliente.net
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Garcia-Plotkin.pdf

Good morning Ms. Garcia-Plotkin,

Please see the attached updated letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Tuesday, July 26, 2022 1:12 PM
To: ACBCI-THPO@aguacaliente.net
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good afternoon Ms. Garcia-Plotkin,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
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Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, August 12, 2022 3:03 PM
To: 'THPO Consulting'
Cc: Leanna Flaherty
Subject: RE: [EXT] RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: Raw_Water_Conveyance_Pipeline.zip
Additional Staging Area.zip

Good afternoon Ms. Gonzalez,

Thank you for your email. I am attaching the shapefiles for this project. Please let me know if you have any additional questions or concerns regarding the EMWD Raw Water Conveyance Pipeline Phase III Project.
If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: THPO Consulting <ACBCI-THPO@aguacaliente.net>
Sent: Wednesday, August 10, 2022 11:20 AM
To: Laura Maldonado <lmaldonado@rinconconsultants.com>
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: [EXT] RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

CAUTION: This email originated from outside of Rincon Consultants. Be cautious before clicking on any links, or opening any attachments, until you are confident that the content is safe .

Hi Laura,
We received your letter. Can you send us the shapefiles for this project?

Thank you,

Arysa Gonzalez Romero, M.S., RPA.
Cultural Resources Analyst
Agua Caliente Band of Cahuilla Indians
Tribal Historic Preservation Office
Cellphone: (760)-831-2484
Office: (760)-883-1327
Email: aromero@aguacaliente.net

From: Laura Maldonado <lmaldonado@rinconconsultants.com>
Sent: Friday, July 29, 2022 7:08 AM
To: THPO Consulting <ACBCI-THPO@aguacaliente.net>
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

** This Email came from an External Source **

Good morning Ms. Garcia-Plotkin,

Please see the attached updated letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
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Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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(She/Her/Hers)
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Time Off Alert: 10/05 – 10/07

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AGUA CALIENTE BAND OF CAHUILLA INDIANS
TRIBAL HISTORIC PRESERVATION

03-058-2022-001

August 30, 2022

[VIA EMAIL TO:lflaherty@rinconconsultants.com]
Rincon Consultants, Inc.
Ms. Leanna Flaherty
1980 Orange Tree Ln., Ste. 105
Redlands, California 92374

Re: EMWD Raw Water Conveyance Pipeline Phase III Project

Dear Ms. Leanna Flaherty,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the Raw Water Conveyance Pipeline Phase III project. The project area is not located within the boundaries of the ACBCI Reservation. However, it is within the Tribe's Traditional Use Area. For this reason, the ACBCI THPO requests the following:

*A cultural resources inventory of the project area by a qualified archaeologist prior to any development activities in this area.

*A copy of the records search with associated survey reports and site records from the information center.

*Copies of any cultural resource documentation (report and site records) generated in connection with this project.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)699-6956. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Lacy Padilla
Operations Manager
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:13 AM
To: hhaines@augustinetribe.com
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Vance.pdf

---

Good morning Chairperson Vance,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
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Time Off Alert: 10/05 – 10/07

AUGUSTINE BAND OF CAHUILLA INDIANS
PO Box 846 84-481 Avenue 54 Coachella CA 92236
Telephone: (760) 398-4722
Fax (760) 369-7161
Tribal Chairperson: Amanda Vance
Tribal Vice-Chairperson: Victoria Martin
Tribal Secretary: Geramy Martin

Date: July 29, 2022

RE: Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California

Dear: Leanna Flaherty
Cultural Resources Project Manager

Thank you for the opportunity to offer input concerning the development of the above-identified project. We appreciate your sensitivity to the cultural resources that may be impacted by your project and the importance of these cultural resources to the Native American peoples that have occupied the land surrounding the area of your project for thousands of years. Unfortunately, increased development and lack of sensitivity to cultural resources have resulted in many significant cultural resources being destroyed or substantially altered and impacted. Your invitation to consult on this project is greatly appreciated.

At this time, we are unaware of specific cultural resources that may be affected by the proposed project, however, in the event, you should discover any cultural resources during the development of this project please contact our office immediately for further evaluation.

Very truly yours,

Victoria Martin

Victoria Martin, Tribal Vice-Chairperson
Augustine Band of Cahuilla Indians

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:18 AM
To: jstapp@cabazonindians-nsn.gov
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Welmas.pdf

---

Good morning Chairperson Welmas,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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Environmental Scientists | Planners | Engineers

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, August 12, 2022 8:49 AM
To: 'jstapp@cabazonindians-nsn.gov'
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Chairperson Welmas,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to you on July 29, 2022 with further information. I attempted to call your phone at 8:36am today, and I left a voicemaill. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

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lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:18 AM
To: jstapp@cabazonindians-nsn.gov
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:12 AM
To: chairman@cahuilla.net
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Salgado.pdf

---

Good morning Chairperson Salgado,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, August 12, 2022 8:54 AM
To: 'besparza@cahuilla.net'
Cc: Leanna Flaherty; chairman@cahuilla.net
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Salgado.pdf

---

Good morning Director Bobby Ray Esparza,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to Chairman Salgado on July 29, 2022 with further information. I appreciate you speaking with me this morning, and I am attaching a copy of the letter as we discussed. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond to this email, or by telephone at (805) 547-0900.

Thank you,

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(She/Her/Hers)
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lmaldonado@rinconconsultants.com

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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:12 AM
To: chairman@cahuilla.net
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Chairperson Salgado,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

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Time Off Alert: 10/05 – 10/07

From: BobbyRay Esparza
Sent: Thursday, August 18, 2022 9:59 AM
To: Laura Maldonado
Cc: Leanna Flaherty; Daniel Salgado
Subject: [EXT] Re: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

CAUTION: This email originated from outside of Rincon Consultants. Be cautious before clicking on any links, or opening any attachments, until you are confident that the content is safe .

Good morning,

The Cahuilla Band has received and reviewed the project notification letter for the above project located in Riverside County, Ca. The Cahuilla Band has an interest in this project and would like to request that a cultural monitor from Cahuilla be present for all ground disturbing activities. We believe that cultural resources may be unearthed during construction. The Cahuilla Band appreciates your assistance in preserving Tribal Cultural Resources in your project.

Respectfully,

BobbyRay Esparza
Cultural Director
Cahuilla Band of Indians
Cell: (760) 423-2773
Office: (951) 763-5549
Fax: (951) 763-2808

"NOTICE: This communication may contain information that is proprietary, privileged, confidential, or otherwise legally exempt from disclosure. It is intended exclusively for the use of the individual or entity to which it is addressed. If you are not the intended recipient, you are not authorized to read, print, retain, copy, or disseminate this message or any part of it. If you have received this message in error, please notify the sender immediately by e-mail and delete all copies of the message."

From: Laura Maldonado <lmaldonado@rinconconsultants.com>
Sent: Friday, August 12, 2022 8:54 AM
To: BobbyRay Esparza <Besparza@cahuilla.net>
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>; Daniel Salgado <CHAIRMAN@CAHUILLA.NET>
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Director Bobby Ray Esparza,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to Chairman Salgado on July 29, 2022 with further information. I appreciate you speaking with me this morning, and I am attaching a copy of the letter as we discussed. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond to this email, or by telephone at (805) 547-0900.

Thank you,

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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:12 AM
To: chairman@cahuilla.net
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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Respectfully,

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:23 AM
To: loscoyotes@gmail.com
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Chapparosa.pdf

Good morning Chairperson Chapparosa,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, August 12, 2022 9:01 AM
To: 'loscoyotes@gmail.com'
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Chairperson Chapparosa,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to you on July 29, 2022 with further information. I called at 8:56am this morning and left a message with office personnel. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:23 AM
To: loscoyotes@gmail.com
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Tuesday, September 6, 2022 5:13 PM
To: raypacificalarm@yahoo.com
Cc: Leanna Flaherty; loscoyotes@gmail.com
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good afternoon Chairperson Chapparosa,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to you on July 29, 2022 to your loscoyotes@gmail.com email with further information. We left a phone message with the office secretary on August 12th and August 22nd. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900. Thank you,

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, August 12, 2022 9:01 AM
To: 'loscoyotes@gmail.com' <loscoyotes@gmail.com>
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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Thank you,

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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:23 AM
To: loscoyotes@gmail.com
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Tuesday, September 6, 2022 5:29 PM
To: 'raypacificalarm@yahoo.com'
Cc: Leanna Flaherty; 'loscoyotes@gmail.com'
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Chapparosa.pdf

Good afternoon,
In case you need reference to the letter, I am attaching it to this email.
Best,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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From: Laura Maldonado
Sent: Tuesday, September 6, 2022 5:13 PM
To: raypacificalarm@yahoo.com
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>; loscoyotes@gmail.com
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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From: Laura Maldonado
Sent: Friday, August 12, 2022 9:01 AM
To: 'loscoyotes@gmail.com' <loscoyotes@gmail.com>
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:23 AM
To: loscoyotes@gmail.com
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:18 AM
To: abrierty@morongo-nsn.gov
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Martin.pdf

---

Good morning Chairperson Martin,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
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From: Laura Maldonado
Sent: Friday, August 12, 2022 9:06 AM
To: abrierty@morongo-nsn.gov
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Chairperson Martin,

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Thank you,

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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:07 AM
To: abrierty@morongo-nsn.gov
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Brierty .pdf

Good morning Ms. Brierty,

Please see the attached updated letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Tuesday, July 26, 2022 12:54 PM
To: abrierty@morongo-nsn.gov
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good afternoon Ms. Brierty,

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Respectfully,

Laura Maldonado, MA, Archaeologist
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From: Laura Maldonado
Sent: Friday, August 12, 2022 9:14 AM
To: 'abrierty@morongo-nsn.gov'
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Ms. Brierty,

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Thank you,

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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:07 AM
To: abrierty@morongo-nsn.gov
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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Laura Maldonado, MA, Archaeologist
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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Tuesday, July 26, 2022 12:54 PM
To: abrierty@morongo-nsn.gov
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good afternoon Ms. Brierty,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Tuesday, July 26, 2022 1:14 PM
To: sgaughen@palatribe.com
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Gaughen.pdf

---

Good afternoon Ms. Gaughen,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:10 AM
To: Shasta Gaughen
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Gaughen.pdf

Good morning Ms. Gaughen,

Please see the attached updated letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

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From: Laura Maldonado
Sent: Friday, August 12, 2022 9:17 AM
To: Shasta Gaughen
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Ms. Gaughen,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to you on July 29, 2022 with further information. I attempted to call your phone at 9:14am today, and I left a voicemail. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:18 AM
To: epreston@pechanga-nsn.gov
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_MacarroM.pdf

---

Good morning Chairperson Macarro,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:18 AM
To: pmacarro@pechanga-nsn.gov
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_MacarroP.pdf

---

Good morning Mr. Macarro,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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PECHANGA CULTURAL RESOURCES
Temecula Band of Luiseño Mission Indians

Post Office. Box 2183 • Temecula, CA 92593
Telephone (951) 770-6300 • Fax (951) 506-9491

Chairperson:
Neal Ibanez

Vice Chairperson:
Bridgett Barcello

Committee Members:
Darlene Miranda
Richard B. Scearce, III
Robert Villalobos
Shevon Torres
Juan Rodriguez

Director:
Gary DuBois

Coordinator:
Paul Macarro

Cultural Analyst:
Tuba Ebru Ozdil

Planning Specialist:
Molly Escobar

July 29, 2022

VIA E-Mail and USPS
Laura Flaherty, MA, RPA
Cultural Resources Project Manager
Rincon Consultants, Inc.
1980 Orange Tree Ln., Ste.105
Redlands, California 92374

RE: Request for Information for the EMWD Raw Water Conveyance Pipeline Phase III Project (in the City of Moreno Valley), Riverside County, California

Dear Ms. Flaherty,

The Pechanga Band of Indians ("the Tribe") appreciates your request for information regarding the above referenced Project. After reviewing the provided maps and our internal documents, we have determined that the Project area is not within Reservation land's, although it is located within Our Ancestral Territory. At this time, we are interested in participating in this Project based upon our 'Ayélkwish/Traditional Knowledge of the area and its placement 1.37 miles from an 'Atáaxum/ Luiseño Traditional Cultural Property. This Project's has a close regional-adjacency to five distinct Ancestral Placename locations, between 3.67-8.82 miles from this Project's APE. This proposed Project has four nearby (non-historic era) archaeological-cultural sites between 1.16-1.33 miles away from this APE. Further, because of multiple nearby Ancestral human-remains, ceremonial features, and through extensive previously recorded sites, and project-experience within this Project's vicinity the Tribe therefore, is interested in participating in this Project. The Pechanga Tribe believes the possibility for recovering sensitive subsurface resources, during ground-disturbing activities for the Project is extremely high.

The Tribe is dedicated to providing comprehensive cultural information to you and your firm for inclusion in the archaeological study as well as to the Lead Agency for CEQA review. At this time, the Tribe requests the following so we may continue the consultation process and to provide adequate and appropriate recommendations for the Project:

1) Notification once the Project begins the entitlement process, if it has not already;
2) Copies of all applicable archaeological reports, site records, proposed grading plans and environmental documents (EA/IS/MND/EIR, etc);
3) Government-to-government consultation with the Lead Agency; and

4) The Tribe believes that monitoring by a Riverside County qualified archaeologist and a professional Pechanga Tribal Monitor may be required during earthmoving activities. Therefore, the Tribe reserves its right to make additional comments and recommendations once the environmental documents have been received and fully reviewed. Further, in the event that subsurface cultural resources are identified, the Tribe requests consultation with the Project proponent and Lead Agency regarding the treatment and disposition of all artifacts.

As a Sovereign governmental entity, the Pechanga Tribe is entitled to appropriate and adequate government-to-government consultation regarding the proposed Project. We would like you and your client to know, that the Tribe does not consider initial inquiry letters from project consultants to constitute appropriate government-to-government consultation, but rather tools to obtain further information about the Project area. Therefore, the Tribe reserves its rights to participate in the formal environmental review process, including government-to-government consultation with the Lead Agency, and requests to be included in all correspondence regarding this Project.

Please note that we are interested in participating in surveys within 'Atáaxum/Luiseño Ancestral Territory. Prior to conducting any surveys, please contact the Cultural Department to schedule specifics. If you have any additional questions or comments, please contact me at pmacarro@pechanga-nsn.gov or 951-770-6306.

Sincerely,

Paul E. Macarro

Paul E. Macarro
Cultural Coordinator
Pechanga Reservation

From: Laura Maldonado
Sent: Friday, July 29, 2022 11:17 AM
To: Paul Macarro; Leanna Flaherty
Cc: Ebru Ozdil; Molly Earp; Juan Ochoa
Subject: RE: [EXT] Pechanga Tribe Scoping Response to the EMWD Raw Water Conveyance Pipeline Phase III Project

---

Good morning Mr. Macarro,

We have received your response and will document your concerns and request for consultation in our report and will forward your concerns and request to the lead agency. We understand that you have identified the APE within a culturally sensitive area, recommending Native American and archaeological monitoring, as well as notification once the project begins the entitlement process, and participating in surveys within your ancestral territory in which the APE is located.

Thank you for your response regarding the EMWD Raw Water Conveyance Pipeline Phase III Project. Should you have any other concerns you would like to voice to be included in our report, please let us know.

Best,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct lmaldonado@rinconconsultants.com

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-----Original Message-----
From: Paul Macarro <pmacarro@pechanga-nsn.gov>
Sent: Friday, July 29, 2022 10:34 AM
To: Leanna Flaherty <lflaherty@rinconconsultants.com>; Laura Maldonado <lmaldonado@rinconconsultants.com>
Cc: Ebru Ozdil <eozdil@pechanga-nsn.gov>; Molly Earp <mearp@pechanga-nsn.gov>; Juan Ochoa <jochoa@pechanga-nsn.gov>
Subject: [EXT] Pechanga Tribe Scoping Response to the EMWD Raw Water Conveyance Pipeline Phase III Project

CAUTION: This email originated from outside of Rincon Consultants. Be cautious before clicking on any links, or opening any attachments, until you are confident that the content is safe .

Míiyuyam/Hello Rincon Consultants-Folks,

Pechanga Cultural Resources appreciates your diligence, outreach, and the opportunity to respond to your Scoping Notice. Have a great weekend!

Lóoviqap/Thanks,
Paul E. Macarro
Cultural Coordinator
Pechanga Reservation
951-770-6306

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:12 AM
To: historicpreservation@quechantribe.com
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_McCormick.pdf

---

Good morning Mrs. McCormick,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: Quechan Historic Preservation Officer
Sent: Monday, August 1, 2022 7:52 AM
To: Laura Maldonado
Subject: [EXT] RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

CAUTION: This email originated from outside of Rincon Consultants. Be cautious before clicking on any links, or opening any attachments, until you are confident that the content is safe .

This email is to inform you that we have no comments on this project. We defer to the more local Tribes and support their decisions on the projects.

From: Quechan Historic Preservation [mailto:historicpreservation@quechantribe.com]
Sent: Monday, August 01, 2022 7:51 AM
To: historicpreservation@quechantribe.com
Subject: FW: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

From: Laura Maldonado [mailto:lmaldonado@rinconconsultants.com]
Sent: Friday, July 29, 2022 7:12 AM
To: historicpreservation@quechantribe.com
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Mrs. McCormick,

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Please let me know if you have any questions or concerns.

Respectfully,

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(She/Her/Hers)
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Time Off Alert: 10/05 – 10/07

Virus-free. www.avast.com

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:13 AM
To: scottmanfred@yahoo.com
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Scott.pdf

---

Good morning Acting Chairman Scott,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Tuesday, July 26, 2022 1:16 PM
To: jgomez@ramona-nsn.gov
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Gomez.pdf

---

Good afternoon Mr. Gomez,

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Respectfully,

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From: Laura Maldonado
Sent: Friday, August 12, 2022 9:27 AM
To: jgomez@ramona-nsn.gov
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Mr. Gomez,

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Thank you,

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Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Hamilton.pdf

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Good morning Chairperson Hamilton,

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Time Off Alert: 10/05 – 10/07

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To: admin@ramona-nsn.gov
Cc: Leanna Flaherty
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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:18 AM
To: 'crd@rincon-nsn.gov'
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Madrigal.pdf

---

Good morning Ms. Madrigal,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, August 12, 2022 9:34 AM
To: crd@rincon-nsn.gov
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Ms. Madrigal,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to you on July 29, 2022 with further information. I attempted to call your phone at 9:31am today, and I left a voicemail. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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lmaldonado@rinconconsultants.com

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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:18 AM
To: 'crd@rincon-nsn.gov' <crd@rincon-nsn.gov>
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Ms. Madrigal,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

Laura Maldonado

From: Laura Maldonado
Sent: Friday, August 26, 2022 10:30 AM
To: Cheryl Madrigal
Cc: Deneen Pelton; Leanna Flaherty
Subject: RE: [EXT] Request for Consultation on the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: APE_Shapefiles_20210628.zip; CRFig 1 Proj Locn Map 20220720.jpg; Fig X Project Location.jpg

Good morning Ms. Madrigal,
Thank you for your email. I am attaching the shapefiles and project location maps to this email. The records search results for a previous project, the Perris North Basin Groundwater Wells Project, was utilized for this project and can be found in the links below. These results cover the entirety of the current project APE and more, and some files may not be relevant to this specific project. Additionally, we can send you the cultural resource assessment for this project once it is complete. I have also noted that you would like to enter consultation with the State Water Resources Control Board as part of the Section 106 process.

Resources: https://rinconconsultants.exavault.com/share/view/351ft-amvcyb72
Reports:
https://rinconconsultants.exavault.com/share/view/351g0-eu5k4aih

If you have any additional comments or concerns, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

Laura Maldonado, MA, Archaeologist
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Time Off Alert: 10/05 – 10/07

From: Cheryl Madrigal <CMadrigal@rincon-nsn.gov>
Sent: Friday, August 19, 2022 5:36 PM
To: Laura Maldonado <lmaldonado@rinconconsultants.com>
Cc: Deneen Pelton <DPelton@rincon-nsn.gov>
Subject: [EXT] Request for Consultation on the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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Hi Laura,

Thank you so much for reaching out to the Tribe.

We would like to consult with the lead agency on the proposed project. Please provide additional information regarding the project such as existing GIS shapefiles/KMZ, any cultural resources assessments, record search results, overly maps of the project and potential APE and previously recorded cultural sites.

Thank you so much.

Sincerely,

Cheryl

Cheryl Madrigal
Cultural Resources Manager
Tribal Historic Preservation Officer
Cultural Resources Department
Rincon Band of Luiseño Indians
1 West Tribal Road | Valley Center, CA 92082
Office: (760) 749 1092 ext. 323|Cell: 760-648-3000
Fax: 760-749-8901
Email: cmadrigal@rincon-nsn.gov

Rincon Band of Luiseño Indians
www.rincon-nsn.gov

This message is intended only for the use of the individual or entity to which it is addressed. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately by replying to the sender of this E-Mail by return E-Mail or by telephone. In accordance with Internal Revenue Service Circular 230, we advise you that if this email contains any tax advice, such tax advice was not intended or written to be used, and it cannot be used, by any taxpayer for the purpose of avoiding penalties that may be imposed on the taxpayer.

Begin forwarded message:

From: Laura Maldonado <lmaldonado@rinconconsultants.com>
Date: August 12, 2022 at 9:38:16 AM PDT
To: bomazzetti@aol.com
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>

Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Chairperson Mazzetti,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to you on July 29, 2022 with further information. I attempted to call your phone at 9:35am today, and I left a voicemail with your liaison. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:10 AM
To: bomazzetti@aol.com
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Chairperson Mazzetti,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:10 AM
To: bomazzetti@aol.com
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Mazzetti.pdf

---

Good morning Chairperson Mazzetti,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

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From: Laura Maldonado
Sent: Friday, August 12, 2022 9:38 AM
To: bomazzetti@aol.com
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Chairperson Mazzetti,

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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:10 AM
To: bomazzetti@aol.com
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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Please let me know if you have any questions or concerns.

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From: BO MAZZETTI
Sent: Friday, August 12, 2022 9:41 AM
To: Laura Maldonado
Subject: [EXT] Re: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Follow Up Flag: Follow up
Flag Status: Flagged

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Thanks I will check as to status of reply!

Sent from my iPhone

> On Aug 12, 2022, at 9:38 AM, Laura Maldonado <lmaldonado@rinconconsultants.com> wrote:
>
> Good morning Chairperson Mazzetti,
>
> I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
>
> A letter was emailed to you on July 29, 2022 with further information. I attempted to call your phone at 9:35am today, and I left a voicemail with your liaison. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.
>
> Thank you,
>
> **Laura Maldonado, MA, Archaeologist**
> (She/Her/Hers)
> 831-214-0195 Mobile | 805-547-0900 Direct
> lmaldonado@rinconconsultants.com
>
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Ranked 2021 “Best Environmental Services Firm to Work For” by Zweig Group
Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:10 AM
To: bomazzetti@aol.com
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Chairperson Mazzetti,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:20 AM
To: jmauck@sanmanuel-nsn.gov
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Mauck.pdf

---

Good morning Ms. Mauck,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, August 12, 2022 9:42 AM
To: jmauck@sanmanuel-nsn.gov
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Ms. Mauck,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to you on July 29, 2022 with further information. I attempted to call your phone at 9:38am today, and I left a voicemail. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:20 AM
To: jmauck@sanmanuel-nsn.gov
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Ms. Mauck,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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From: Ryan Nordness
Sent: Thursday, August 25, 2022 2:01 PM
To: Laura Maldonado
Cc: Leanna Flaherty
Subject: [EXT] Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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Hello Laura,
Thank you for reaching out to the Yuhaaviatam of San Manuel Nation (formerly known as the San Manuel Band of Mission Indians) concerning the proposed project area. YSMN appreciates the opportunity to review the project documentation received by the Cultural Resources Management Department on July 30th 2022. The proposed project is not located near any known cultural resources. Thank you again for your correspondence, if you have any additional questions or comments please reach out to me at your earliest convenience.
Respectfully,
Ryan Nordness

Ryan Nordness
Cultural Resource Analyst
Ryan.Nordness@sanmanuel-nsn.gov
O:(909) 864-8933 Ext 50-2022
M:(909) 838-4053
26569 Community Center Dr Highland, California 92346
SAN MANUEL
BAND OF MISSION INDIANS

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:12 AM
To: lsaul@santarosa-nsn.gov
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Redner.pdf

---

Good morning Tribal Chair Redner,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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From: Laura Maldonado
Sent: Friday, August 12, 2022 12:52 PM
To: lsaul@santarosa-nsn.gov
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Tribal Chair Redner,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to you on July 29, 2022 with further information. I attempted to call your phone at 12:36pm today, and I left a voicemail with the receptionist. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:12 AM
To: lsaul@santarosa-nsn.gov
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Tribal Chair Redner,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

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From: Laura Maldonado
Sent: Tuesday, July 26, 2022 1:00 PM
To: serranonation1@gmail.com
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Cochrane.pdf

---

Good afternoon Co-Chairperson Cochrane,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:08 AM
To: serranonation1@gmail.com
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Cochrane.pdf

---

Good morning Co-Chairperson Cochrane,

Please see the attached updated letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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lmaldonado@rinconconsultants.com

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To: serranonation1@gmail.com
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good afternoon Co-Chairperson Cochrane,

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Respectfully,

Laura Maldonado, MA, Archaeologist
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From: Laura Maldonado
Sent: Friday, August 12, 2022 1:16 PM
To: serranonation1@gmail.com
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Co-Chairperson Cochrane,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

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Sent: Friday, July 29, 2022 7:08 AM
To: serranonation1@gmail.com
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Co-Chairperson Cochrane,

Please see the attached updated letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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lmaldonado@rinconconsultants.com

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Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Walker.pdf

---

Good morning Co-Chairperson Walker

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

Rincon Consultants, Inc.
Environmental Scientists | Planners | Engineers

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Ranked 2021 "Best Environmental Services Firm to Work For" by Zweig Group
Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, August 12, 2022 1:19 PM
To: serranonation1@gmail.com
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Co-Chairperson Walker,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to you on July 29, 2022 with further information. I attempted to call your phone at 1:16pm today, and I left a voicemail. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

Laura Maldonado, MA, Archaeologist
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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:16 AM
To: serranonation1@gmail.com
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Co-Chairperson Walker

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:11 AM
To: 'jontiveros@soboba-nsn.gov'
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Ontiveros.pdf

---

Good morning Mr. Ontiveros,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, August 12, 2022 1:27 PM
To: jontiveros@soboba-nsn.gov
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good afternoon Mr. Ontiveros,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to you on July 29, 2022 with further information. I appreciate you taking the time to speak with me via telephone today. I have noted your comment that the project area is within your tribal cultural landscape, and you would like to enter consultation with State Water Resources Control Board as part of the Section 106 process.

If you have any additional comments or concerns, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:15 AM
To: ivivanco@soboba-nsn.gov
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Vivanco.pdf

---

Good morning Chairperson Vivanco,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
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From: Laura Maldonado
Sent: Friday, August 12, 2022 1:33 PM
To: ivivanco@soboba-nsn.gov
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good afternoon Chairperson Vivanco,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to you on July 29, 2022 with further information. I attempted to call your phone at 1:30pm today, and I was unable to leave a voicemail. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:15 AM
To: ivivanco@soboba-nsn.gov
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Chairperson Vivanco,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

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(She/Her/Hers)
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lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:30 AM
To: mmirelez@tmdci.org
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Section 106 Letter_Mirelez.pdf

---

Good morning Mr. Mirelez,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
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lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, August 12, 2022 1:37 PM
To: mmirelez@tmdci.org
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Mr. Mirelez,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed and physically mailed to you on July 29, 2022 with further information. I attempted to call your phone at 1:33pm today, and I was unable to leave a voicemail. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

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(She/Her/Hers)
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From: Laura Maldonado
Sent: Friday, July 29, 2022 7:11 AM
To: mmirelez@tmdci.org
Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good morning Mr. Mirelez,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

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Appendix D

Historical Group Outreach

EMWD Raw Water Conveyance Pipeline Phase III Project Section 106 Historical Group Correspondence Tracking

Historical Group Contact	Date Letter Sent to contact	Date of Phone Contact Round 1	Date of Phone Contact Round 2	Comments/Concerns
City of Moreno Valley Environmental and Historical Preservation Board c/o Claudia Manrique Moreno Valley Community Development Department 14177 Frederick Street Moreno Valley, CA. 92553 Phone: (951) 413-3000	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: Receptionist transferred call, phone beeped for 5 minutes, unable to leave voicemail. 8.22.22: Receptionist transferred call; LF left msg on voicemail.
Moreno Valley Historical Society morenovalleyhistoricalsociety@gmail.com	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: No associated phone number. Sent follow up email. 8.22.22: LF sent follow-up email.
Perris Valley Historical Museum 120 W 4th Street Perris, CA. 92570 Via email: pvhandma@gmail.com	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: No associated phone number. Sent follow up email. 8.22.22: LF sent follow-up email.
Riverside African American Historical Society P.O. Box 209 Riverside, CA. 92502 Phone: (951) 384-1866	July 29, 2022	Aug 12, 2022	Aug 22, 2022	Aug 12: No answer, left voicemail 8.22.22: No answer; LF left message on voicemail.
March Field Air Museum Greg Kuster, Director of Operations 22550 Van Buren Boulevard Riverside, CA. 92518 MFAM Phone: ~~(951) 902-5949~~ Greg Kuster's Phone: (951) 902-9936	July 29, 2022	Aug 12, 2022	N/A	Aug 12: Staff referred to Greg Kuster at (951) 902-9936.Greg answered and stated that he has no questions or concerns regarding the project.

Rincon Consultants, Inc.

1980 Orange Tree Ln., Ste. 105
Redlands, California 92374

909 253 07051 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

July 29, 2022

City of Moreno Valley Environmental and Historical Preservation Board
c/o Claudia Manrique
Moreno Valley Community Development Department
14177 Frederick Street
Moreno Valley, CA. 92553

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

Ms. Manrique,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

The Project involves funding from the State Water Resources Control Board (State Water Board) Proposition 1 Groundwater Grant Program and potentially other sources which may be considered equivalent to a federal action, thereby necessitating compliance with Section 106 of the National Historic Preservation Act (Section 106).

As part of the environmental compliance for the Project, your organization has been identified as one that has knowledge or specific concerns regarding historic properties in the APE. Your assistance is

requested with the identification of cultural resources of significance (a previous letter of inquiry was sent in January 2020 for the original groundwater extraction, conveyance, and treatment facilities project). Your participation in the early identification of cultural resources will ensure their consideration during the Project planning phase. We welcome your recommendations regarding appropriate management or treatment of cultural resources that occur within the APE.

This letter is not intended to constitute formal consultation under Section 106; formal Section 106 consultation will be completed by the lead federal agency. If you have questions, need additional information, or wish to comment, please contact me by email at lflaherty@rinconconsultants.com or by telephone at (805) 201-9621. Please respond within 30 days of receipt of this letter.

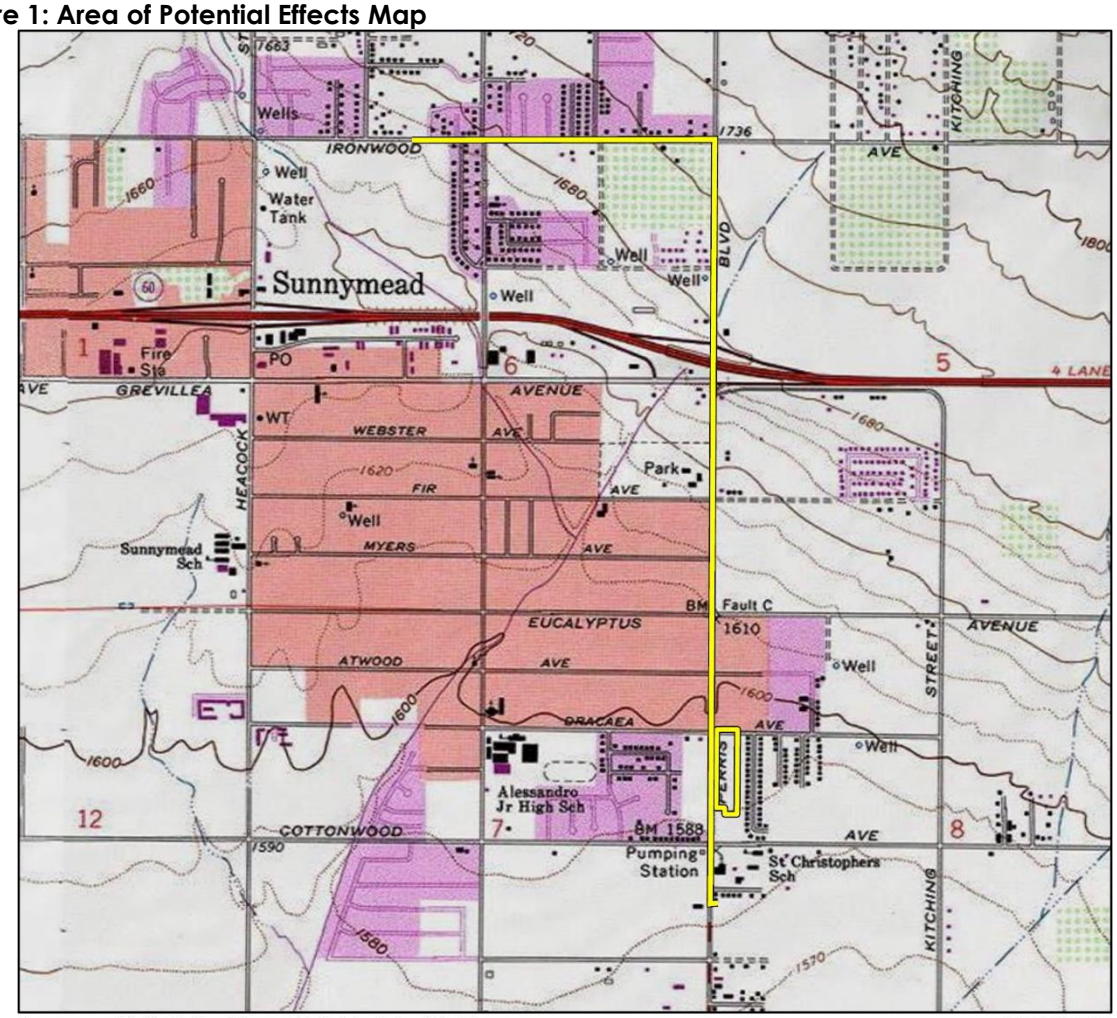
Sincerely,

Rincon Consultants, Inc.

Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

Enclosed: Figure 1 Area of Potential Effects Map

Figure 1: Area of Potential Effects Map



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Project Location

0 1,000 2,000 Feet

N

Rincon Consultants, Inc.

1980 Orange Tree Ln., Ste. 105
Redlands, California 92374

909 253 07051 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

July 29, 2022

Moreno Valley Historical Society
morenovalleyhistoricalsociety@gmail.com

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

To Whom It May Concern,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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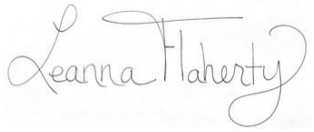
Rincon Consultants, Inc.



Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

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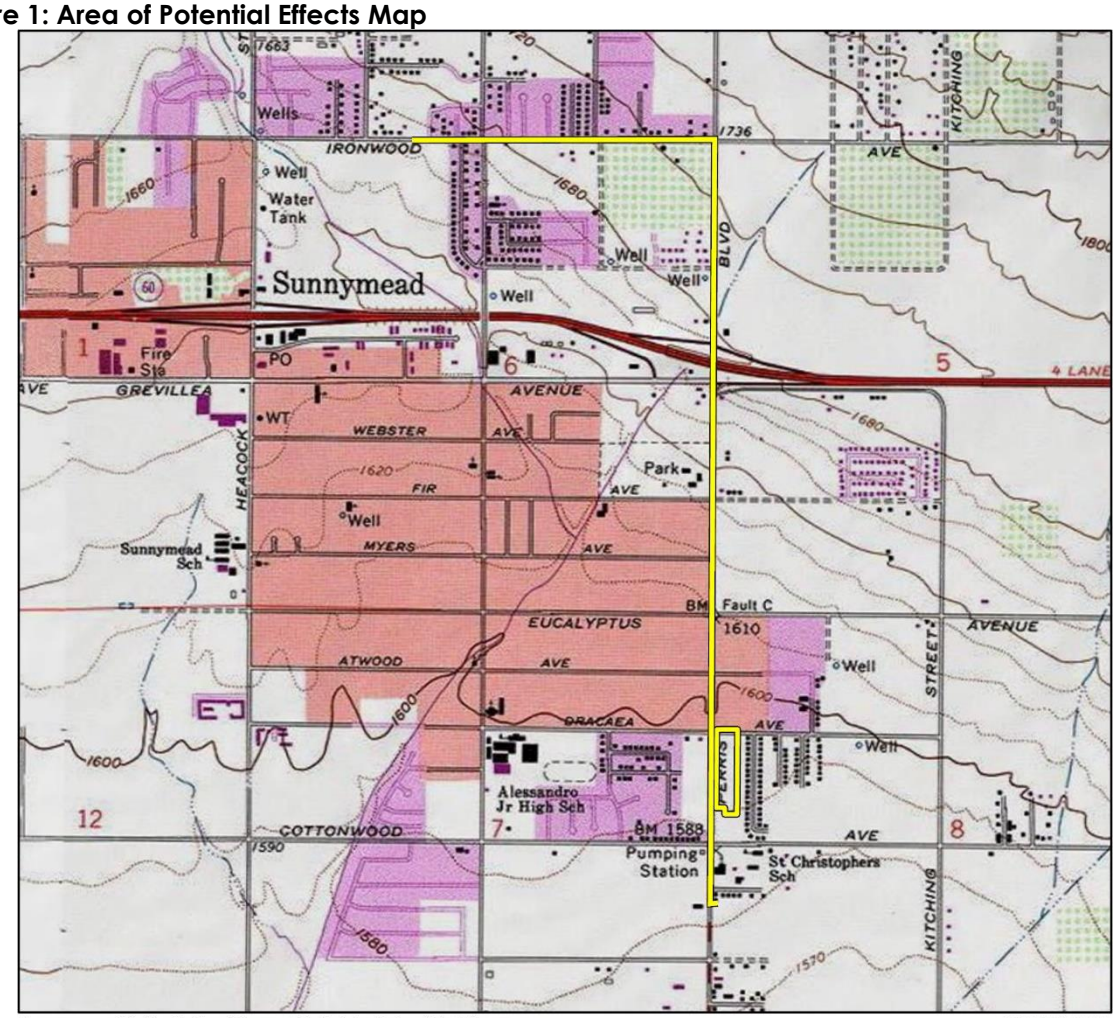

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Project Location

0 1,000 2,000 Feet

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1980 Orange Tree Ln., Ste. 105
Redlands, California 92374

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info@rinconconsultants.com
www.rinconconsultants.com

July 29, 2022

Perris Valley Historical Museum
120 W 4th Street
Perris, CA. 92570

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

To Whom It May Concern,

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Rincon Consultants, Inc.

Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

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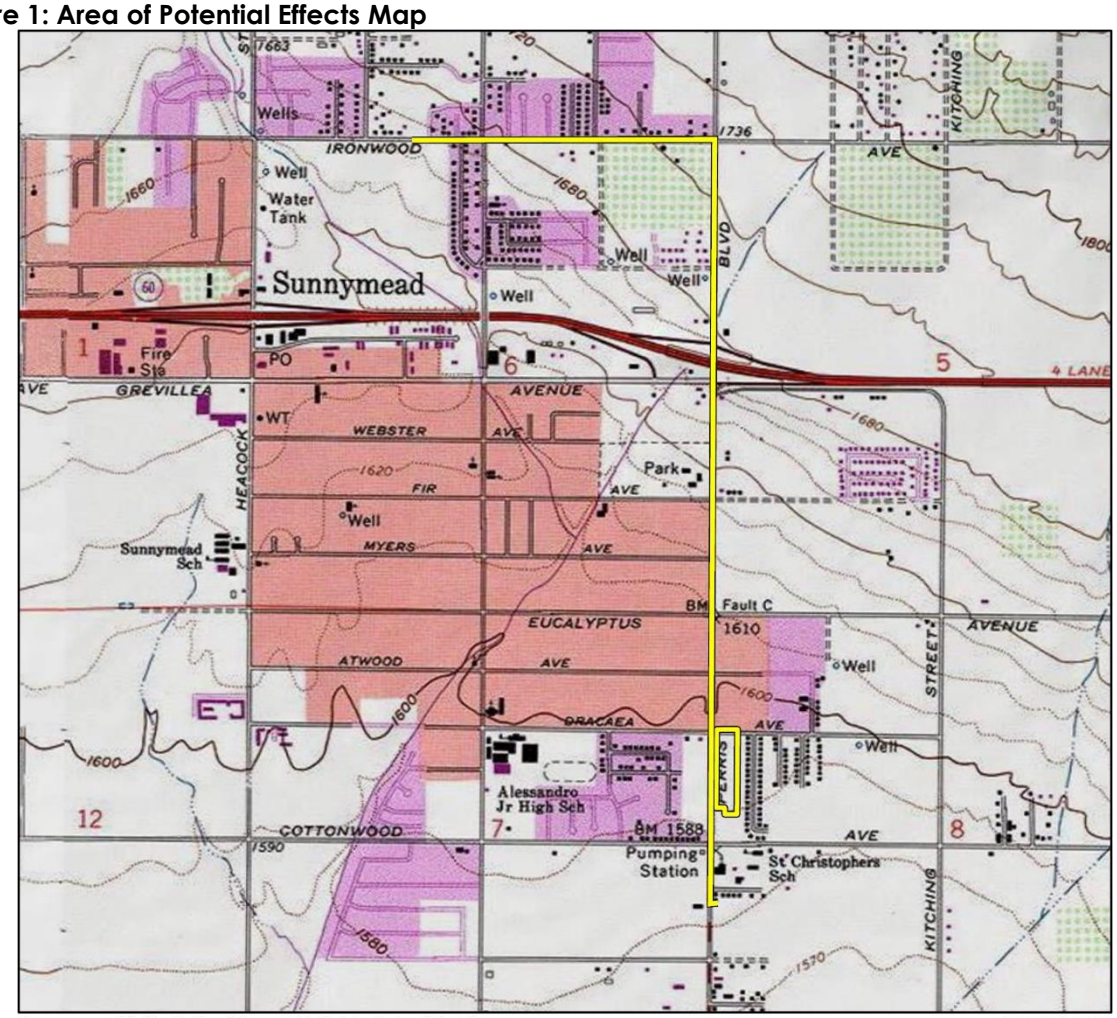

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Project Location

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info@rinconconsultants.com
www.rinconconsultants.com

July 29, 2022

Riverside African American Historical Society
P.O. Box 209
Riverside, CA. 92502

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

To Whom It May Concern,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

The Project consists of an 18-inch transmission pipeline which would be approximately 12,500 linear feet in total length. The pipeline would be located along Ironwood Avenue from the intersection with Kevin Street east to the intersection with Perris Boulevard, then south along Perris Boulevard from the intersection with Ironwood Avenue to the site of the future centralized treatment plant, which will be located on the east side of Perris Boulevard between Bay Avenue and St. Christopher Lane. All open-trench construction for the pipeline will occur entirely within the City of Moreno Valley and Caltrans rights-of-way in Ironwood Avenue and Perris Boulevard. The maximum trench width is expected to be 5.5 feet, while the depth is expected to range from 6 to 10 feet. The pipeline alignment would be designed to avoid conflicts with existing utilities. Trenchless pipeline construction techniques may be required where the pipeline crosses under storm drains. Where trenchless techniques are required, pipelines would be constructed using "bore and jack" methods. One approximately 5-acre temporary construction staging area will be located at a vacant site at the southeast corner of Perris Boulevard and Dracaea Avenue is also proposed.

The Project involves funding from the State Water Resources Control Board (State Water Board) Proposition 1 Groundwater Grant Program and potentially other sources which may be considered equivalent to a federal action, thereby necessitating compliance with Section 106 of the National Historic Preservation Act (Section 106).

As part of the environmental compliance for the Project, your organization has been identified as one that has knowledge or specific concerns regarding historic properties in the APE. Your assistance is requested with the identification of cultural resources of significance (a previous letter of inquiry was sent in January 2020 for the original groundwater extraction, conveyance, and treatment facilities

project). Your participation in the early identification of cultural resources will ensure their consideration during the Project planning phase. We welcome your recommendations regarding appropriate management or treatment of cultural resources that occur within the APE.

This letter is not intended to constitute formal consultation under Section 106; formal Section 106 consultation will be completed by the lead federal agency. If you have questions, need additional information, or wish to comment, please contact me by email at lflaherty@rinconconsultants.com or by telephone at (805) 201-9621. Please respond within 30 days of receipt of this letter.

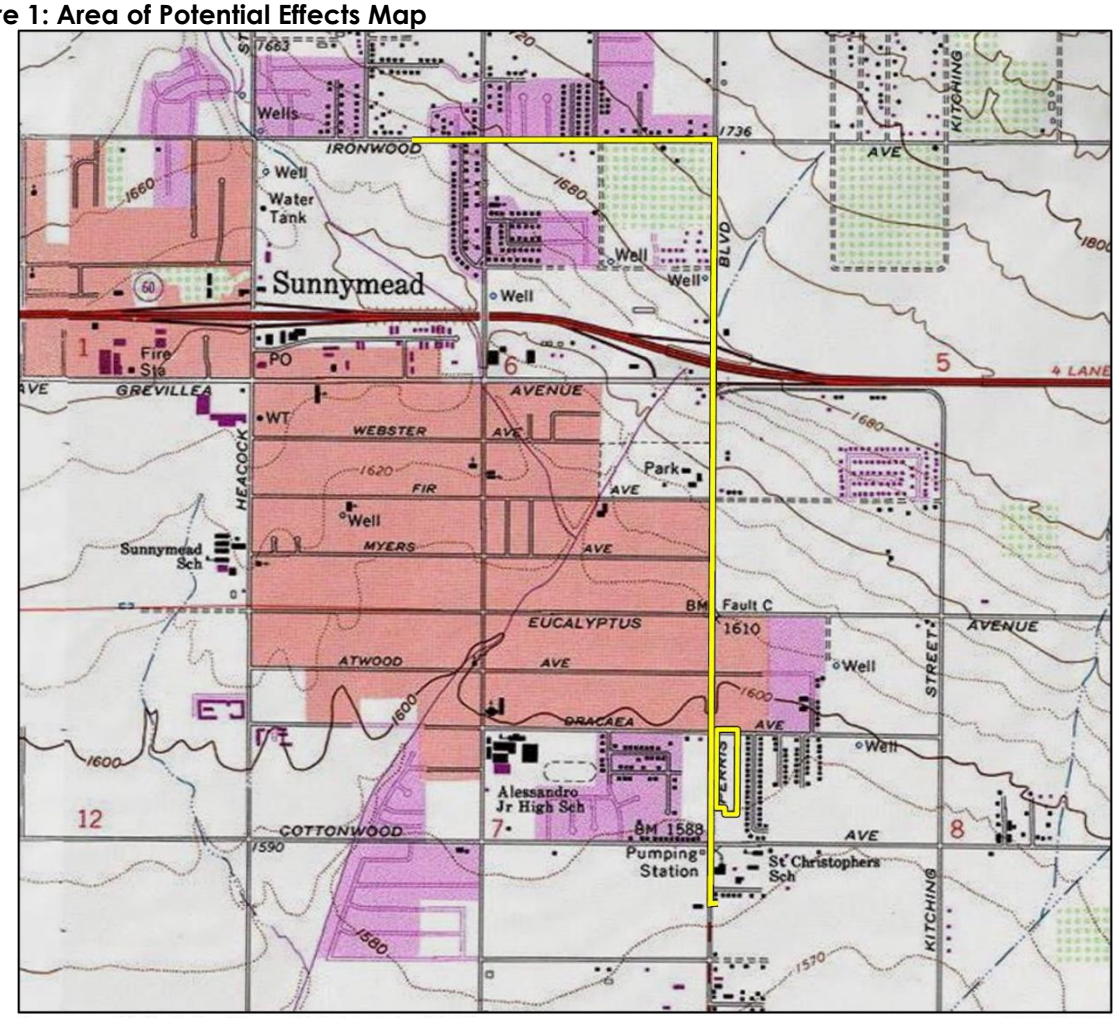
Sincerely,

Rincon Consultants, Inc.

Leanna Flaherty, MA, RPA
Cultural Resources Project Manager

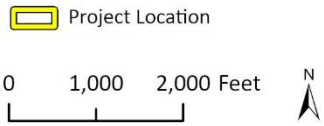
Enclosed: Figure 1 Area of Potential Effects Map

Figure 1: Area of Potential Effects Map



Basemap provided by National Geographic Society, Esri and their licensors © 2022. Sunnymead Quadrangle. T02S R03W S31,32 & T03S R03W S05-08. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

CRFig 1 Proj Locn Map



Rincon Consultants, Inc.

1980 Orange Tree Ln., Ste. 105
Redlands, California 92374

909 253 07051 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

July 29, 2022

March Field Air Museum
22550 Van Buren Boulevard
Riverside, CA. 92518

Subject: **Notification of the Proposed Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County, California**

To Whom It May Concern,

The Eastern Municipal Water District (EMWD) is proposing to construct a transmission pipeline along Ironwood Avenue and Perris Boulevard for the purposes of conveying water from its Well 66 site to its future centralized treatment facility for treatment with other extracted well water associated with the Perris North Program as part of the Raw Water Conveyance Pipeline Phase III Project (Project). Rincon Consultants, Inc. has been retained to conduct a cultural resources assessment for the Project. The Project is located in Moreno Valley, California in Riverside County. The area of potential effects (APE) is within the *Sunnymead* 7.5' United States Geographical Survey (USGS) topographic quadrangle within Sections 31 and 32 of Township 02S, Range 03W and Sections 05-08 of Township 03S, Range 03W (Figure 1). The proposed Project is part of the Cactus Avenue Corridor Groundwater Wells Project, which was evaluated in 2020 and 2021 (State Clearinghouse # 2020030267). The original proposed project consisted of groundwater extraction, conveyance, and treatment facilities.

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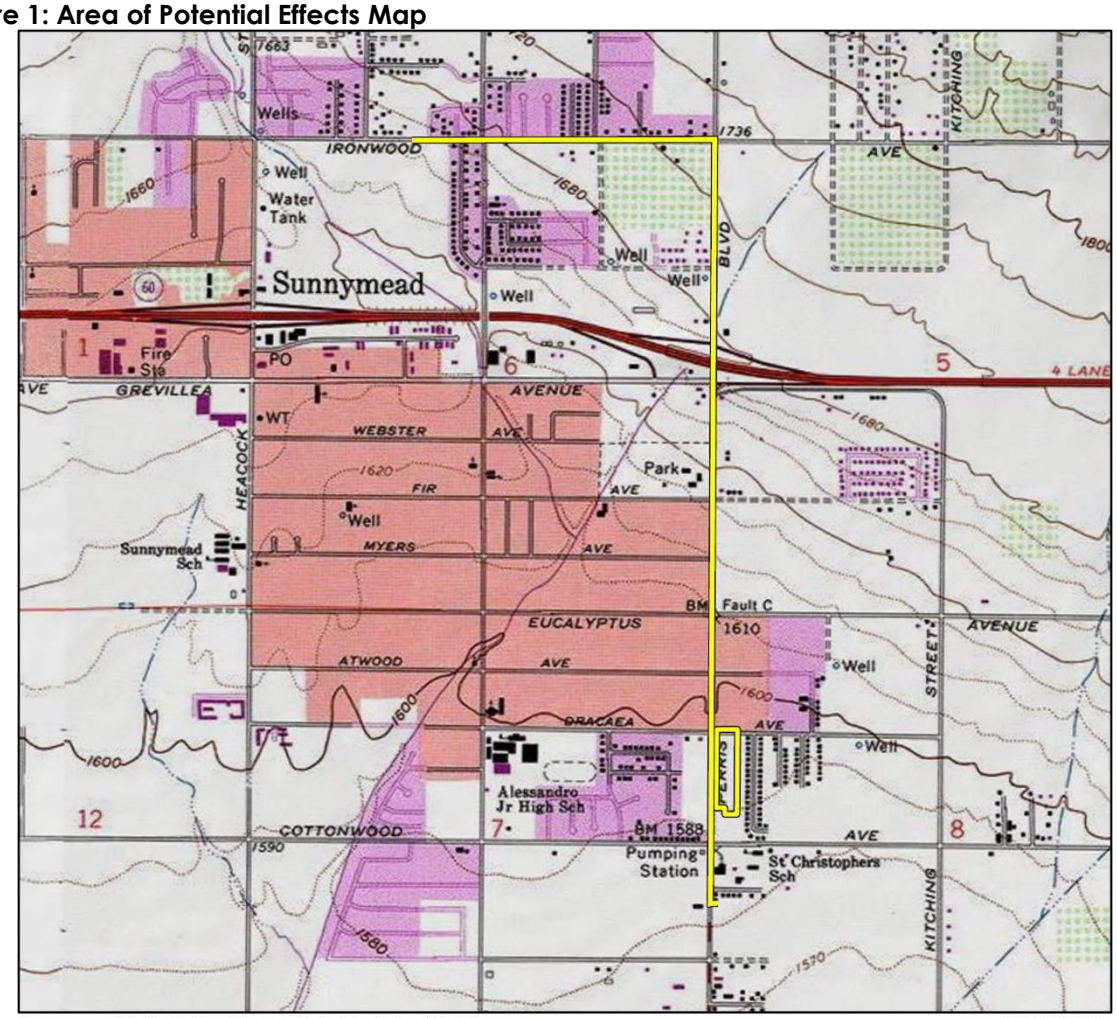

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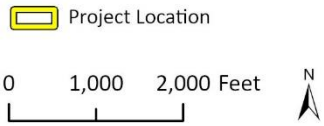

From: Laura Maldonado
Sent: Friday, July 29, 2022 7:18 AM
To: morenovalleyhistoricalsociety@gmail.com
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA
Attachments: 21-12325 EMWD MVGDP Add 2 Historic Group Section 106 Letter - MVHS.pdf

---

Good morning,

Please see the attached letter regarding the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.
Please let me know if you have any questions or concerns.

Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

Rincon Consultants, Inc.
Environmental Scientists | Planners | Engineers

Trusted | Fair | Transparent | Accountable | Disciplined | Entrepreneurial
Ranked 2021 “Best Environmental Services Firm to Work For” by Zweig Group
Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, August 12, 2022 1:44 PM
To: morenovalleyhistoricalsociety@gmail.com
Cc: Leanna Flaherty
Subject: RE: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

Good afternoon,

I am following up in regards to the Eastern Municipal Water District Raw Water Conveyance Pipeline Phase III Project in Moreno Valley, Riverside County.

A letter was emailed to you on July 29, 2022 with further information. If you or your organization has any knowledge or concerns regarding cultural resources in the project area or would like to consult with the State Water Resources Control Board as part of the Section 106 process, please respond by email to lmaldonado@rinconconsultants.com or by telephone at (805) 547-0900.

Thank you,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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Cc: Leanna Flaherty <lflaherty@rinconconsultants.com>
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Respectfully,

Laura Maldonado, MA, Archaeologist
(She/Her/Hers)
831-214-0195 Mobile | 805-547-0900 Direct
lmaldonado@rinconconsultants.com

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Time Off Alert: 10/05 – 10/07

From: Laura Maldonado
Sent: Friday, August 12, 2022 1:47 PM
To: pvhandma@gmail.com
Cc: Leanna Flaherty
Subject: Outreach Letter for the EMWD Raw Water Conveyance Pipeline Phase III Project, Riverside County, CA

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Thank you,

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Time Off Alert: 10/05 – 10/07

APPENDIX D: PALEONTOLOGICAL RESOURCE ASSESSMENT FOR THE PERRIS NORTH BASIN GROUNDWATER CONTAMINATION MONITORING PROJECTS

Rincon Consultants, Inc.
301 9th Street, Suite 109
Redlands, California 92374
909 253 0705
info@rinconconsultants.com
www.rinconconsultants.com

November 24, 2020
Project No: 19-09026

Rosalyn Prickett
Senior Water Resources Planner
Woodard & Curran
9665 Chesapeake Drive, Suite 320
San Diego, California 92123

Subject: Paleontological Resource Assessment for the Perris North Basin Groundwater Contamination Monitoring Project, cities of Moreno Valley and Perris, Riverside County, California

Dear Ms. Prickett,

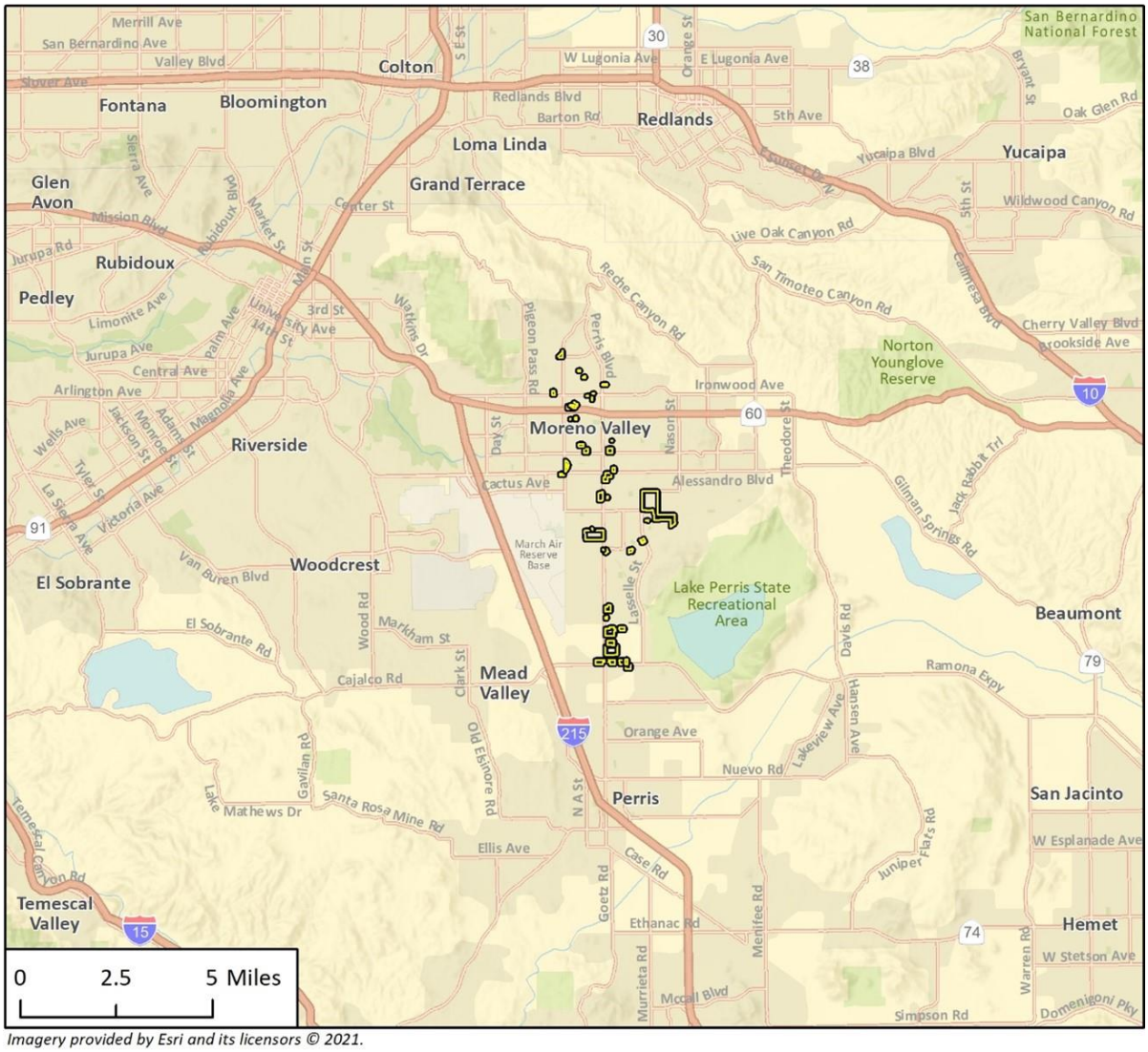
Rincon Consultants, Inc. conducted a paleontological resource assessment for the proposed Perris North Basin Groundwater Contamination Monitoring Project (project) located in the cities of Moreno Valley and Perris, Riverside County, California. The goals of this assessment are to identify the geologic units that may be impacted by development of the project, determine the paleontological sensitivity of geologic units underlying the project sites, assess the potential for impacts to paleontological resources from development of the project, and recommend mitigation measures to reduce impacts to scientifically significant paleontological resources, pursuant to California Environmental Quality Act (CEQA).

This paleontological resource assessment consisted of a fossil locality record search at the Natural History Museum of Los Angeles County (NHMLAC), a review of existing geologic maps and paleontological locality data, and a review of primary literature regarding fossiliferous geologic units within the project sites and vicinity. Following the literature review and records search, this report assessed the paleontological sensitivity of the geologic units underlying the project sites, determined the potential for impacts to significant paleontological resources, and proposed mitigation measures to reduce impacts to less than significant.

Project Location and Description

The Eastern Municipal Water District (EMWD) proposes the construction and operation of twenty monitoring wells (MW) at twenty locations throughout the cities of Moreno Valley and Perris in Riverside County, California. Forty-one potential locations, including optional locations, were evaluated for paleontological constraints for the proposed MW sites. The project sites, consisting of several individual parcels, are located east of the Perris Reservoir and Bernasconi Hills, west of the Escondido Freeway (Interstate Highway 215), south of the Box Springs Mountains and Kalmia Hills, and north of the Ramona Expressway and Colorado River Aqueduct (Figure 1 and Figure 2a-d). The project sites are mapped within the United States Geological Survey (USGS) *Sunnymead* and *Perris*, CA 7.5-minute quadrangles. The project sites are in a developed area characterized by a mix of agricultural, residential, commercial, and light industrial uses.

Figure 1 Regional Vicinity



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Project Location

N

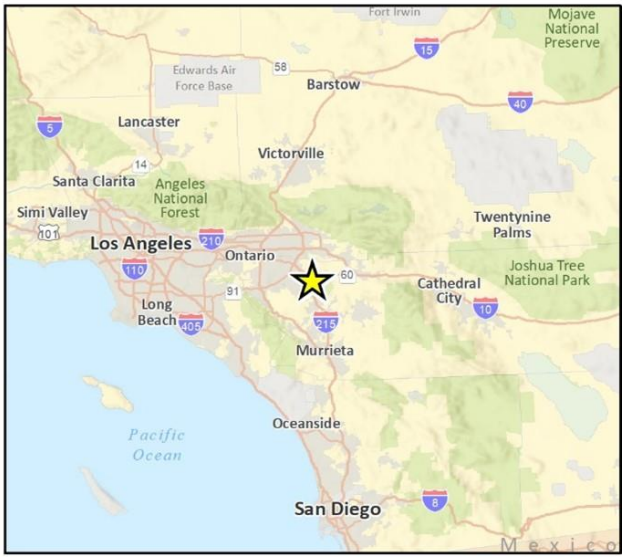

Figure 2a Project Locations (1 of 4)

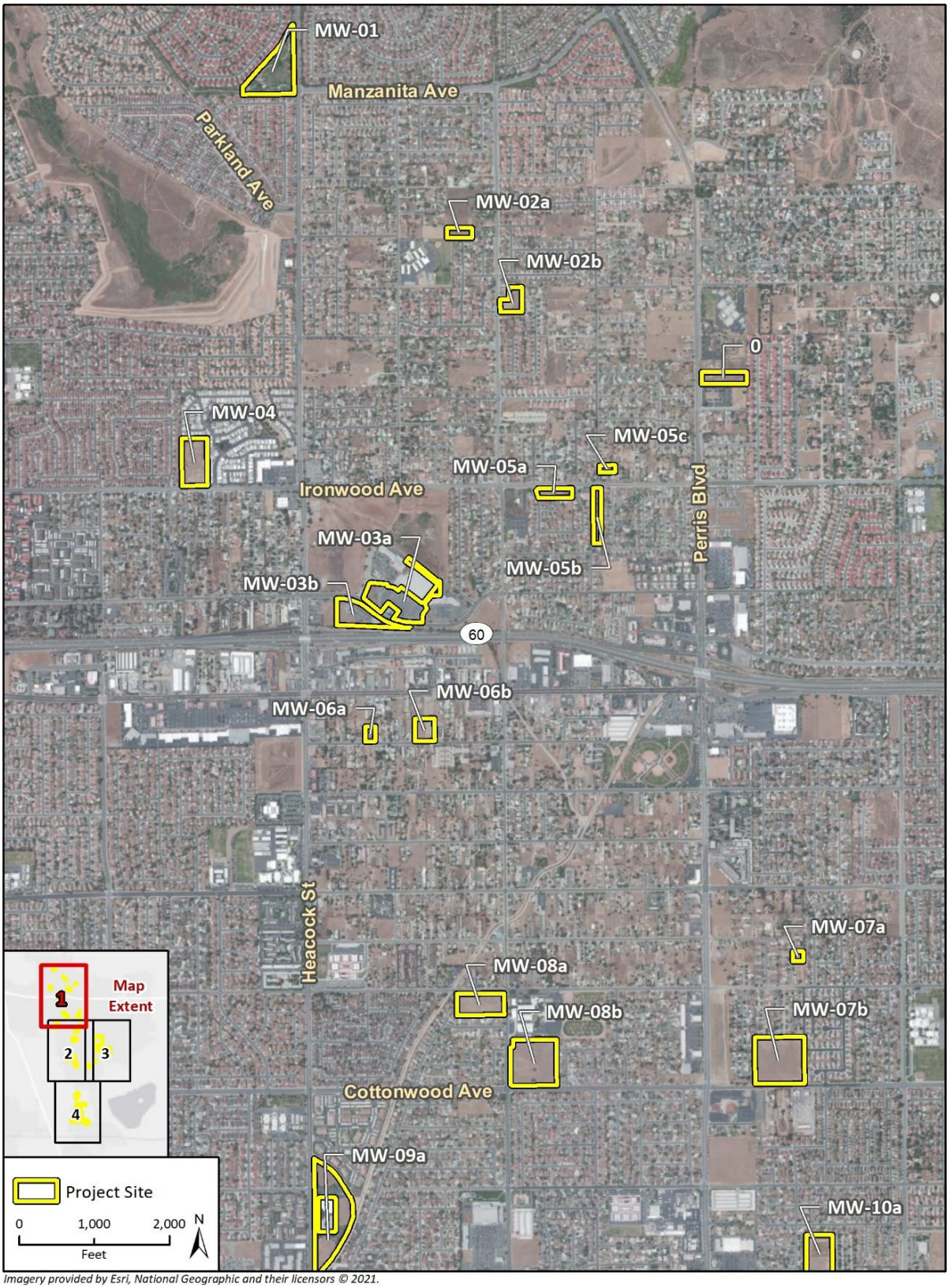

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Figure 2b Project Location (2 of 4)

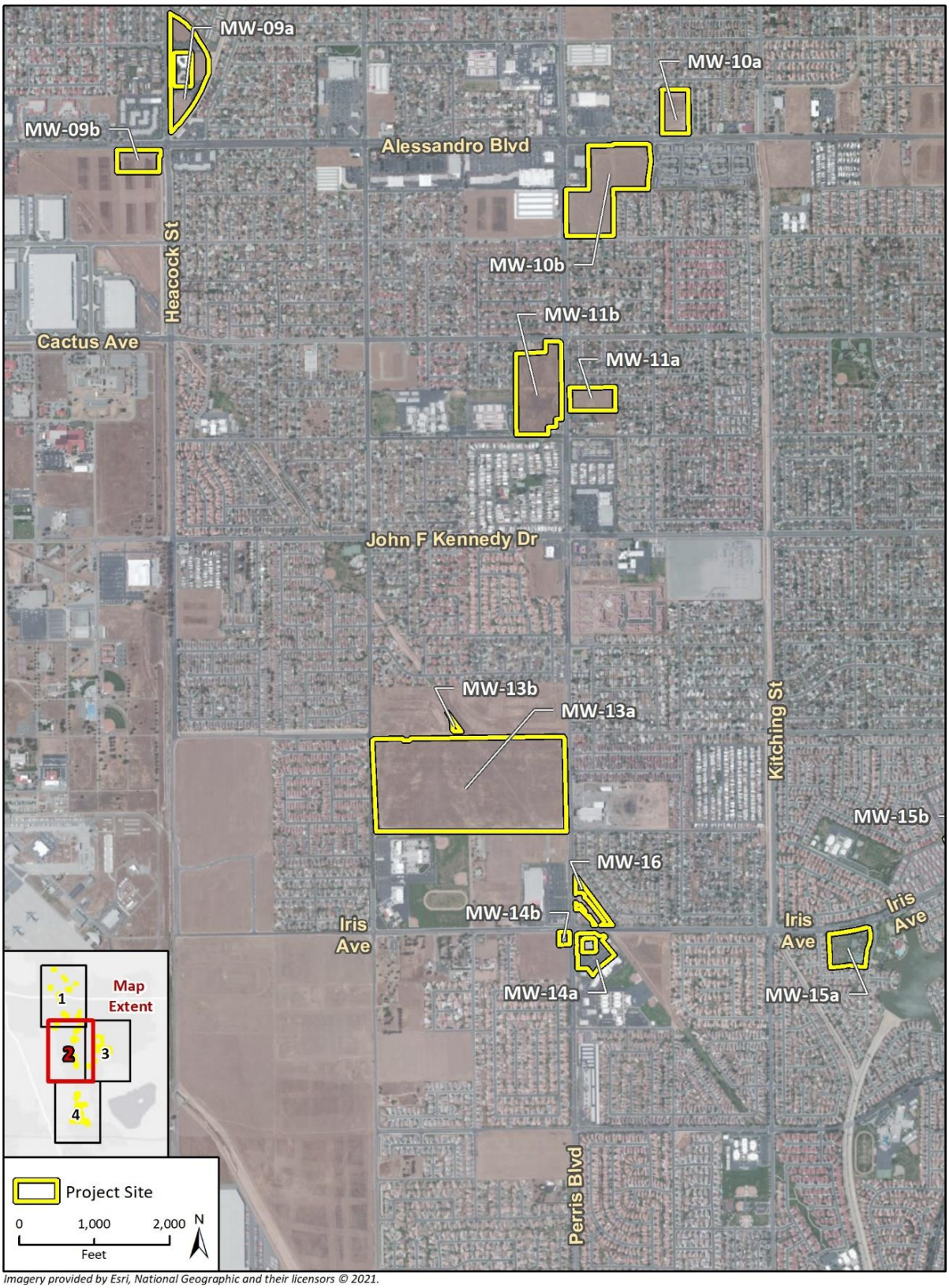

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Figure 2c Project Location (3 of 4)

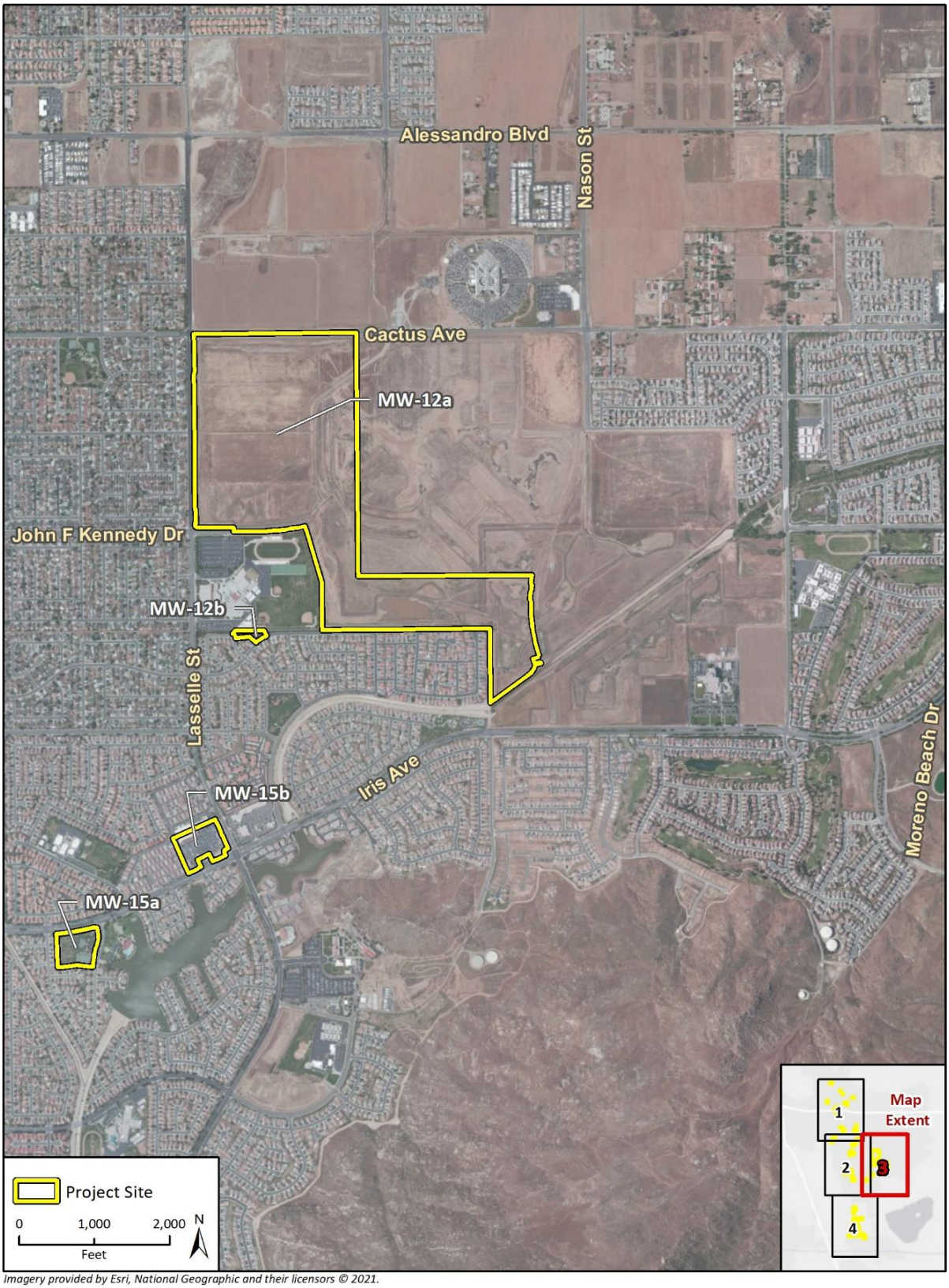
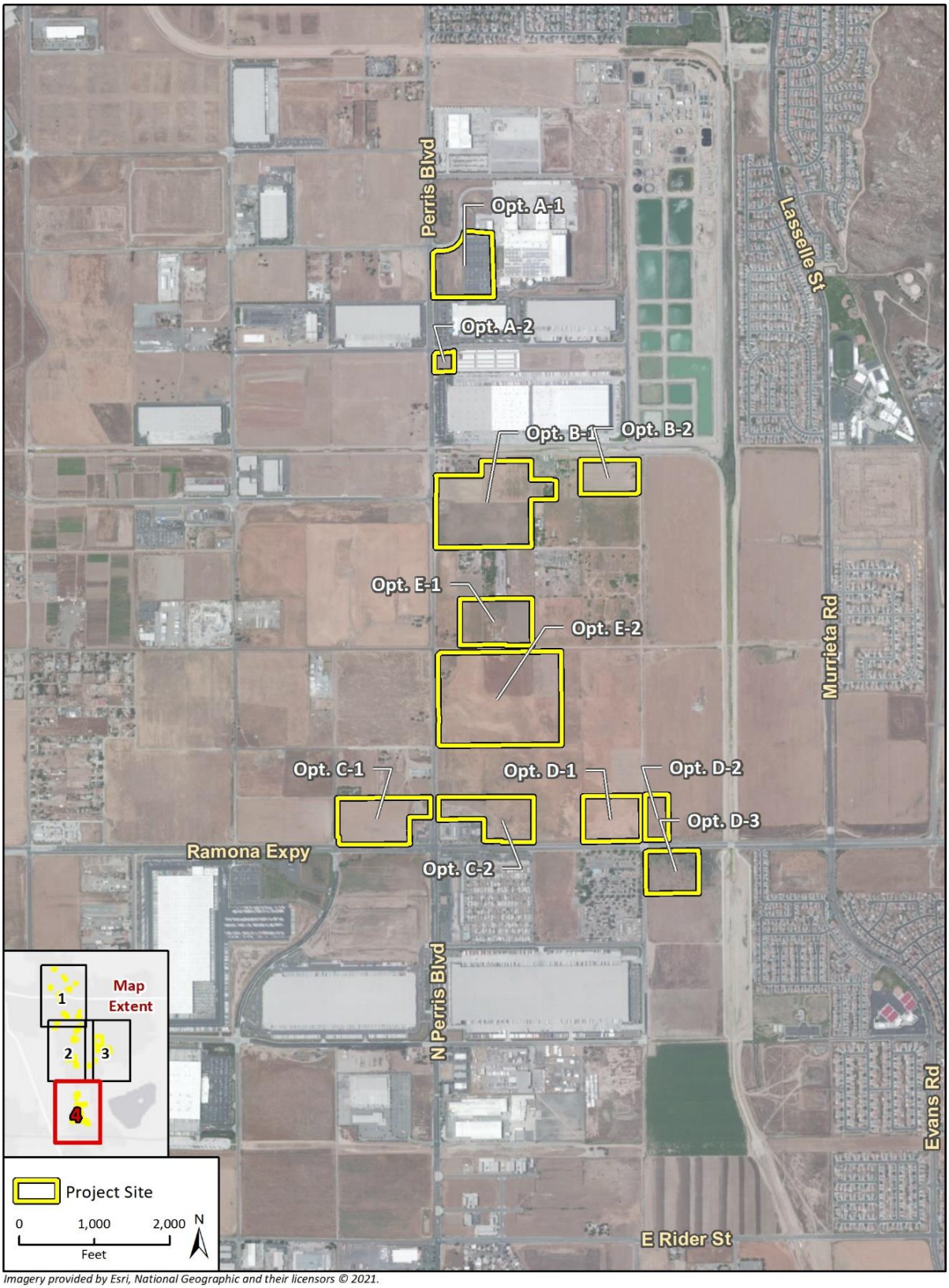


Figure 2d Project Location (4 of 4)



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EMWD proposes a groundwater monitoring project designed to monitor the presence of groundwater contaminants of concern (COCs) from nonpoint sources. These sources occur in the Perris North Basin, also referred to as the Perris North Groundwater Management Zone, which is within the San Jacinto Groundwater Basin. The source locations of contamination were not known at the time this report was written; however, some locations may be identified through analysis and reporting of data collected from the series of proposed monitoring wells. For each MW, an 18-inch borehole would be drilled, and 6-inch casing would be installed, along with a sampling pump located inside the well. For wells within roadway rights-of-way or sidewalks, well heads would be flush mounted to the road or sidewalk. Wells located within parcel lots would either have well heads flush-mounted to the sidewalk or pavement or would include a standpipe surrounded by bollards. Standpipes would be aboveground completions extending two to three feet above grade, with traffic bollards installed around each for the protection of the well head. MW would be drilled to a maximum depth of 200 to 800 feet deep, depending on where in the project site they are located. Assuming a maximum depth of 800 feet, and an 18-inch borehole, approximately 55 cubic yards of drill cuttings would be exported from each MW site. Additional material would be exported from each well site during grading and wellhead construction.

Regulatory Setting

Fossils are remains of ancient, commonly extinct organisms, and as such are nonrenewable resources. The fossil record is a document of the evolutionary history of life on earth, and fossils can be used to understand evolutionary pattern and process, rates of evolutionary change, past environmental conditions, and the relationships among modern species (i.e., systematics). The fossil record is a valuable scientific and educational resource, and individual fossils are afforded protection under federal, state, and local environmental laws, where applicable.

This study has been completed in accordance with the requirements of CEQA and also includes compliance with federal and state regulations in the case a federal nexus is established during the course of project execution. Compliance with both federal and state regulations allows the lead agency (e.g., EMWD) to apply the results of this technical study should a federal nexus be established at a later time. Federal and state regulations applicable to potential paleontological resources in the project sites are summarized below.

Federal Regulations

A variety of federal statutes address paleontological resources specifically. They are applicable to all projects occurring on federal lands and may be applicable to specific projects if the project involves a federal agency license, permit, approval, or funding.

The National Environmental Policy Act (United States Code, Section 4321 et seq.; 40 Code of Federal Regulations, Section 1502.25), as amended, directs federal agencies to “preserve important historic, cultural, and natural aspects of our national heritage (Section 101(b) (4)).” The current interpretation of this language includes scientifically important paleontological resources among those resources potentially requiring preservation.

The Paleontological Resources Preservation Act (PRPA) is part of the Omnibus Public Land Management Act of 2009 (Public Law 111-011 Subtitle D). The PRPA directs the Secretary of the Interior or the Secretary of Agriculture to manage and protect paleontological resources on federal land, and develop plans for inventorying, monitoring, and deriving the scientific and educational use of such resources. The

PRPA prohibits the removal of paleontological resources from federal land without a permit, establishes penalties for violations, and establishes a program to increase public awareness about such resources. While specific to activity occurring on federal lands, some federal agencies may require adherence to the directives outlined in the PRPA for projects on non-federal lands if federal funding is involved, or the project includes federal oversight.

State Regulations

California Environmental Quality Act

Paleontological resources are protected under CEQA, which states in part a project will "normally" have a significant effect on the environment if it, among other things, will disrupt or adversely affect a paleontological site except as part of a scientific study. Specifically, in Section VII(f) of Appendix G of the State CEQA Guidelines, the Environmental Checklist Form, the question is posed thus: "Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature." To determine the uniqueness of a given paleontological resource, it must first be identified or recovered (i.e., salvaged). Therefore, CEQA mandates mitigation of adverse impacts, to the extent practicable, to paleontological resources.

CEQA does not define "a unique paleontological resource or site." However, the Society of Vertebrate Paleontology (SVP) has defined a "significant paleontological resource" in the context of environmental review as follows:

> Fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are typically to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years) (SVP 2010).

The loss of paleontological resources meeting the criteria outlined above (i.e., a significant paleontological resource) would be a significant impact under CEQA, and the CEQA lead agency is responsible for ensuring that impacts to paleontological resources are mitigated, where practicable, in compliance with CEQA and other applicable statutes.

California Public Resources Code

Section 5097.5 of the Public Resources Code states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Here "public lands" means those owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, public agencies are required to comply with Public Resources Code Section 5097.5 for their own activities, including construction and maintenance, and for permit actions (e.g., encroachment permits) undertaken by others.

Local Regulations

City of Moreno Valley

The City of Moreno Valley General Plan Goals, Objectives, Policies, and Programs Chapter (City of Moreno Valley 2006) contains one policy pertaining to paleontological resources. The policy is as follows:

- **Policy 7-6:** In areas where archaeological or paleontological resources are known or reasonably expected to exist, based upon the citywide survey conducted by the University of California, Riverside Archaeological Research Unit, incorporate the recommendations and determinations of that report to reduce potential impacts to levels of insignificance.

City of Perris

The Conservation Element of the City of Perris General Plan (City of Perris 2005) contains one goal, one policy, and one implementation measure pertaining to paleontological resources, which are as follows:

- **Goal IV – Cultural Resources:** Protection of historical, archaeological, and paleontological sites.
- **Policy IV.A:** Comply with state and federal regulations and ensure preservation of the significant historical, archaeological, and paleontological resources.
- **Implementation Measure IV.A.4:** In Area 1 and Area 2 shown on the Paleontological Sensitivity Map [i.e., Exhibit CN-7: Paleontological Sensitivity within the Conservation Element of City of Perris General Plan], paleontological monitoring of all projects requiring subsurface excavations will be required once any excavation begins. In Areas 4 and 5, paleontologic[al] monitoring will be required once subsurface excavations reach five feet in depth, with monitoring levels reduced if appropriate, at the discretion of a certified Project Paleontologist.

According to Exhibit CN-7 of the Conservation Element of the City of Perris General Plan (2005), portions of the project sites are situated in Area 1: High Sensitivity and Area 4: Low to High Sensitivity.

Methods

Rincon evaluated the paleontological sensitivity of the geologic units which underlie the project sites using the results of the paleontological locality search and review of existing information in the scientific literature concerning known fossils in those geologic units. Rincon submitted a request to the NHMLAC for a list of known fossil localities from the project sites and immediate vicinity (i.e., localities recorded on the USGS *Sunnymead* and *Perris* California 7.5-minute topographic quadrangles), reviewed geologic maps, and reviewed primary literature.

Rincon assigned paleontological sensitivities to the geologic units mapped within the project sites. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units. The SVP (2010) has defined paleontological sensitivity and developed a system for assessing paleontological sensitivity, as discussed below.

Paleontological Sensitivity

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiometric dating is possible. As such, common fossils (especially vertebrates) may be scientifically important, and therefore considered highly significant.

The SVP (2010) describes sedimentary rock units as having high, low, undetermined, or no potential for containing significant nonrenewable paleontological resources. This criterion is based on rock units in which significant fossils have been determined by previous studies to be present or likely to be present. While these standards were written specifically to protect vertebrate paleontological resources, all fields of paleontology have adopted these guidelines, which are given here verbatim:

I. **High Potential (Sensitivity).** Rock units from which significant vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered have a high potential for containing significant non-renewable fossiliferous resources. These units include but are not limited to, sedimentary formations and some volcanic formations which contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas which contain potentially datable organic remains older than Recent, including deposits associated with nests or middens, and areas which may contain new vertebrate deposits, traces, or trackways are also classified as significant.

II. **Low Potential (Sensitivity).** Sedimentary rock units that are potentially fossiliferous, but have not yielded fossils in the past or contain common and/or widespread invertebrate fossils of well documented and understood taphonomic, phylogenetic species and habitat ecology. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils prior to the start of construction. Generally, these units will be poorly represented by specimens in institutional collections and will not require protection or salvage operations. However, as excavation for construction gets underway it is possible that significant and unanticipated paleontological resources might be encountered and require a change of classification from Low to High Potential and, thus, require monitoring and mitigation if the resources are found to be significant.

III. **Undetermined Potential (Sensitivity).** Specific areas underlain by sedimentary rock units for which little information is available have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.

IV. **No Potential.** Rock units of metamorphic or igneous origin are commonly classified as having no potential for containing significant paleontological resources.

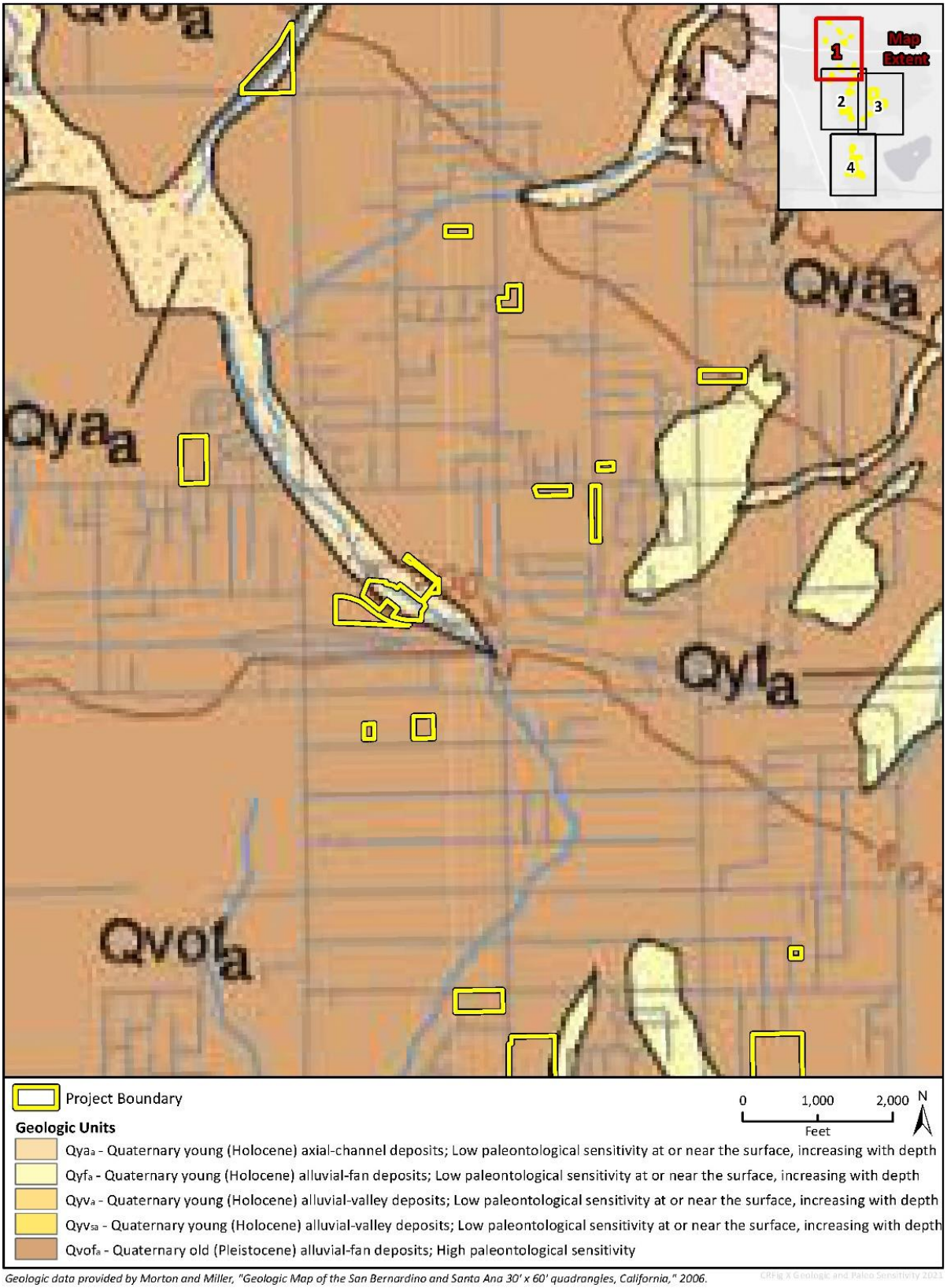
Geologic Setting

The project sites are located within the central Perris Block within the northern portion of the Peninsular Ranges Province, one of eleven major geomorphic provinces in California (California Geological Survey 2002). A geomorphic province is a region of unique topography and geology that is readily distinguished from other regions based on its landforms and diastrophic history (Norris and Webb 1990). The Perris Block is a roughly rectangular area of relatively low relief that has remained relatively stable and undeformed during the Neogene (Norris and Webb 1990; Morton and Miller 2006). It is bound by the Cucamonga Fault Zone to the north, the San Jacinto Mountains to the east, the Elsinore Fault Zone to the southwest, and the Chino Basin to the west. According to Morton and Miller (2006) the Perris Block is underlain by lithologically diverse prebatholithic metasedimentary rocks intruded by Cretaceous plutons of the Peninsular Ranges Batholith, which are subsequently overlain by thin to relatively thick, discontinuous sections of nonmarine Quaternary sediments. Quaternary deposits within the Perris Block consist of Pleistocene and Holocene alluvial fan deposits emanating from the nearby San Gabriel Mountains to the north and fluvial deposits from the Santa Ana River, which bisects the Perris Block and flows southward (Norris and Webb 1990; Morton and Miller 2006).

According to published geologic mapping by Morton and Miller (2006), the project sites include five geologic units mapped at the surface: Quaternary young (Holocene) axial-channel deposits (Qya_a), Quaternary young (Holocene) alluvial-valley deposits (Qyv_a, Qyv_{sa}), Quaternary young (Holocene) alluvial-fan deposits (Qyf_a), and Quaternary old (Pleistocene) alluvial-fan deposits ($Qvof_a$) (Morton & Miller 2006). Quaternary young (Holocene) axial-channel deposits (Qya_a)**,** mapped within a few of the northern project sites, consists of slightly to moderately consolidated silt, sand, and gravel. Quaternary young (Holocene) alluvial-valley deposits (Qyv_a, Qyv_{sa}), mapped within the eastern and southern project sites, consist of unconsolidated sand, silt, and clayey alluvium. Quaternary young (Holocene) alluvial-fan deposits (Qyf_a), mapped within the central project sites, consists of unconsolidated to moderately consolidated silt, sand, pebbly cobbly sand, and bouldery alluvial-fan deposits. Quaternary old (Pleistocene) alluvial-fan deposits ($Qvof_a$), mapped extensively throughout the project sites, consists of orangish brown moderately to well consolidated silt, sand, gravel, and conglomerate (Morton & Miller 2006). Refer to Figure 3a-d for the surficial geologic units mapped within the project sites, as well as their corresponding paleontological sensitivity.

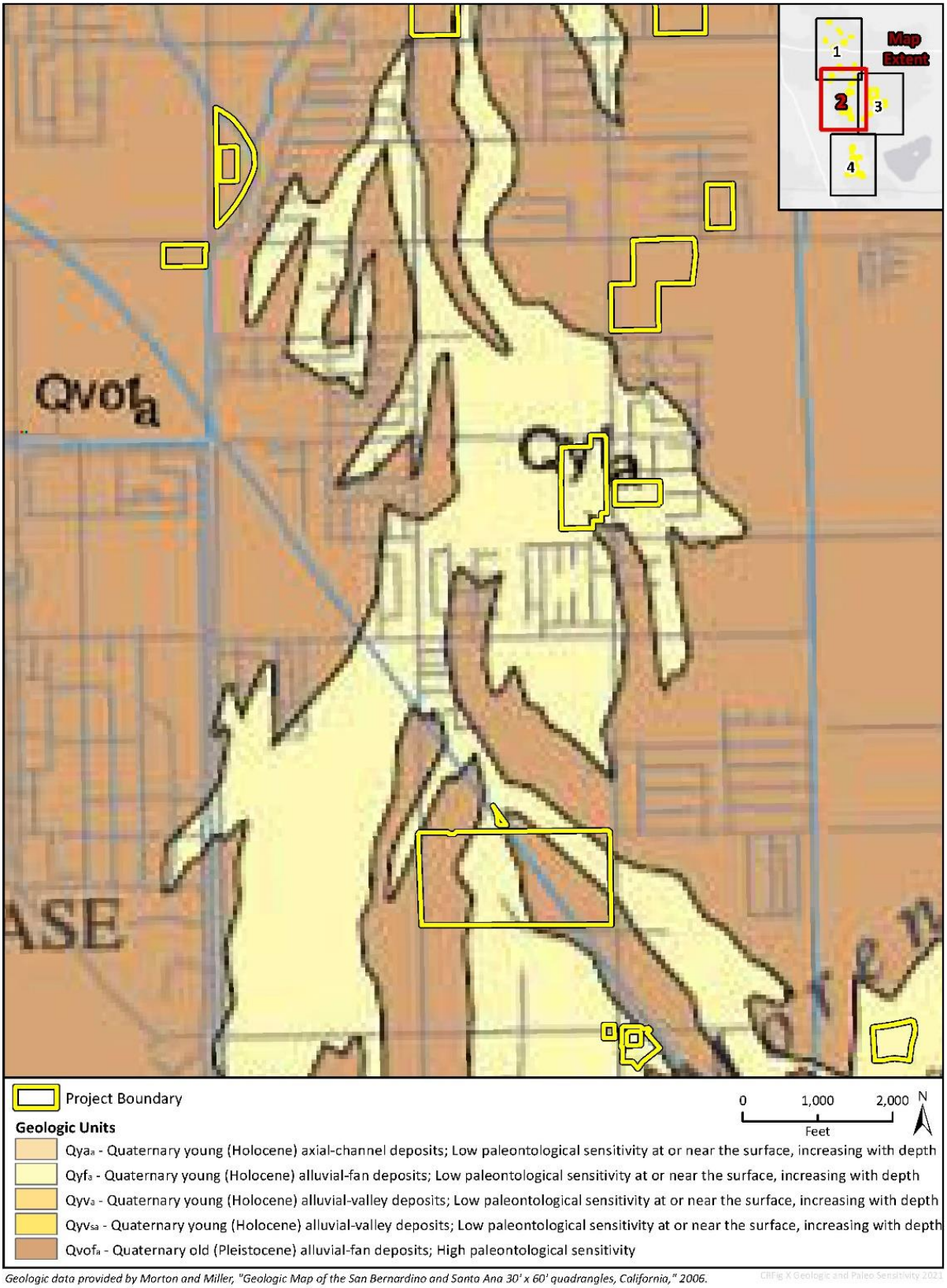
Holocene sediments are generally too young to preserve paleontological resources, but these sediments may grade downward into older deposits of Pleistocene age at moderate or unknown depths. Pleistocene sedimentary deposits (e.g., $Qvof_a$) have a well-documented record of abundant and diverse vertebrate fauna recorded throughout California. Vertebrate fossil taxa recorded in Riverside County include horse, tapir, bison, camelid, deer, mastodon, mammoth, ground sloth, canine, rabbit, and rodent. Pleistocene fossil localities recorded throughout southern California in general yielded fossil whale, sea lion, horse, tapir, ground sloth, bison, peccary, camel, deer, pronghorn, mammoth, short-faced bear, saber-toothed cat, mountain lion, wolf, fox, skunk, rabbit, bat, shrew, mole, pocket gopher, deer mouse, kangaroo rat, pack rat, bird, tortoise, turtle, snake, frog, toad, salamander, bony fish, shark, and ray, as well as invertebrates, such as insect and snail (Agenbroad 2003; Bell et al. 2004; 1991; Merriam 1911; Paleobiology Database 2021; Reynolds et al. 1991; Savage 1951; Savage et al. 1954; Scott and Cox 2008; Springer et al. 2009; Tomiya et al. 2011; Wilkerson et al. 2011; Winters 1954; University of California Museum of Paleontology 2021).

Figure 3a Geologic Units and Paleontological Sensitivity of the Project Sites (1 of 4)



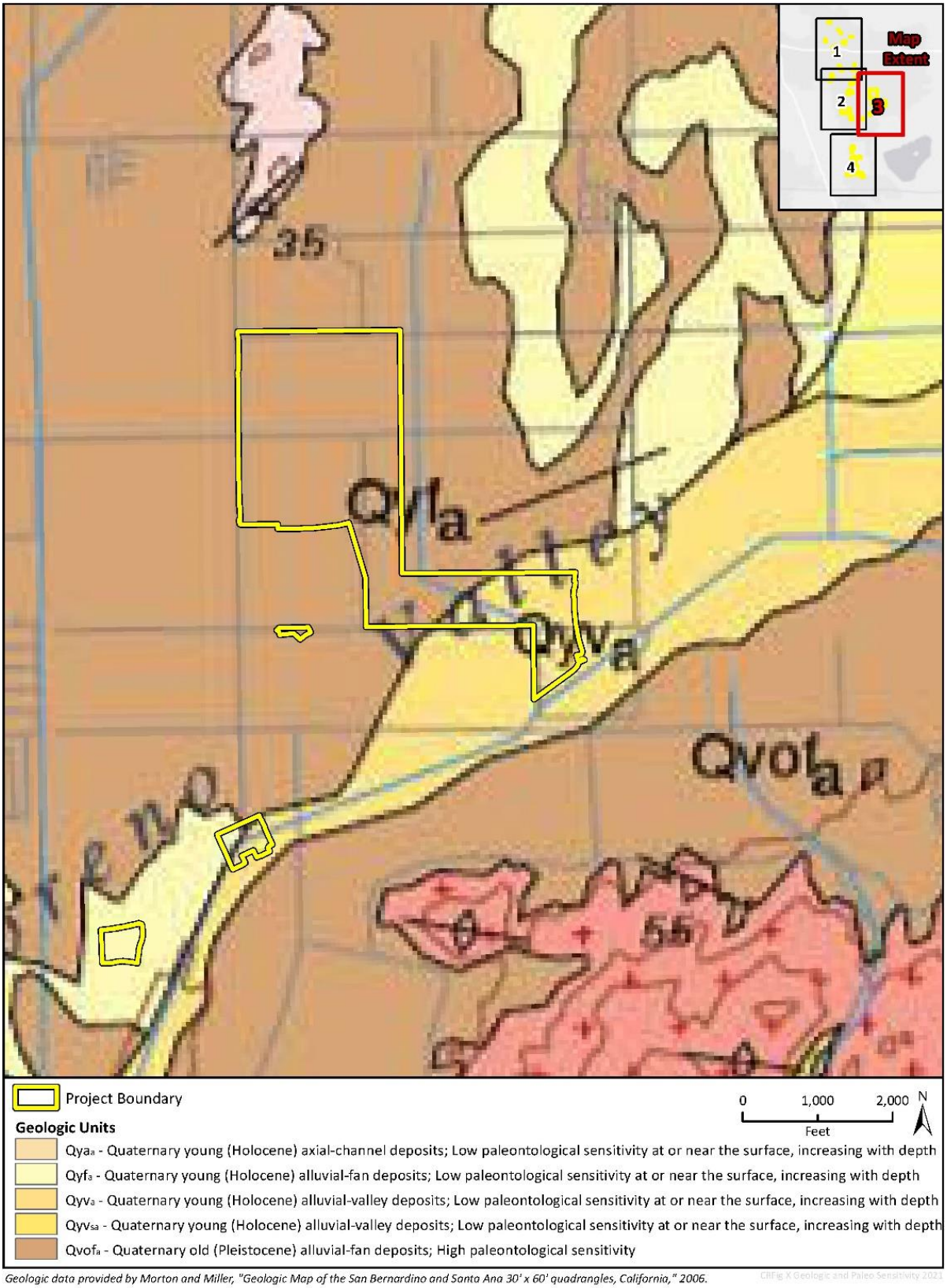
Geologic data provided by Morton and Miller, "Geologic Map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California," 2006.

Figure 3b Geologic Units and Paleontological Sensitivity of the Project Sites (2 of 4)



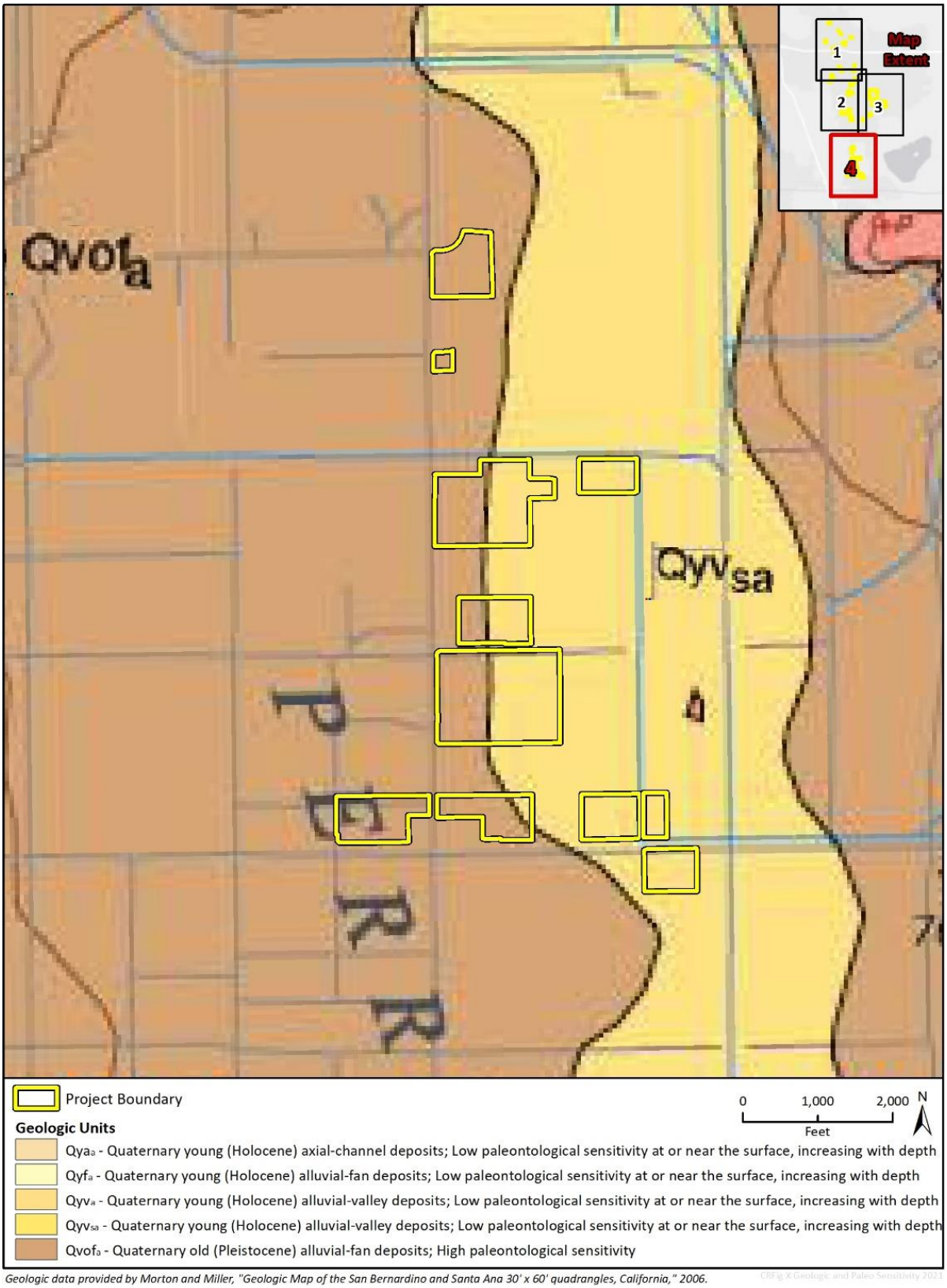
Geologic data provided by Morton and Miller, "Geologic Map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California," 2006.

Figure 3c Geologic Units and Paleontological Sensitivity of the Project Sites (3 of 4)



Geologic data provided by Morton and Miller, "Geologic Map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California," 2006.

Figure 3d Geologic Units and Paleontological Sensitivity of the Project Sites (4 of 4)



Geologic data provided by Morton and Miller, "Geologic Map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California," 2006.

Results

Locality Search

A search of the paleontological locality records at the NHMLAC resulted in no previously recorded fossil localities in the project sites; however, several vertebrate localities are situated within the project's vicinity. According to the NHMLAC collection records, the closest Pleistocene vertebrate locality (LACM VP 6059), which yielded fossilized specimens of a camel-like mammal (Camelidae), is approximately 14 miles south of the southernmost project sites. Table 1 summarizes six Pleistocene fossil localities located between 14 and 30 miles from the project sites.

Table 1 Museum Records Search Results

Locality No.	Location	Geologic Unit	Age	Taxa	Depth
LACM VP 6059	Overflow area just east-southeast of Lake Elsinore	Unknown formation	Pleistocene	Camel family (Camelidae)	Unreported
LACM VP 7261	Skinner Reservoir, Auld Valley	Unknown formation (Arenaceous silt)	Pleistocene	Elephant clade (Proboscidea); ungulate (Ungulata)	Unreported
LACM VP 7456	Highway 79 and Butterfield Stage Rd., Pauba Valley near Temecula	Alluvium interbedded silty clay, sandy silt, and silty to coarse grained sand	Pleistocene	Garter snake (*Thamnophis*); pocket gopher (*Thomomys*); deer mouse (*Peromyscus*); snails (gastropods)	Unreported
LACM VP 1207	Hill on east side of sewage disposal plant; 1 mile north-northwest of Corona	Unknown formation	Pleistocene	Bovidae	Unreported
LACM VP 7268, 7271	Sundance Condominiums, South of Los Serranos Golf Course in Chino Hills	Unknown formation	Pleistocene	Horse (*Equus*)	Unreported
LACM VP 7508	Near intersection of Vellano Club Dr. and Palmero Dr., Oakcrest Development; North of Serrano Canyon in Chino Hills	Unknown formation	Pleistocene	Ground sloth (*Nothrotheriops*); elephant family (Proboscidea); horse (*Equus*)	Unreported

Source: Bell 2021

Records maintained by the Western Science Center (WSC) indicate several fossil localities nearby the project sites. WSC localities 192, 193, and 194 rendered fossil ground sloth (*Megalonyx jeffersonii*), lamine camel (*Hemiauchenia* sp.), and horse (*Equus* sp.) less than 10 miles northeast of the project sites (LSA 2014; Radford 2019). Fossils from these localities were recovered from 11 to 13 feet below ground surface within Pleistocene alluvial fan deposits (LSA 2014; Radford 2019).

Paleontological Sensitivity

In accordance with SVP (2010) guidelines, Rincon determined the paleontological sensitivity of the project sites based on a geologic map review, literature review, and museum locality search. Quaternary young sedimentary units (i.e., alluvial-valley deposits [Qyv_a, Qyv_{sa}], alluvial-fan deposits [Qyf_a], and axial-channel deposits [Qya_a]) mapped at the surface of the project sites are assigned a low paleontological sensitivity because Holocene sediments, particularly those younger than 5,000 years old, are generally too young to contain fossilized material. However, Quaternary old (Pleistocene) sedimentary deposits (e.g., $Qvof_a$) may underlie Quaternary young sedimentary deposits (Qyv_a, Qyv_{sa}, Qyf_a, Qya_a) at unknown depths within the project area and the immediate vicinity. Holocene sediments are underlain by Pleistocene alluvial deposits at a depth as shallow as 11 feet below ground surface based on the presence of Pleistocene vertebrate fossils recovered at depths of 11 to 13 feet within the vicinity of the project sites (LSA 2014; Radford 2019). Intact (native) Quaternary old (Pleistocene) alluvial-fan deposits ($Qvof_a$) are assigned a high paleontological sensitivity based on its potential to yield scientifically significant paleontological resources (Bell 2021; LSA 2014; Radford 2019).

Findings and Recommendations

Paleontological resources are nonrenewable and are vulnerable to impacts from development related activities. Fossils provide important information for our understanding of past environments, the history of life, past species diversity, how species respond to climate change, and many other lines of scientific inquiry. Impacts to fossils and fossil localities, and loss of fossils from looting or other destructive activity at fossil sites results in the direct loss of scientific data and directly impacts the ability to conduct scientific research on evolutionary patterns and geological processes. Ground-disturbing activities in previously undisturbed portions of the project sites underlain by geologic units with a high paleontological sensitivity (i.e., Pleistocene alluvial-fan deposits) may result in significant impacts to paleontological resources under Appendix G of State CEQA Guidelines. Impacts would be significant if construction activities resulted in destruction, damage, or loss of scientifically important paleontological resources and associated stratigraphic and paleontological data. Activities with the potential to impact paleontological resources include grading, excavation, trenching or other activity that disturbs geologic formations with a high paleontological sensitivity.

The proposed activities include establishing temporary work areas 100 feet wide by 100 feet long at the surface and drilling and installing groundwater monitoring wells between 200 and 800 feet below the ground surface. Minor ground-disturbances within temporary work areas are unlikely to impact previously undisturbed sediments since these work areas contain previously disturbed sediments at the surface. Additionally, vertical drilling of boreholes less than three feet in diameter is not conducive to paleontological monitoring since the drilling activities typically pulverize the soil and sediment cuttings and remove the stratigraphic context of any fossils or microfossils that may be present within the borehole walls or the cuttings. Disturbance to intact (native) Pleistocene sediments from well drilling would be limited due the small (i.e., 18-inch) diameter of the borehole and impacts to paleontological resources due to well drilling would be negligible. Although ground-disturbing activities are likely to impact geologic units of high paleontological sensitivity near the surface or at depth, the potential for encountering significant fossil resources during project-related ground disturbance is low and impacts to paleontological resources are not anticipated.

Further paleontological resources management is not recommended at this time; however, the following measure is recommended in the case of unanticipated fossil discoveries. This measure would

apply to all phases of project construction and would provide that any unanticipated fossils present on site are preserved and that potential impacts to paleontological resources would be less than significant by providing for the recovery, identification and curation of previously unrecovered fossils.

- In the event an unanticipated fossil discovery is made during the course of project development, then in accordance with SVP (2010) guidelines, it is the responsibility of any worker who observes fossils within the project sites to stop work in the immediate vicinity of the find and notify a qualified professional paleontologist who shall be retained to evaluate the discovery, determine its significance and if additional mitigation or treatment is warranted. Work in the area of the discovery will resume once the find is properly documented and authorization is given to resume construction work. Any significant paleontological resources found during construction monitoring will be prepared, identified, analyzed, and permanently curated in an approved regional museum repository.

If you have any questions regarding this Paleontological Resource Assessment, please contact us.

Sincerely,

Rincon Consultants, Inc.

Jorge Mendieta, BA
Paleontologist

Jennifer DiCenzo, BA
Senior Paleontologist/Program Manager

Jennifer Haddow, PhD
Principal Environmental Scientist

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APPENDIX E: NOISE MODEL OUTPUT SHEETS

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat 3/1/2022
Case Desc Judson Pipeline Construction Noise

		Baselines (dBA)		---- Receptor #1 ----
Descriptio	Land Use	Daytime	Evening	Night
Residence	Residentia	65	55	45

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	50	0
Concrete Saw	No	20		89.6	50	0
Crane	No	16		80.6	50	0
Dump Truck	No	40		76.5	50	0
Dump Truck	No	40		76.5	50	0
Excavator	No	40		80.7	50	0
Pickup Truck	No	40		75	50	0
Pickup Truck	No	40		75	50	0
Pickup Truck	No	40		75	50	0
Pumps	No	50		80.9	50	0
Backhoe	No	40		77.6	50	0
Backhoe	No	40		77.6	50	0
Welder / Torch	No	40		74	50	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	89.6	82.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	89.6	82.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	76.5	72.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Dump Truck	76.5	72.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	75	71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	75	71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	75	71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	80.9	77.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	74	70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	89.6	87.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat 3/1/2022
Case Desc Judson Pipeline Construction Noise

		Baselines (dBA)		---- Receptor #1 ----
Descriptio	Land Use	Daytime	Evening	Night
Residence	Residentia	65	55	45

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	50	5
Concrete Saw	No	20		89.6	50	5
Crane	No	16		80.6	50	5
Dump Truck	No	40		76.5	50	5
Dump Truck	No	40		76.5	50	5
Excavator	No	40		80.7	50	5
Pickup Truck	No	40		75	50	5
Pickup Truck	No	40		75	50	5
Pickup Truck	No	40		75	50	5
Pumps	No	50		80.9	50	5
Backhoe	No	40		77.6	50	5
Backhoe	No	40		77.6	50	5
Welder / Torch	No	40		74	50	5

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	84.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	84.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	75.6	67.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	71.5	67.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Dump Truck	71.5	67.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	75.7	71.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	70	66	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	70	66	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	70	66	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	75.9	72.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	72.6	68.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	72.6	68.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	69	65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	84.6	82.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX F: MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Monitoring and Reporting Program

Subsequent Mitigated Negative Declaration

Cactus Avenue Corridor Groundwater Wells Project

State Clearinghouse # 2020030267

Raw Water Conveyance Pipeline Phase III

Prepared by:
Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92572-8300

With Assistance From:

Woodard & Curran
9665 Chesapeake Drive, Suite 320
San Diego, CA 92123
858.875.7400

February 2023

1. MITIGATION MONITORING AND REPORTING PROGRAM

The California Environmental Quality Act (CEQA) requires that when a lead agency adopts a Mitigated Negative Declaration (MND), it shall prepare a monitoring or reporting program for all required mitigation measures (CEQA Guidelines Section 15097). This Mitigation Monitoring and Reporting Program (MMRP) describes the monitoring and reporting program for mitigation measures adopted by Eastern Municipal Water District (EMWD) to avoid or substantially reduce impacts related to the Raw Water Conveyance Pipeline Phase III, a component of the Cactus Avenue Corridor Groundwater Wells Project (proposed project) to less than significant levels and has been prepared in accordance with Public Resources Code Section 21081.6 and State CEQA Guidelines Section 15097. EMWD and its contractors are required to implement the adopted mitigation measures for the proposed project in accordance with the Subsequent MND. This MMRP will be used by EMWD to ensure that the mitigation measures identified in the MND are implemented.

1.1 Program Administration

The MMRP shall be administered by EMWD and mitigation measures shall be incorporated into design and construction contracts, as appropriate, to ensure full implementation. The MMRP shall be maintained by the designated EMWD Project Manager and be available for inspection upon request at EMWD's offices.

1.2 Project Description

The Cactus Avenue Corridor Groundwater Wells Project consists of the construction and operation of groundwater extraction, treatment and distribution facilities in the Perris North Groundwater Management Zone. The purpose of the project is to increase EMWD potable supplies while also cleaning up contamination areas of concern in the Perris North Groundwater Basin. Overall, the Cactus Avenue Corridor Groundwater Wells Project would construct a water treatment and blending facility, up to six extraction wells, and up to 35,000 linear feet of pipeline. The project is expected to produce approximately 3,700 acre feet per year (AFY), which equates to approximately 2.5 percent of EMWD's total demand.

The Raw Water Conveyance Pipeline Phase III is a component of the Cactus Avenue Corridor Groundwater Wells Project. The proposed project involves construction and operation of approximately 12,500 linear feet of 18-inch diameter polyvinyl chloride (PVC) pipeline to convey water from the Well 66 site to the site of a proposed central treatment facility. The new pipeline would involve open trench construction within City of Moreno Valley right-of-way in Ironwood Avenue and Perris Boulevard, and California Department of Transportation (Caltrans) right-of-way in Perris Boulevard, with a Caltrans undercrossing at California State Route 60/Moreno Valley Freeway.

2. MITIGATION MONITORING REQUIREMENTS

2.1 Mitigation Measures

A mitigation monitoring and reporting checklist has been developed for the proposed project and is intended for use by EMWD, as lead agency and designated monitoring entity. The table identifies anticipated timing and responsible parties for ensuring implementation of each mitigation measure. The implementation schedule column summarizes the mitigation requirements for the proposed project that shall be implemented prior to construction activities, and the mitigation requirements that shall be implemented during and after construction activities. These mitigation measures are presented in the same order, using the naming conventions and categories, as in the Subsequent IS/MND.

Table MMRP-1: Mitigation Monitoring and Reporting Checklist

Mitigation Measure	Impact Statement	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
Biological Resources						
BIO-1: Burrowing Owl Preconstruction Clearance Survey. A qualified wildlife biologist shall conduct a pre-construction survey of the impact areas to confirm presence/absence of burrowing owl individuals no more than 14 days prior to construction. The survey methodology will be consistent with the methods outlined in the CDFW Staff Report on Burrowing Owl Mitigation (2012). If no active breeding or wintering owls are identified, no further action is required. If burrowing owls are detected onsite, the following actions shall be implemented in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (2012): • A qualified wildlife biologist shall be onsite during initial ground-disturbing activities in potential burrowing owl habitat identified in the biological resources assessment. • No ground-disturbing activities shall be permitted within a buffer no less than 200 meters (656 feet) from an active burrow, depending on the level of disturbance, as defined by the Canadian Wildlife Service Environment (CWSE) (2009), unless the qualified biologist determines a reduced buffer would not adversely affect the burrowing owl(s). • Active burrows will not be disturbed during the nesting season (February 1 to August 31). • During the nonbreeding (winter) season (September 1 to January 31), ground-disturbing work can proceed near active burrows as long as the work occurs no closer than 50 meters (165 feet) from the burrow, depending on whether the level of disturbance is low, such as surveying, drive by, lowline 2" or less, plowed in (CWSE 2009), and if the active burrow is not directly affected by the project activity. A smaller/larger buffer may be established by the qualified biologist following monitoring and assessments of the project's effects on the burrowing owls. If active winter burrows are found that would be directly affected by ground-disturbing activities, owls can be excluded from winter burrows according to recommendations made in the Staff Report on Burrowing Owl Mitigation (2012). Additionally, if burrowing owls are found on-site, a qualified biologist shall prepare and submit a passive relocation program in accordance with Appendix E (i.e., Example Components for Burrowing Owl	**Impact 3.4a –** Potential to 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. **Impact 3.4f –** Potential to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	EMWD, Qualified Biologist	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm that contract documents include mitigation measure 2. Retain a qualified biologist for pre-construction survey 3. Confirm pre-construction survey conducted no more than 14 days prior to construction by qualified biologists consistent with CDFW Staff Report on Burrowing Owl Mitigation methods 4. If pre-construction survey is positive for burrowing owls, implement CDFW *Staff Report on Burrowing Owl Mitigation* actions listed in the mitigation measure 5. Retain copies of all surveys and reports in the project file	1. Contracting 2. Pre-construction 3. Pre-construction 4. Construction 5. Post-construction	1._____ 2._____ 3._____ 4._____ 5._____

Mitigation Measure	Impact Statement	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
Artificial Burrow and Exclusion Plans) of the Staff Report on Burrowing Owl Mitigation (2012) for CDFW review and approval prior to the commencement of disturbance activities on-site. • Burrowing owls shall not be excluded from burrows until a Burrowing Owl Exclusion Plan is developed based on the recommendations made in Appendix E, Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans, of the Staff Report on Burrowing Owl Mitigation (2012). The Burrowing Owl Exclusion Plan shall be submitted to CDFW for review and approval prior to the commencement of disturbance activities on-site. • Prior to passive relocation, the EMWD shall be responsible for acquiring compensatory mitigation at a ratio of 1:1 for lost breeding and/or wintering habitat to be implemented on- or off-site, including permanent conservation and management of burrowing owl habitat through the recordation of a conservation easement, funding of a non-wasting endowment, and implementation of a Mitigation Land Management Plan based on the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012) and CDFW guidance. Mitigation lands would be identified through coordination with CDFW and on adjacent, or proximate to the impact site where feasible and where habitat is suitable to support burrowing owl. If required by CDFW, compensatory mitigation shall be completed prior to passive relocation of owls and completion of construction. • When a qualified biologist determines that burrowing owls are no longer occupying the project site and passive relocation is complete, construction activities may begin. A final letter shall be prepared by the qualified biologist documenting the results of the passive relocation. The letter shall be submitted to CDFW.						
MM BIO-2: Preconstruction Nesting Bird Survey To avoid impacts to nesting birds, activities associated with vegetation removal, construction, and/ or grading shall be conducted September 16 and January 14, which is outside the peak nesting/ breeding bird season. If vegetation removal, construction, and/or grading must occur during the peak nesting/breeding season (January 15 through September 15), EMWD shall ensure that impacts to nesting/breeding birds are avoided through the implementation of preconstruction surveys,	**Impact 3.4a –** Potential to 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.	EMWD, Qualified Biologist	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm that contract documents include mitigation measure 2. Confirm construction schedule occurs outside	1. Contracting 2. Pre-construction	1._____ 2._____

Mitigation Measure	Impact Statement	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
establishment of an exclusionary buffer zone, and ongoing monitoring, if necessary. EMWD shall designate a qualified biologist experienced in identifying local and migratory bird species; conducting bird surveys using appropriate survey methodology (such as CDFW-accepted species-specific survey protocols, available here: https://www.wildlife.ca.gov/conservation/survey-protocols); nesting surveying techniques; recognizing breeding and nesting behaviors; locating nests and breeding territories; identifying nesting stages and nest success; determining/establishing appropriate avoidance and minimization measures; and monitoring the efficacy of implemented avoidance and minimization measures. • Prior to activities associated with vegetation removal, construction, and/ or grading during the peak bird nesting/breeding season (January 15 through September 15), the biologist shall conduct surveys for active nests. • Preconstruction nesting bird surveys should be conducted no more than three days prior to the start of clearance/construction work. If ground-disturbing activities are delayed, additional preconstruction surveys should be conducted so that no more than three days have elapsed between the survey and ground-disturbing activities. • Surveys shall encompass all suitable areas within 100 feet of the construction zone, including trees, shrubs, bare ground, burrows, cavities, and structures. Survey duration shall take into consideration the size of the site; density, and complexity of the land cover type; number of survey participants; survey techniques employed; and shall be sufficient to ensure the data collected are complete and accurate. Preconstruction surveys shall focus on both direct and indirect evidence of nesting, including nest locations and nesting behavior (e.g., copulation, carrying of food or nest materials, nest building, removal of fecal sacks, flushing suddenly from atypically close range, agitation, aggressive interactions, feigning injury or distraction displays, or other behaviors). • Active nests found within 100 feet of the construction zone shall be delineated with highly visible construction fencing or other exclusionary material that would inhibit entry by personnel or equipment into the buffer zone. Installation of the exclusionary material shall be completed by the qualified				of January 15 – September 15 3. If construction occurs between January 15 and September 15, retain a qualified biologist for pre-construction survey and confirm pre-construction nesting bird survey is completed no more than three days prior to the start of clearance/construction work. 4. If a nest is identified in the pre-construction survey, verify avoidance buffer is established and that ground-disturbing activities do not occur in buffer until biologist determines that breeding/nesting is completed 5. Retain copies of all surveys and reports in project file	3. Pre-construction 4. Construction 5. Post-construction	3._____ 4._____ 5._____

Mitigation Measure	Impact Statement	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
biologist prior to initiation of construction activities. The biologist shall identify an appropriate protective buffer zone around the nest depending on the sensitivity of the species, the nature of the construction activity, and the amount of existing disturbance in the vicinity. In general, the qualified biologist should designate a buffer of 50 to 200 feet for common nesting birds and 200 to 500 feet for special status nesting birds and nesting raptors. If excluding work activities from any established buffers is not feasible, the biologist may establish a modified buffer exclusion utilizing specific biological and/or ecological attributes of the project location and avian species. The buffer zone shall remain intact and maintained while the nest is active (i.e., occupied or being constructed by at least one adult bird) and until young birds have fledged and no continued use of the nest is observed, as determined by the biologist. No construction activities shall be allowed within the buffer until nesting activity has ended to ensure protection of nesting birds. If the biologist determines nesting activities could fail as a result of work activities, all work shall cease within the buffer exclusion, and no entry into the buffer will occur. Construction activities within the no-work buffer may proceed after the biologist determines the nest is no longer active due to natural causes (e.g., young have fledged, predation, or other non-human causes of nest failure). The barrier shall be removed by construction personnel at the direction of the biologist.						
BIO-3 Coastal Whiptail, Yellow Bat, and Los Angeles Pocket Mouse WEAP Training and Pre-construction Survey Because there is marginal habitat present within small pockets of open habitat with sparse vegetation in the adjacent parcels to the study area and within the staging area to support the presence of coastal whiptail, western yellow bat, and Los Angeles pocket mouse, a pre-construction survey prior to ground disturbance activity shall be carried out by a qualified biologist. Worker Environmental Awareness Program (WEAP) training shall also be conducted prior to any ground disturbance activities, to address the potential for these species to occur within the project area. The training will address best management practices (BMPs) prior to, during, and after construction, including appropriate protocol to follow if any special-status species are identified. All participants in construction activities will be required to attend this training	**Impact 3.4a –** Potential to 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.	EMWD, Qualified Biologist	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm that contract documents include mitigation measure 2. Retain a qualified biologist for pre-construction survey 3. Confirm Worker Environmental Awareness Program (WEAP) training is conducted by a qualified biologist and attended by all required participants	1. Contracting 2. Pre-construction 3. Pre-construction	1._____ 2._____ 3._____

Mitigation Measure	Impact Statement	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
prior to ground disturbance, and a signature from each participant will be required at the conclusion of the training.				4. Retain copies of WEAP participant signatures in the project file	4. Post-construction	4._____
Cultural Resources						
MM CUL-1: Cultural Resources Treatment and Monitoring Agreement At least 30 days prior to the start of any ground-disturbing activities, EMWD shall contact the Consulting Tribe(s) to develop Cultural Resource Treatment Monitoring Agreement(s) ("Agreement"). The Agreement(s) 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 reimbursements.	**Impact 3.5a –** Potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. **Impact 3.5b –** Potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5. **Impact 3.18a –** Potential to 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: 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 a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	EMWD, Consulting Tribe(s)	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm preparation of and completion of Cultural Resource Treatment Monitoring Agreement(s) 2. Retain copies of all agreements in project file	1. Pre-construction 2. Post-construction	1._____ 2._____

Mitigation Measure	Impact Statement	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
MM CUL-2: Develop a Cultural Resources Monitoring Plan Prior to any grading activities, a Cultural Resources Monitoring Plan shall be prepared by a qualified archaeologist in consultation with the Consulting Tribe(s). The plan shall identify the location and timing of cultural resources monitoring. The plan shall also contain an allowance that the qualified archaeologist, based on observations of subsurface soil stratigraphy or other factors during initial grading, and in consultation with the Native American monitor and EMWD, may reduce or discontinue monitoring as warranted if the archaeologist determines that the possibility of encountering archaeological deposits is low. The plan shall outline the appropriate measures to be followed in the event of unanticipated discovery of cultural resources during project implementation (including during the survey to occur following vegetation removal and monitoring during ground-disturbing activities). The plan shall identify avoidance as the preferred manner of mitigating impacts to cultural resources. The plan shall establish the criteria utilized to evaluate the historic significance (per CEQA) of the discoveries, methods of avoidance consistent with CEQA Guidelines Section 15126.4(b)(3), as well as identify the appropriate data recovery methods and procedures to mitigate the effect of the project if avoidance of significant historical or unique archaeological resources is determined to be infeasible. The plan shall also include reporting of monitoring results within a timely manner, disposition of artifacts, curation of data, and dissemination of reports to local and state repositories, libraries, and interested professionals. A qualified archaeologist and 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 in the event that cultural material is encountered.	**Impact 3.5a –** Potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. **Impact 3.5b –** Potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5. **Impact 3.18a –** Potential to 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: 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 a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	EMWD, Qualified Archaeologist, Tribal Monitor(s), Consulting Tribe(s)	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm that contract documents include mitigation measure 2. Retain a qualified archaeologist and confirm preparation of a Cultural Resources Monitoring Plan prior to any grading activities 3. Confirm pre-grade meeting between a qualified archaeologist and Consulting Tribe(s) monitor and EMWD staff, the contractor, and appropriate subcontractors was held 4. Retain copy of the Cultural Resources Monitoring Plan in project file	1. Contracting 2. Pre-construction 3. Pre-Construction 4. Post-construction	1._____ 2._____ 3._____ 4._____

Mitigation Measure	Impact Statement	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
MM CUL-3: Tribal Monitoring Agreements A qualified archaeological monitor and a Consulting Tribe(s) monitor shall be present for ground-disturbing activities associated with the project, and both the project archaeologist and Tribal Monitor(s) will make a determination as to the areas with a potential for encountering cultural material. At least seven business days prior to project grading, EMWD shall contact the tribal monitors to notify the Tribe of grading/excavation and the monitoring program/schedule, and to coordinate with the Tribe on the monitoring work schedule. Both the archaeologist and the tribal monitor shall have the authority to stop and redirect grading activities in order 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 predetermined between EMWD and the Consulting Tribe(s), details of which shall be addressed in the Cultural Resources Treatment and Monitoring Agreement in Mitigation Measure CUL-1. Treatment may also include curation of the cultural resources at a tribal curation facility, as determined in discussion among EMWD, the project archaeologist, and the tribal representatives and addressed in the Cultural Resources Treatment and Monitoring Agreement referenced in Mitigation Measure CUL-1.	**Impact 3.5a –** Potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. **Impact 3.5b –** Potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5. **Impact 3.18a –** Potential to 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: 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 a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	EMWD, Qualified Archaeologist, Tribal Monitor(s), Consulting Tribe(s)	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm that contract documents include mitigation measure 2. Contact the tribal monitors to coordinate the monitoring work schedule at least seven business days prior to grading 3. Confirm qualified archaeological monitor and a Consulting Tribe(s) monitor are present during initial ground disturbing activities 4. Retain copies of all agreements in project file	1. Contracting 2. Pre-construction 3. Construction 4. Post-construction	1._____ 2._____ 3._____ 4._____
MM CUL-4: Evaluation of Discovered Artifacts All artifacts discovered at the development site shall be inventoried and analyzed by the project archaeologist and tribal monitor(s). A monitoring report will be prepared, detailing the methods and results of the monitoring program, as well as the disposition of any cultural material encountered. If no cultural material is encountered, a brief letter report will be sufficient to document monitoring activities.	**Impact 3.5a –** Potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. **Impact 3.5b –** Potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5. **Impact 3.18a –** Potential to cause a substantial adverse change in the significance of a tribal cultural resource, defined in	Qualified Archaeologist, Tribal Monitor(s)	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm mitigation measure is included in contract documents 2. If artifacts are discovered, confirm they are inventoried and analyzed by the project archaeologist and tribal monitor(s), and a monitoring report is prepared.	1. Contracting 2. Construction	1._____ 2._____

Mitigation Measure	Impact Statement	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
	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: 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 a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			3. If no cultural artifacts are encountered, confirm a brief letter report is prepared. 4. Retain copies of any monitoring reports in project file 5. Provide copy of monitoring report to Pechanga Band of Luiseño Indians and Agua Caliente Band of Cahuilla Indians.	3. Post-construction 4. Post-construction 5. Post-construction	3._____ 4._____ 5._____
MM CUL-5: Disposition of Inadvertent Discoveries In the event that 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. EMWD 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 Monitoring Plan required pursuant to **Mitigation Measure CUL-2** is the next preferable treatment measure. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments. 3. In the event that on-site reburial is not feasible, EMWD will enter into a curation agreement with an appropriate qualified repository within Riverside County that meets	**Impact 3.5a –** Potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. **Impact 3.5b –** Potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5. **Impact 3.18a –** Potential to 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: 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 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	EMWD, Qualified Archaeologist, Tribal Monitor(s)	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm mitigation measure is included in contract documents 2. If Native American cultural resources are unearthed, verify appropriate treatment procedures are implemented as outlined in the mitigation measure 3. If curation agreement is prepared, retain curation agreement and all artifact disposition reports in project file	1. Contracting 2. Construction 3. Post-construction	1._____ 2._____ 3._____

Mitigation Measure	Impact Statement	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
federal standards per 36 Code of Federal Regulations 800 Part 79 and therefore would be curated and made available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within Riverside County, to be accompanied by payment of the fees necessary for permanent curation.	subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.					
MM CUL-6: 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.	**Impact 3.5a –** Potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. **Impact 3.5b –** Potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5. **Impact 3.18a –** Potential to 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: 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 a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	EMWD, Construction Contractor, Qualified Archaeologist, Tribal Monitor(s), Consulting Tribe(s), Riverside County Coroner	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm mitigation measure is included in contract documents	1. Contracting	1._____
MM CUL-7: Human Remains If Native American human remains are encountered, Public Resources Code 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	**Impact 3.5c –** Potential to disturb any human remains, including those interred outside of dedicated cemeteries. **Impact 3.18a –**	EMWD, Riverside County Coroner, NAHC	EMWD Construction Administrator, in consultation with EMWD CEQA/	1. Confirm mitigation measure is included in contract documents	1. Contracting	1._____

Mitigation Measure	Impact Statement	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
origin. Further, pursuant to California Public Resources Code Section 5097.98(b), 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." The most likely descendant (MLD) shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in Public Resources Code Section 5097.98.	Potential to 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: 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 a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		Environmental Compliance Team	2. If human remains are found, coordinate with Riverside County Coroner 3. If human remains are found, verify adequate consultation with NAHC or MLD has occurred, if applicable, and that proper treatment and reburial has occurred, as applicable 4. Document and retain records regarding discovery of human remains in project file	2. Construction 3. Construction 4. Post-construction	2._____ 3._____ 4._____
Geology and Soils						
MM GEO-1: Unanticipated Fossil Discovery In the event of an unanticipated fossil discovery made during the construction of the project, in accordance with Society of Vertebrate Paleontology (2010) guidelines, it is the responsibility of any worker who observes the fossil within the project site to stop work within the fossil's immediate vicinity and notify a qualified professional paleontologist. The paleontologist shall evaluate the discovery, determine the fossil's significance, and decide if additional mitigation or treatment is needed. Work within the area of the fossil discovery will resume once the find is documented and authorization to resume construction work is given. Any significant paleontological resources discovered during construction monitoring will be prepared, identified, analyzed, and permanently curated in an approved regional museum repository.	**Impact 3.7f –** Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	EMWD, Constructor Contractor, Qualified Professional Paleontologist	EMWD Construction Administrator, in consultation with EMWD CEQA/ Environmental Compliance Team	1. Confirm that mitigation measure is included in contract documents 2. Confirm work stopped in immediate vicinity if fossil discovered until authorization to resume construction is given 3. Confirm fossils, if found, are assessed, salvaged, and curated by qualified experts, as applicable 4. Retain construction monitoring report in project file	1. Contracting 2. Construction 3. Post-construction 4. Post-construction	1._____ 2._____ 3._____ 4._____

Mitigation Measure	Impact Statement	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
Hazards and Hazardous Materials						
MM HAZ-1: Hazardous Materials Management and Spill Prevention and Control Plan Before construction begins, EMWD shall prepare a Hazardous Materials Management Spill Prevention and Control Plan that includes a project-specific contingency plan for hazardous materials and water operations. The Plan will be applicable to construction activities and will establish policies and procedures according to applicable codes and regulations, including but not limited to the California Building and Fire Codes, and federal and OSHA regulations. The Plan will include, but is not limited to the following: • A discussion of hazardous materials management, including delineation of hazardous material storage areas, access and egress routes, waterways, emergency assembly areas, and temporary hazardous waste storage areas; • Notification and documentation of procedures; and • Spill control and countermeasures, including employee spill prevention/response training.	**Impact 3.9b –** Potential to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. **Impact 3.9c –** Potential to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	EMWD, Construction Contractor	EMWD Construction Administrator	1. Confirm that contract documents include preparation of a Hazardous Materials Management Spill Prevention and Control Plan 2. Confirm contractor has prepared HMMSPCP and is available on-site. 3. Retain a copy of the HMMSPCP in the project file	1. Contracting 2. Construction 3. Post-construction	1._____ 2._____ 3._____
Noise						
MM NOI-1: Construction Noise Reduction Measures EMWD shall require its contractor to implement the following actions relative to construction noise: • EMWD shall conduct construction activities between 7:00 a.m. and 7:00 p.m. on weekdays and 8:00 a.m. and 4:00 p.m. on Saturdays, in accordance with the City of Moreno Valley Municipal Code, Sections 8.14.040 and 11.80.030, with the exception of specific well drilling and testing activities, which require 24-hour continuous work. • Prior to construction, EMWD in coordination with the construction contractor, shall provide written notification, to all properties within 50 feet of the proposed project facilities informing occupants of the type and duration of construction activities. Notification materials shall identify a method to contact EMWD's program manager with noise concerns. Prior to construction commencement, the EMWD program manager shall establish a noise complaint process to allow for resolution of noise problems. This process shall be clearly described in the notifications. • Stationary noise-generating equipment shall be located as far from sensitive receptors as possible. Such equipment shall also be oriented to minimize noise that would be	**Impact 3.13a –** Potential 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.	EMWD, Construction Contractor	EMWD Construction Administrator	1. Confirm that noise reduction measures are included in the contract documents 2. Confirm that written notification has occurred to all properties within 50-feet of the proposed project prior to the start of construction 3. Confirm EMWD program manager has established a noise complaint process prior to start of construction 4. Confirm that construction occurs during approved hours and that all noise	1. Contracting 2. Pre-construction 3. Pre-construction 4. Construction	1._____ 2._____ 3._____ 4._____

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directed toward sensitive receptors. Whenever possible, other non-noise generating equipment (e.g., water tanks, roll-off dumpsters) shall be positioned between the noise source and sensitive receptors. • Equipment and staging areas shall be located as far from sensitive receptors as possible. At the staging location, equipment and materials shall be kept as far from adjacent sensitive receptors as possible. • Construction vehicles and equipment shall be maintained in the best possible working order; operated by an experienced, trained operator; and shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds). • Unnecessary idling of internal combustion engines shall be prohibited. In practice, this would require turning off equipment if it would idle for five or more minutes. • Electrically powered equipment shall be used instead of pneumatic or internal-combustion powered equipment, where feasible. • The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.				reduction measures are implemented during construction 5. Retain construction monitoring documentation in project file	 5. Post-construction	 5._____
MM NOI-2: Noise Barriers EMWD shall require its contractor to install temporary construction noise barriers prior to the start of construction activities that would occur outside the hours specified by the City of Moreno Valley Municipal Code Sections 8.14.040 and 11.80.030. These barriers shall block the line of sight between the equipment and the noise-sensitive receptor(s) and shall provide a minimum of 25 dBA of noise attenuation. The construction noise barrier shall be constructed of a material with a minimum weight of one pound per square foot with no gaps or perforations. It shall remain in place until conclusion of the nighttime construction activities. The project plans and specifications shall include documentation from a noise consultant verifying the inclusion of an appropriate noise barrier.	**Impact 3.13a –** Potential 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. **Impact 3.13b –** Potential generation of excessive groundborne vibration or groundborne noise levels.	EMWD, Construction Contractor, Noise Consultant	EMWD Construction Administrator	1. Confirm mitigation measure is included in contract documents 2. Confirm sound wall barriers are installed between construction equipment and noise-sensitive receptor(s) that meet the specifications approved in the mitigation measure 3. Conduct periodic monitoring of mitigation commitments during construction to ensure noise barrier is providing	1. Contracting 2. Construction activities that occur outside of hours specified in municipal code 3. Construction activities that occur outside of hours specified in municipal code	1._____ 2._____ 3._____

Mitigation Measure	Impact Statement	Party Responsible for Implementation and Reporting	Review and Approval by:	Monitoring and Reporting Actions	Implementation Schedule	Verification: Status/ Date Completed/ Initials
				25 dBA of noise attenuation 4. Retain documentation verifying the inclusion of an appropriate noise barrier in project file	 4. Post-construction	 4._____
Transportation						
MM TRA-1: Traffic Control and Detour Plan Prior to project construction, EMWD shall require its construction contractor to implement a Traffic Control and Detour Plan, to be approved by the EMWD construction inspector. The Traffic Control Plan shall, at a minimum: • Identify staging locations to be used during construction • Identify safe ingress and egress points from staging areas • Identify potential road closures • Establish haul routes for construction-related vehicle traffic • Include a Detour Plan that identifies alternative safe routes to maintain pedestrian and bicyclist safety during construction • Include provisions for traffic control measures such as barricades, warning signs, cones, lights, and flag persons, to allow safe circulation of vehicle, bicycle, pedestrian, and emergency response traffic The Traffic Control and Detour Plan shall be reviewed and approved by EMWD's project manager and the construction inspector prior to project construction. EMWD's construction inspector shall also provide the construction schedule and Traffic Control and Detour Plan to the City of Moreno Valley for review to ensure that construction of the proposed project does not conflict with other construction projects that may be occurring simultaneously in the project vicinity.	**Impact 3.9f –** Potential to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. **Impact 3.17a –** Potential to conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. **Impact 3.17c –** Potential to substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). **Impact 3.17d –** Potential to result in inadequate emergency access. **Impact 3.20a –** Potential to substantially impair an adopted emergency response plan or emergency evacuation plan.	EMWD, Construction Contractor	EMWD Construction Administrator	1. Confirm that contract documents include mitigation measure 2. Confirm that a Traffic Control and Detour Plan was developed in accordance with the mitigation measure, and approved by City of Moreno Valley 3. Confirm coordination of construction schedules has occurred with emergency services, as needed 4. Confirm traffic control measures identified in the Traffic Control and Detour Plan are implemented during construction 5. Retain copy of Traffic Control and Detour Plan in project file	1. Contracting 2. Pre-construction 3. Pre-construction 4. Construction 5. Post-construction	1._____ 2._____ 3._____ 4._____ 5._____