Initial Study/Mitigated Negative Declaration
Las Flores Enhanced Water Reliability Project

Prepared for:

Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, California 92688
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Table of Contents

APPENDICES

FIGURES

TABLES

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APE	area of potential effect
AQMP	Air Quality Management Plan
AFY	acre-feet per year
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
dBA	A-weighted decibels
EIR	Environmental Impact Report
EOC	Emergency Operations Center
GHG	greenhouse gas
GWP	global warming potential
HFCs	hydrofluorocarbons
HMP	Hazard Mitigation Plan
IPCC	Intergovernmental Panel on Climate Change
IPS	inches per second
IS	Initial Study
LACM	Natural History Museum of Los Angeles County
L_{eq}	equivalent continuous noise level
LOS	level of service
LST	localized significance threshold
MND	Mitigated Negative Declaration
MT	metric tons
mya	million years ago
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NF_3	nitrogen trifluoride
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen
O_3	ozone
PFCs	perfluorocarbons
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
PPV	peak particle velocity
PRIMP	Paleontological Resources Impact Mitigation Program
project	Las Flores Enhanced Water Reliability Project
ROW	right-of-way
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coast Information Center
SF_6	sulfur hexafluoride

Acronym/Abbreviation	Definition
SMWD	Santa Margarita Water District
SO_X	sulfur oxides
SR	State Route
SRA	Source Receptor Area
SVP	Society of Vertebrate Paleontology
SWPPP	stormwater pollution prevention plan
VOC	volatile organic compound

1 Introduction

1.1 Background

The Santa Margarita Water District (SMWD), established in 1964, is Orange County's second-largest water district, providing water and wastewater treatment services to more than 160,000 residents and businesses in the cities of Mission Viejo, Rancho Santa Margarita, San Clemente, Coto de Caza, Las Flores, Ladera Ranch, Rancho Mission Viejo, Sendero, and other unincorporated areas of Orange County. SMWD receives its domestic water from two main sources, (1) imported water from the Municipal Water District of Orange County, which is supplied by Metropolitan Water District of Southern California from Northern California via the State Water Project and the Colorado River via the Colorado River Aqueduct, and (2) the capture and reuse of urban runoff and recycled water.

In an effort to continue to reduce its dependence on imported water, SMWD is proposing the Las Flores Enhanced Water Reliability Project (project) to install recycled water lines to serve the Las Flores community within the SMWD service area and to allow for the delivery of up to 209 acre-feet per year (AFY) of additional tertiary-treated recycled water to dedicated irrigation customers within the unincorporated community of Las Flores.

1.2 California Environmental Quality Act Compliance

SMWD is the California Environmental Quality Act (CEQA) lead agency responsible for the review and approval of the proposed Las Flores Enhanced Water Reliability project. Based on the findings of this Initial Study (IS), SMWD has made the determination that a Mitigated Negative Declaration (MND) is the appropriate environmental document to be prepared in compliance with CEQA (California Public Resources Code, Section 21000 et seq.).

This IS/MND has been prepared by SMWD and is in conformance with Section 15070(a) of the CEQA Guidelines (14 CCR 15000 et seq.). The purpose of the MND and the IS checklist is to determine any potentially significant impacts associated with the project and to incorporate mitigation measures into the project design, as necessary, to reduce or eliminate the significant or potentially significant effects. As determined in this IS/MND, there is no substantial evidence, in light of the whole record before the agency, that the project would have a significant effect on the environment.

1.3 List of Discretionary Actions

Approval of the following discretionary actions will be required in order to implement the proposed project:

- Approval of the project by the SMWD Board of Directors
- County of Orange Encroachment Permit (for work in County streets).

1.4 Other Agencies that May Use the Mitigated Negative Declaration

This IS/MND is intended for use by responsible and trustee agencies that may have an interest in reviewing the project. All responsible and trustee agencies for the project, listed as follows, will be asked to review this document:

- California Department of Public Health
- California State Water Resources Control Board
- County of Orange, Public Works Department
- Orange County Health Care Agency, Department of Environmental Health
- Regional Water Quality Control Board
- United States Bureau of Reclamation

1.5 Public Review Process

In accordance with CEQA, a good-faith effort has been made during the preparation of this IS/MND to contact affected agencies, organizations, and persons who may have an interest in this project.

In reviewing the IS/MND, affected public agencies and the interested public should focus on the sufficiency of the document in identifying and analyzing the project's possible impacts on the environment. A copy of the Draft IS/MND and related documents are available for review on SMWD's website (www.smwd.com).

Comments on the IS/MND may be made in writing before the end of the public review period. A 30-day review and comment period from May 13, 2020 to June 11, 2020, has been established in accordance with Section 15072(a) of the CEQA Guidelines. Following the close of the public comment period, SMWD will consider this IS/MND and comments thereto in determining whether to approve the proposed project.

Written comments on the IS/MND should be sent to the following address:

ATTN: Karla Houlihan, Project Engineer
Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, California 92688
Email: karlah@smwd.com

2 Project Description

2.1 Project Location

The project is located in the unincorporated community of Las Flores, in Orange County, California (Figure 1, Project Location). The project consists of the installation of approximately 2.6 miles of 8-inch, 10-inch, and 16-inch recycled water pipeline within existing SMWD easements and within existing road rights-of-way (ROWs) throughout the community. Specifically, the project would be located within Oso Parkway, Meandering Trail Road, a portion of Antonio Parkway, and in an SMWD access road located behind the residential neighborhood located at the northwest corner of Oso Parkway and Antonio Parkway. The project also involves the repurposing of the existing Las Flores Lift Station, which is located approximately 800 feet west of the intersection of Oso Parkway and Antonio Parkway.

Regional access to the project site is provided via Interstate 5 and State Route (SR) 241.

2.2 Environmental Setting

The project site is located within existing SMWD easements, SMWD property, and the ROW under existing paved roadways within the County of Orange. The majority of the proposed alignment, including the unpaved SMWD access road, contain existing utility lines. Construction staging and parking areas would be located at the SMWD headquarters, which is located within the project site.

The general vicinity surrounding the project site is developed with residential, commercial, and institutional uses, as well as open space.

2.3 Project Characteristics

2.3.1 Project Description

The project includes installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space. The project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650-foot-long 10-inch existing force main in the ROW within Antonio Parkway. Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. Two access points at existing manholes within Antonio Parkway are necessary for proper installation of the liner.

Upon completion, the project would permanently convert a total of 209 AFY of irrigation demand from potable to recycled water.

2.3.2 Project Construction and Scheduling

Project implementation is anticipated to commence in June 2020 and would last through April 2021 (approximately 235 workdays).

Project construction would consist of two different methods of trenching: (1) excavating directly into the dirt access road that is within SMWD's current easement, and (2) when the alignment is within paved roads, removing the pavement before excavating for pipe installation. Both of these methods would be incorporated into the project's continuous construction activity. The sequence of activity would start with trenching and excavation, followed by pipe installation, and then backfilling the trench around the pipe and repaving the area. Pipe installation would involve partially filling the trench with sand, laying pipe, and then adding more sand or backfilling with the material that was excavated. Excavation to approximately 5.5 feet in depth would be required. Additional construction details are provided in Section 3.3, Air Quality.

Project Design Features and Best Management Practices

All project components would be designed and built in accordance with the seismic design provision of the International Building Code and the California Building Code. Additionally, all facets of excavation, construction, and facility design will meet the standards established during final engineering design. Specifically, this will include measures such as the proper composition, placement, and compaction of all construction fill; the use of additional foundation design techniques as necessary; and the utilization of appropriate construction materials and methods. To reduce impacts during construction, SMWD will include the following project features as needed:

- Best available control measures shall be used during construction to reduce particulate emissions and reduce soil erosion and trackout, through the following project features:
  - Construction staff will cover or water, as needed, any on-site stockpiles of debris, dirt, or other dusty material.
  - Construction staff will use adequate water and/or other dust palliatives on all disturbed areas in order to avoid particle blow-off.
  - Construction staff will wash down or sweep paved streets as necessary to control trackout or fugitive dust.
  - Construction staff will cover or tarp all vehicles hauling dirt or spoils on public roads if sufficient freeboard is not available to prevent material blow-off during transport.
  - Construction staff will use gravel bags and catch basins during ground-disturbing operations.
  - Construction staff will maintain appropriate soil moisture, apply soil binders, and will plant stabilizing vegetation.
- During construction, equipment emissions will be reduced through the following project features:
  - Construction staff will properly tune and maintain construction equipment.
  - Construction management staff shall encourage carpooling by all construction workers.
  - Any necessary lane closures will be limited to off-peak travel periods to the maximum extent feasible.
  - Construction staff will park construction vehicles off traveled roadways.
  - Construction management will encourage receipt of materials during non-peak traffic hours.

2.3.3 Operations and Maintenance

Upon completion of construction, the recycled water booster pump station would not be staffed and would require minimal maintenance (i.e., occasional equipment inspections by SMWD staff).

2.4 Project Purpose and Need

SMWD is 100% reliant on imported water for potable supplies, while the South Orange County region is 90% dependent on imported water. Imported pipelines cross five seismic faults over 200 times, posing a high vulnerability to the region during times of drought, earthquake, or other catastrophic event. SMWD has identified several risks to the imported water delivery system, including emergency shutdowns of outside facilities, prolonged drought, and lack of local project implementation.

The project will increase water reliability by increasing the amount of recycled water delivered by up to 209 AFY. Additionally, the implementation of the project would lay the groundwork for SMWD to extend its recycled water infrastructure into Rancho Santa Margarita, which would bring the total amount of water conserved up to 1,209 AFY. This represents approximately 5% imported water supply savings for SMWD out of its current potable water supply. Realizing the increasing vulnerability of imported water supply, SMWD's water planning documents include a reduction in dependency on imported water supply by 25% by 2030. In addition, California Senate Bill (SB) x7-7 requires all water suppliers to reduce their urban per-capita water use by 20% by the year 2020. The project would allow SMWD to achieve these goals by ultimately serving 1,209 AFY of recycled water, reducing SMWD's dependency on imported water supply and reducing overall potable water use.

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3 Initial Study Checklist

1. **Project title:**

   Las Flores Enhanced Water Reliability Project

2. **Lead agency name and address:**

   Santa Margarita Water District
   26111 Antonio Parkway
   Rancho Santa Margarita, California 92688

3. **Contact person:**

   Karla Houlihan
   karlah@smwd.com

4. **Project location:**

   Las Flores, California 92688

5. **Project sponsor's name and address:**

   Santa Margarita Water District

6. **General plan designation:**

   Las Flores Planned Community

7. **Zoning:**

   Las Flores Planned Community – Open Space and Residential

8. **Description of project:**

   The project includes installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space. The project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the repurposing of an approximately 3,650-foot-long 10-inch existing force main in the right-of-way within Antonio Parkway. Upon completion, the project would permanently convert a total of 209 acre-feet per year of irrigation demand from potable to recycled water.

9. **Surrounding land uses and setting:**

   The general vicinity surrounding the project site is developed with residential, commercial, and institutional uses, as well as open space.

10. Other public agencies whose approval is required:

No other public agency approval is required.

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

Yes. See Section 3.18, Tribal Cultural Resources, for further detail.

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
☐ 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

Determination (To be completed by the 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.

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

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

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

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

Signature

5-12-2020

Date

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063[c][3][D]). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where they are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less Than Significant With Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
    a. The significance criteria or threshold, if any, used to evaluate each question; and
    b. The mitigation measure identified, if any, to reduce the impact to less than significance.

3.1 Aesthetics

		Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
I.	**AESTHETICS –** Except as provided in Public Resources Code Section 21099, would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b)	Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

a) Would the project have a substantial adverse effect on a scenic vista?

No Impact. The proposed pipelines would be placed below the ground surface within SMWD easements and existing street ROWs and would not change the visual environment once the pipelines are in place. The construction of the proposed pipelines would last approximately 11 months (approximately 235 workdays), and upon completion, would not be visible from the surface. Conversion of the Las Flores Lift Station would occur within the existing footprint of the lift station and upon completion of construction, would not result in substantial visible changes to the Las Flores Lift Station. Therefore, there would be **no impact** to scenic vistas.

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

Less-Than-Significant Impact. There are no dedicated state scenic highways in the vicinity of the proposed project. According to the California Department of Transportation (Caltrans), the nearest officially designated scenic highway is SR-91 from SR-55 to the eastern city limit of Anaheim. SR-74, which runs through Orange County between Interstate 5 in the west and Interstate 15 in the east, is a highway that is eligible for designation as a state scenic highway, but is not officially designated. SR-74 is approximately 4.5 miles south of the project site and would not be visible from this distance. In a local context, the project is located within Oso Parkway and Antonio Parkway, which are classified as scenic landscape corridors by the County of Orange General Plan Transportation Element (County of Orange 2005a). A landscape corridor transverses developed or developing areas and has been designated for special treatment to provide a pleasant driving environment as well as community enhancement. Implementation of the project would result in temporary visual impacts within these landscape corridors during construction; however, these impacts would be temporary, and upon completion of construction, would not be visible (for the pipeline installation) or would not result in substantial visible changes (for the lift station conversion). In addition, there are no historic buildings on or adjacent to the project site. Implementation of the proposed project would require some site clearing and grading that may include removal of vegetation. However, vegetation removal would be minimal and no trees or rock outcroppings would be disturbed or damaged as a result of the proposed project. After completion of construction, all construction areas would be restored to their previous conditions. In addition, there are no historic buildings on or adjacent to the project site. As such, the project would not substantially damage scenic resources, and impacts would be **less than significant.**

c) ***In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from 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?***

Less-Than-Significant Impact. The project site is located in the unincorporated community of Las Flores and does not fall within the definition of an urbanized area per Section 21071 of the California Public Resources Code. As discussed in Section 3.1(b), implementation of the project would result in temporary visual impacts during construction; however, these impacts would be temporary, and upon completion of construction, would not be visible (for the pipeline installation) or would not result in substantial visible changes (for the lift station conversion). Given that construction activities would be temporary and the site would be restored to its previous existing condition, the project would not significantly degrade the existing visual character or quality of the site or its surroundings. Impacts would be **less than significant.**

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

Less-Than-Significant Impact. The proposed pipelines would be placed below the ground surface within an SMWD lift station and within existing street ROWs and would not result in a new source of lighting or glare. Under the existing conditions, the Las Flores Lift Station contains low-level security lighting; no new lighting sources other than what lighting that is similar to what currently exists at the Las Flores Lift Station is proposed; therefore, no light or glare impacts would occur as a result of implementing the proposed project. Impacts would be **less than significant.**

3.2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
II. **AGRICULTURE AND FORESTRY RESOURCES** – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

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

No Impact. Based on farmland maps prepared by the California Department of Conservation, the project site is not located in an area designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The site is designated as "Urban and Built Up" (DOC 2016). Therefore, **no impacts** associated with conversion of Important Farmland would occur.

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

No Impact. The Williamson Act, also known as the California Land Conversion Act of 1969 (California Government Code, Section 51200 et seq.), preserves agricultural and open space lands from the conversion to urban land uses by establishing a contract between local governments and private landowners to voluntarily restrict their land holdings to agricultural or open space use. The proposed project site is not located on any lands with Williamson Act contracts. In addition, the project site and surrounding area are not zoned for agricultural uses, but for residential and open space uses (County of Orange 1991). As such, implementation of the proposed project would not conflict with existing zoning for agricultural use or land under a Williamson Act contract. Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and there would be **no impact.**

c) ***Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?***

No Impact. The proposed project location is not zoned as forest land, timberland, or a Timberland Production Zone, as defined by the above-referenced government regulations. The closest area that is designated as forest land is the Cleveland National Forest, which is located 3 miles east of the proposed project site. The proposed project would not impact and/or rezone any forest land in the Cleveland National Forest. Therefore, the project would not conflict with existing zoning of such lands, and there would be **no impact.**

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

No Impact. Refer to Section 3.2(c). No forest land would be lost or converted to non-forest use as a result of the project, and there would be **no impact.**

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

No Impact. Refer to Sections 3.2(a) and 3.2(c). The proposed project would not result in the conversion of farmland to non-agricultural use, nor would the proposed project be located within land considered to be forest land. Therefore, the project would not result in the conversion of additional farmland to non-agricultural use or the conversion of forestland to non-forest use, and there would be **no impact.**

3.3 Air Quality

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

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

Less-Than-Significant Impact. The project area is located in Las Flores, within the South Coast Air Basin (SCAB), which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County. SCAB is within the jurisdictional boundaries of the South Coast Air Quality Management District (SCAQMD).

SCAQMD administers the SCAB Air Quality Management Plan (AQMP), which is a comprehensive document outlining an air pollution control program for attaining the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). The most-recently adopted AQMP for the SCAB is the 2016 AQMP (SCAQMD 2017). The 2016 AQMP focuses on available, proven, and cost-effective alternatives to traditional air quality strategies while seeking to achieve multiple goals in partnership with other entities seeking to promote reductions in greenhouse gases (GHGs) and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2017).

The purpose of a consistency finding regarding the AQMP is to determine if a project is consistent with the assumptions and objectives of the 2016 AQMP, and if it would interfere with the region's ability to comply with federal and state air quality standards. SCAQMD has established criteria for determining consistency with the currently applicable AQMP in Chapter 12, Sections 12.2 and 12.3, of the SCAQMD CEQA Air Quality Handbook. These criteria are as follows (SCAQMD 1993):

- Whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the ambient air quality standards or interim emission reductions in the AQMP.
- Whether the project would exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

To address the first criterion, project-generated criteria air pollutant emissions have been estimated and analyzed for significance and are addressed in Section 3.3(b). Detailed results of this analysis are included in Appendix A, Air Quality and GHG Emission Calculations. As presented in Section 3.3(b), the proposed project would not generate criteria air pollutant emissions that exceed the SCAQMD's thresholds during construction. For long-term operations, the project would be served by existing staff and no increase in vehicle trips and associated criteria air pollutant emissions above baseline is anticipated to occur.

The second criterion regarding the potential of the proposed project to exceed the assumptions in the AQMP or increments based on the year of project buildout and phase is primarily assessed by determining consistency between the proposed project's land use designations and its potential to generate population growth. In general, projects are considered consistent with, and not in conflict with or obstructing implementation of, the AQMP if the growth they produce in socioeconomic factors is consistent with the underlying regional plans used to develop the AQMP (SCAQMD 1993). Since the proposed project involves only development of recycled water pipelines and the conversion of the Las Flores Lift Station to a recycled water booster pump station, the implementation of the project would not generate an increase in population or employment that would conflict with existing projections. Accordingly, the proposed project is consistent with the forecasts used in the SCAQMD AQMP development.

In summary, based on the considerations presented for the two criteria, impacts relating to the proposed project's potential to conflict with or obstruct implementation of the applicable AQMP would be **less than significant.**

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

Less-Than-Significant Impact. A quantitative analysis was conducted to determine whether the proposed project might result in emissions of criteria air pollutants that may cause exceedances of the NAAQS or CAAQS, or cumulatively contribute to existing nonattainment of ambient air quality standards. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide, particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}) (course particulate matter), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$) (fine particulate matter), and lead. Pollutants that are evaluated herein include volatile organic compounds (VOCs) and oxides of nitrogen (NO_X), which are important because they are precursors to O_3, as well as CO, sulfur oxides (SO_X), PM_{10}, and $PM_{2.5}$.

Regarding NAAQS and CAAQS attainment status,[1] the SCAB is designated as a nonattainment area for national and California O_3 and $PM_{2.5}$ standards (CARB 2019; EPA 2020). The SCAB is also designated as a nonattainment area for California PM_{10} standards; however, it is designated as an attainment area for national PM_{10} standards. SCAB is designated as an attainment area for national and California CO and NO_2 standards, as well as for state SO_2 standards. Although the SCAB has been designated as nonattainment for the national rolling 3-month average lead standard, it is designated attainment for the California lead standard.[2]

The proposed project would result in emissions of criteria air pollutants for which the California Air Resources Board (CARB) and U.S. Environmental Protection Agency have adopted ambient air quality standards (i.e., the NAAQS and CAAQS). Projects that emit these pollutants have the potential to cause, or contribute to, violations of these standards. The SCAQMD CEQA Air Quality Significance Thresholds, as revised in April 2019, set forth quantitative emission significance thresholds for criteria air pollutants, which, if exceeded, would indicate the potential for a project to contribute to violations of the NAAQS or CAAQS. Table 1 lists the revised SCAQMD Air Quality Significance Thresholds (SCAQMD 2019).

1 An area is designated as in attainment when it is in compliance with the NAAQS and/or the CAAQS. These standards for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare are set by the U.S. Environmental Protection Agency and CARB, respectively. Attainment = meets the standards; attainment/maintenance = achieves the standards after a nonattainment designation; nonattainment = does not meet the standards.

2 The phase-out of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

Table 1. SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	*Construction (in pounds/day)*	*Operation (in pounds/day)*
VOC	75	55
NO_X	100	55
CO	550	550
SO_X	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3
Toxic Air Contaminants and Odor Thresholds		
TACs[b]	Maximum incremental cancer risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic and Acute Hazard index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	

Source: SCAQMD 2019.
Notes: VOC = volatile organic compound; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter with a diameter less than or equal to 10 microns (coarse particulate matter); $PM_{2.5}$ = particulate matter with a diameter less than or equal to 2.5 microns (fine particulate matter); SCAQMD = South Coast Air Quality Management District; TAC = toxic air contaminant

a The phase-out of leaded gasoline started in 1976. Since gasoline no longer contains lead, the proposed project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

b TACs include carcinogens and noncarcinogens.

The project would result in a substantial contribution to an existing air quality violation of the NAAQS or CAAQS for O_3, which is a nonattainment pollutant, if the proposed project's emissions exceed the SCAQMD VOC or NO_X thresholds shown in Table 1. These emission-based thresholds for O_3 precursors are intended to serve as surrogates for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur) because O_3 itself is not emitted directly, and the effects of an individual project's emissions of O_3 precursors (i.e., VOCs and NO_X) on O_3 levels in ambient air is difficult to reliably and meaningfully determine.

The California Emissions Estimator Model (CalEEMod) version 2016.3.2 was used to estimate emissions from construction of the proposed project. CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant emissions associated with construction and operational activities from a variety of land use projects, such as residential, commercial, and industrial facilities. The following discussion quantitatively evaluates project-generated construction emissions only, since the project would not result in an increase in operational criteria air pollutant emissions.

Construction of the proposed project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance, and VOC off-gassing from asphalt pavement application) and off-site sources (e.g., vendor trucks, haul trucks, and worker vehicle trips). Specifically, the exposure of earth surfaces to wind from the direct disturbance and movement of soil can result in entrained dust and PM_{10} and $PM_{2.5}$ emissions. Internal combustion engines used by construction equipment, haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOC, NO_X, CO, PM_{10}, and $PM_{2.5}$. Application of asphalt pavement would also produce VOC emissions. Construction emissions can vary substantially from day to day depending on the level of activity; the specific type of operation; and, for dust, the prevailing weather conditions.

For purposes of estimating proposed project emissions, and based on information provided by SMWD, it is assumed that construction of the project would commence in June 2020 and would last through April 2021 (approximately 235 workdays). General construction-equipment modeling assumptions are provided in Table 2. It was assumed that approximately 7,500 cubic yards of material would be excavated and off-hauled from the project site. Default values for equipment mix, horsepower, and load factors provided in CalEEMod were used for all construction equipment. For the analysis, it was assumed that heavy-duty construction equipment would be operating at the site 5 days per week. Detailed construction-equipment modeling assumptions are provided in Appendix A.

Table 2. Construction On-Road Vehicle and Equipment Use per Day

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours Per Day*
Site Preparation	8	4	72	Excavators	1	6
				Rough Terrain Forklifts	1	6
Pipeline Trenching/ Grading	8	8	938	Excavators	1	6
				Rough Terrain Forklifts	1	6
				Sweepers/Scrubbers	1	2
				Trenchers	1	6
Conversion of Lift Station	6	12	0	Tractors/Loaders/ Backhoes	1	6
				Trenchers	1	4
Paving	8	10	24	Pavers	1	6
				Rollers	2	6
Demobilization	8	2	20	Excavators	1	6
				Forklifts	1	6

Notes: See Appendix A for additional details.

The proposed project would be required to comply with SCAQMD Rule 403 to control dust emissions generated during any dust-generating activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the actively disturbed areas, depending on weather conditions.

Table 3 shows the estimated maximum daily construction emissions associated with the construction phase of the proposed project.

Table 3. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	VOCs	NO_X	CO	SO_X	PM_{10}[a]	$PM_{2.5}$[a]
	pounds per day					
2020	1.20	13.64	12.36	0.03	1.07	0.72
2021	1.65	12.45	10.96	0.02	1.19	0.69
Maximum Daily Emissions	**1.65**	**13.64**	**12.36**	**0.03**	**1.19**	**0.72**

Table 3. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	VOCs	NO_X	CO	SO_X	PM_{10}[a]	$PM_{2.5}$[a]
	pounds per day					
SCAQMD threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No

Source: SCAQMD 2015.
Notes: VOC = volatile organic compound; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter with a diameter less than or equal to 10 microns (coarse particulate matter); $PM_{2.5}$ = particulate matter with a diameter less than or equal to 2.5 microns (fine particulate matter); SCAQMD = South Coast Air Quality Management District.
See Appendix A for detailed results. The values shown are the maximum summer or winter daily emissions results from CalEEMod and reflect control of fugitive dust required by SCAQMD Rule 403.

As shown in Table 3, the proposed project's maximum daily construction emissions would not exceed the SCAQMD thresholds for any criteria air pollutant.

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and SCAQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are used in the determination of whether a project's individual emissions would have a cumulatively considerable contribution on air quality. If a project's emissions would exceed the SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant (SCAQMD 2003).

As discussed previously, the SCAB has been designated as a national nonattainment area for O_3 and $PM_{2.5}$, and a California nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SCAB, including motor vehicles, off-road equipment, and commercial and industrial facilities. Construction and operational activities of the proposed project would generate VOC and NO_X emissions (precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. However, as indicated in Table 3, project-generated emissions would be minimal and would not exceed the SCAQMD emission-based significance thresholds for VOCs, NO_X, PM_{10}, or $PM_{2.5}$.

Cumulative localized impacts would potentially occur if a project were to occur concurrently with another off-site project. Schedules for potential future projects near the project area are currently unknown; therefore, potential impacts associated with two or more simultaneous projects would be considered speculative.[3] However, future projects would be subject to CEQA and would require air quality analysis and, where necessary, mitigation. Criteria air pollutant emissions associated with construction activity of future projects would be reduced through implementation of control measures required by SCAQMD. Cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced because all future projects would be subject to SCAQMD Rule 403, Fugitive Dust, which sets forth general and specific requirements for all sites in the SCAQMD.

For long-term operations, the project would be served by existing staff and no increase in vehicle trips and associated criteria air pollutant emissions above baseline is anticipated to occur. Electricity use for the pump station would contribute indirectly to criteria air pollutant emissions; however, CalEEMod does not

3 The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145).

quantify criteria air pollutants from electricity, since criteria air pollutant emissions occur at the site of the power plant, which is typically off site.

Overall, based on the above considerations, the proposed project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants, and impacts would be **less than significant.**

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

Less-Than-Significant Impact. The proposed project would not expose sensitive receptors to substantial pollutant concentrations as evaluated below.

Sensitive Receptors

Sensitive receptors are those individuals more susceptible to the effects of air pollution than the population at large. People most likely to be affected by air pollution include children, the elderly, and people with cardiovascular and chronic respiratory diseases. According to SCAQMD, sensitive receptors include sites such as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993). There are existing multi-family and single-family residences located along the recycled water pipeline alignment. Additionally, the Las Flores Elementary and Middle School is located approximately 500 feet at the nearest section of the pipeline alignment.

Localized Significance Thresholds

SCAQMD recommends a localized significance threshold (LST) analysis to evaluate localized air quality impacts to sensitive receptors in the immediate vicinity of the proposed project resulting from project activities. The impacts were analyzed using methods consistent with those in SCAQMD's Final Localized Significance Threshold Methodology (SCAQMD 2008a). A portion of the proposed project is located within Source Receptor Area (SRA) 19 (Saddleback Valley). However, the majority of the proposed project construction would occur within SRA 21 (Capistrano Valley). Notably, the LSTs for SRA 19 and SRA 21 are the same. As such, this analysis applies the SCAQMD LST values for a 1-acre site within SRA 21 with a receptor distance of 25 meters (82 feet), which is the shortest source-receptor distance recommended by SCAQMD.

Project construction activities would result in temporary sources of on-site criteria air pollutant emissions associated with off-road equipment exhaust and fugitive dust generation. According to the Final Localized Significance Threshold Methodology, "off-site mobile emissions from the project should not be included in the emissions compared to the LSTs" (SCAQMD 2008a). Trucks and worker trips associated with the proposed project are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways since emissions would be relatively brief in nature and would cease once the vehicles pass through the main streets. Therefore, off-site emissions from trucks and worker vehicle trips are not included in the LST analysis. The maximum daily on-site emissions generated by construction of the proposed project is presented in Table 4 and compared to the SCAQMD localized significance criteria for SRA 21 to determine whether project-generated on-site emissions would result in potential LST impacts.

Table 4. Construction Localized Significance Thresholds Analysis

Project Construction	NO_2	CO	PM_{10}	$PM_{2.5}$
	pounds per day (on site)[a]			
Maximum Daily On-Site Emissions	6.54	6.65	0.41	0.37
SCAQMD LST Criteria	91	696	4	3
Threshold Exceeded?	No	No	No	No

Source: SCAQMD 2008a.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = particulate matter with a diameter less than or equal to 10 microns (coarse particulate matter); $PM_{2.5}$ = particulate matter with a diameter less than or equal to 2.5 microns (fine particulate matter); SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
See Appendix A for detailed results. The values shown are the maximum summer or winter daily emissions results from CalEEMod and reflect control of fugitive dust required by SCAQMD Rule 403.
[a] Localized significance thresholds are shown for a 1-acre disturbed area corresponding to a distance to a sensitive receptor of 25 meters in Source Receptor Area 21, Capistrano Valley.

As shown in Table 4, proposed construction activities would not generate emissions in excess of site-specific LSTs; therefore, localized impacts of the proposed project would be **less than significant.**

CO Hotspots

Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed federal and/or state standards for CO are termed "CO hotspots." The transport of CO is extremely limited, as it disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting sensitive receptors. Typically, high CO concentrations are associated with severely congested intersections operating at an unacceptable level of service (LOS) (LOS E or worse is unacceptable). Projects contributing to adverse traffic impacts may result in the formation of a CO hotspot. Additional analysis of CO hotspot impacts would be conducted if a project would result in a significant impact or contribute to an adverse traffic impact at a signalized intersection that would potentially subject sensitive receptors to CO hotspots.

Code of Federal Regulations title 40, Section 93.123(c)(5), Procedures for Determining Localized CO, PM_{10}, and $PM_{2.5}$ Concentrations (Hot-Spot Analysis), states that "CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities, which cause temporary increases in emissions. Each site that is affected by construction-related activities shall be considered separately, using established 'Guideline' methods. Temporary increases are defined as those which occur only during the construction phase and last 5 years or less at any individual site." Although project construction would involve on-road vehicle trips from trucks and workers during construction, construction activities would last approximately 235 days and would not require a project-level construction hotspot analysis. Furthermore, because the proposed project would not result in an increase in long-term operational vehicular trips, an operational CO hotspot evaluation also is not required.

Accordingly, the proposed project would not generate traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots. In addition, because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SCAB is steadily decreasing. Based on these considerations, the proposed project would result in a **less-than-significant impact** to air quality from potential CO hotspots.

Toxic Air Contaminants

TACs are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. As discussed under the LST analysis, the nearest sensitive receptors to the proposed project are residences located adjacent to the proposed recycled water pipeline construction area. Additionally, the Las Flores Elementary and Middle School is located approximately 500 feet at the nearest section of the pipeline alignment. Health effects from carcinogenic air toxics are usually described in terms of cancer risk. SCAQMD recommends an incremental cancer risk threshold of 10 in 1 million. "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period will contract cancer based on the use of standard California Office of Environmental Health Hazard Assessment risk-assessment methodology (OEHHA 2015). In addition, some TACs have non-carcinogenic effects. SCAQMD recommends a Hazard Index of 1 or more for acute (short-term) and chronic (long-term) non-carcinogenic effects.[4] The TAC that would potentially be emitted during construction activities associated with development of the proposed project would be diesel particulate matter.

Diesel particulate matter emissions would be emitted from heavy equipment operations and heavy-duty trucks. Heavy-duty construction equipment is subject to a CARB Airborne Toxics Control Measure for diesel construction equipment to reduce diesel particulate emissions. As described for the LST analysis, PM_{10} (representative of diesel particulate matter) exposure would be minimal. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period for the maximally exposed individual resident; however, such assessments should be limited to the period and duration of activities associated with the proposed project. The duration of the proposed construction activities would only constitute a small percentage of the total 30-year exposure period. The active construction period for the proposed project would be approximately 235 days, after which construction-related TAC emissions would cease. Also, since the pipeline construction would proceed along the alignment, the project would not require the extensive use of heavy-duty construction equipment or diesel trucks in any one location over the duration of development, which would limit the exposure of any proximate individual sensitive receptor to TACs. Due to the relatively short period of exposure at any individual sensitive receptor and minimal particulate emissions generated, TACs emitted during construction would not be expected to result in concentrations causing significant health risks, which would be a **less-than-significant impact.** Further, the project would not result in sources of TACs during operations.

4 Non-cancer adverse health risks are measured against a hazard index, which is defined as the ratio of the predicted incremental exposure concentrations of the various non-carcinogens from the proposed project to published reference exposure levels that can cause adverse health effects.

Health Impacts of Criteria Air Pollutants

Construction of the proposed project would generate minimal criteria air pollutant emissions and would not exceed the SCAQMD mass-emission thresholds. The SCAB is designated as nonattainment for O_3 for the NAAQS and CAAQS. Thus, existing O_3 levels in the SCAB are at unhealthy levels during certain periods. The health effects associated with O_3 generally result in reduced lung function. Because the proposed project would not involve activities that would result in O_3 precursor emissions (i.e., VOCs or NO_X) that would exceed the SCAQMD thresholds, as shown in Table 3, the proposed project is not anticipated to substantially contribute to regional O_3 concentrations and their associated health impacts during construction.

In addition to O_3, NO_X emissions contribute to potential exceedances of the NAAQS and CAAQS for NO_2.[5] Exposure to NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. As shown in Tables 3 and 4, construction of the proposed project would not exceed the SCAQMD thresholds for NOx and NO_2, respectively. Thus, the proposed project is not expected to result in exceedances of the NO_2 standards or contribute to associated health effects.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, thereby reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. CO hotspots were discussed previously as an impact. Thus, the proposed project's CO emissions would not contribute to the health effects associated with this pollutant.

The SCAB is designated as a nonattainment area for PM_{10} under the CAAQS and for $PM_{2.5}$ under the NAAQS and CAAQS. Particulate matter contains microscopic solids or liquid droplets that are so small that they can be transmitted into the lungs and cause serious health problems. Health effects associated with PM_{10} include premature death and hospitalization, primarily for worsening of respiratory disease (CARB n.d.). As with O_3 and NO_X, and as shown in Tables 3 and 4, the proposed project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the SCAQMD's thresholds. Accordingly, the proposed project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause an increase in related health effects for this pollutant.

In summary, the proposed project would not make a potentially significant contribution to regional concentrations of nonattainment pollutants, and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Therefore, impacts would be **less than significant.**

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

Less-Than-Significant Impact. Other emissions associated with the project are anticipated to be limited to odors, which is assessed herein. The occurrence and severity of potential odor impacts depend on numerous factors. The nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receiving location each contributes to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying, cause distress, and generate citizen complaints.

SCAQMD provides a list of land uses associated with odor concerns, which include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The proposed project would include development of a recycled water

5 NO_2 is a constituent of NOx.

pipeline and conversion of the Las Flores Lift Station to a recycled water booster pump station, which is not anticipated to generate new odors or increase emissions of odors. During project construction, exhaust from equipment may produce discernible odors typical of most construction sites. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from the tailpipes of construction equipment. However, such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Accordingly, impacts associated with odors during construction would be less than significant. Further, the project would not result in sources of odor during operations and impacts would be **less than significant.**

3.4 Biological Resources

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

The following analysis relies on a biological resources assessment conducted by Dudek biologists Tommy Molioo and Anna Cassady on January 28, 2020. This assessment included a review of the latest available relevant literature, published research, maps, soil data, data on biological baselines, special-status habitats, and species distributions to determine those resources that have the potential to occur within the project site and surrounding 100-foot buffer (the study area) (See Appendix B, Biological Resources Attachments). A field assessment was conducted to characterize the environmental conditions, vegetation communities/land covers, and any plants or wildlife (including their habitats) that could be impacted during project implementation. During the field survey, vegetation communities and land covers were catalogued and confirmed based on existing site conditions. Vegetation communities were mapped according to the California Department of Fish and Wildlife (CDFW) List of Vegetation Alliances and Associations (or Natural Communities List), which is based on A Manual of California Vegetation, Second Edition (Sawyer et. al. 2009). Land covers not included in the List of Vegetation Alliances and Associations followed the Preliminary Descriptions of the Terrestrial Natural Communities of California (1986) or were based on the expertise of Dudek's biologist to classify vegetation communities based on observed conditions. Dudek compiled a general inventory of plant and wildlife species detected by sight, calls, tracks, scat, or other field indicators, and made a determination concerning the potential for special-status species to occur within the study area. Additionally, Dudek conducted a preliminary investigation of the extent and distribution of jurisdictional waters of the U.S. regulated by the U.S. Army Corps of Engineers (ACOE), jurisdictional waters of the state regulated by the Regional Water Quality Control Board (RWQCB), and CDFW jurisdictional streambed and associated riparian habitat.

Dudek searched the CDFW's California Natural Diversity Database (CDFW 2020a–d), the California Native Plant Society's Inventory of Rare and Endangered Plants (CNPS 2020), and the U.S. Fish and Wildlife Service's (USFWS) occurrence data (USFWS 2019a) to identify special-status biological resources from the region. The California Natural Diversity Database and California Native Plant Society were searched based on the U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map for San Juan Capistrano and Canada Gobernadora, where the study area is located, as well as the surrounding six USGS 7.5-minute quadrangle maps (i.e., Laguna Beach, Dana Point, San Clemente, Santiago Peak, El Toro, and Tustin). Potential and/or historic drainages and aquatic features were investigated based on a review of USGS topographic maps (1:24,000 scale), aerial photographs, the National Wetland Inventory database (USFWS 2019b), and the Natural Resource Conservation Service Web Soil Survey (USDA 2020).

The study area is predominantly developed as the proposed project areas occur within developed areas of the unincorporated area of Las Flores that contains residential, commercial, and educational developments surrounded by undeveloped open space. While the vast majority of the project's impact areas will occur within developed right-of-way (ROW) and disturbed dirt/gravel access roads, portions of the 100-foot buffer for the study area overlap undeveloped portions of the adjacent open space. Additionally, several community parks and ball fields are located within the study area, as well as areas containing landscaped ornamental trees associated with public parkways and ROW. Arroyo Trabuco is located to the west of the study area that contains flowing water, associated riparian habitat, and opportunities for wetlands. No native plant species or vegetation communities were observed within the proposed impact areas for the project sites, however, native species and habitats are located within the survey buffer adjacent to the project sites. Vegetation communities and land cover types observed within the study area during the field assessment include coastal sage scrub (*Artemisia californica-Eriogonum fasciculatum* alliance), coast live oak woodland (*Quercus agrifolia* association), non-native grassland (red brome-mixed herbs semi-natural stands), parks and ornamental plantings, disturbed habitat, and urban/developed land. These vegetation communities were mapped in relation to the study area and are depicted on Figure 2, Biological Resources Map.

A limited number of wildlife species were observed or detected during the field survey of the study area, including yellow-rumped warbler (*Setophaga coronata*), lesser goldfinch (*Spinus psaltria*), house finch (*Haemorhous mexicanus*), house wren (*Troglodytes aedon*), Bewick's wren (*Thryomanes bewickii*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), Anna's hummingbird (*Calypte anna*), California ground squirrel (*Spermophilus beecheyi*), and domestic dog (*Canis domesticus*).

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

Less-Than-Significant Impact With Mitigation Incorporated. The project site is predominantly located within existing disturbed and developed areas of the Las Flores area of Orange County that is primarily developed and surrounded by undeveloped open space. The proposed project components will be contained within existing ROW and a gravel access road that do not contain any native soils or habitats that could support any special-status plants or wildlife. A review of the CNDDB and CNPS determined that 70 special-status plants and 58 special-status wildlife have been previously recorded within the vicinity of the project site. Of these species, only 4 plant species and 8 wildlife species have a moderate to high potential to occur within undeveloped sage scrub and riparian habitat in the vicinity of the project site within Tijeras Canyon and Arroyo Trabuco. However, the majority of these areas are located between 80 to 800 feet to the west of the 16" pipe installation component of the project, which will be contained to a relatively small impact footprint at the top of slope adjacent to residential development. No project components will encroach into these potentially suitable habitat areas. Therefore, there will be no direct or indirect impact to special-status plant species, and no direct impacts to wildlife species with a potential to occur adjacent to the project site.

One special-status wildlife species has a moderate potential to occur within the coastal sage scrub (*Artemisia californica-Eriogonum fasciculatum* alliance) habitat located immediately adjacent to the proposed 16" pipe installation on the western portion of the study area, and the proposed Lift Station conversion. Coastal California gnatcatcher is a federally threatened and California Species of Special Concern that occurs within coastal sage scrub habitats in the region. It has been recorded in the vicinity of the project site within similar habitat, and could move onto the study area while foraging or dispersing from other areas along Arroyo Trabuco. While no direct impacts to suitable habitat will occur due to the relatively small project footprint for the 16" pipe and the Lift Station conversion that will be contained entirely within existing development, no direct impacts to coastal California gnatcatcher will occur.

However, if construction activities for the 16" pipe installation or the Lift Station conversion occur during the species' breeding season of March through June, there is a potential for an indirect impact to occur if this species is found nesting within 300-feet of the project site due to an increase in human presence and construction noise. Project-related indirect impacts to the coastal California gnatcatcher would be considered significant and would require mitigation to offset impacts and permit the take of a listed species. Although the coastal California gnatcatcher is a Covered Species under the Orange County Southern Subregion Natural Community Conservation Plan/Master Streambed Alteration Agreement/Habitat Conservation Plan (NCCP/MSAA/HCP) (of which SMWD is a "Participating Landowner"), the proposed project is not a Covered Activity under the NCCP/MSAA/HCP and the proposed project will only potentially result in indirect impacts to the species. Therefore, with implementation of MM-BIO-1, potential indirect impacts to coastal California gnatcatcher would be reduced to a less than significant level with mitigation.

Additionally, although the project will not impact trees, the project site contains landscaped trees throughout the ROWs and public areas that may provide nesting sites for birds. Birds and their nests are protected by the Migratory Bird Treaty Act and California Fish and Game Code Section 3500. The project will not trim or remove landscaped trees on the project site, reducing the potential for a significant direct impact to occur. However, due to the proximity of the trees to the proposed areas of disturbance, the project may result in an indirect impact from construction noise and increased human disturbance if construction activities occur during the general avian nesting season of February through August. Project-related indirect impacts that result in nest failure of a protected bird species and its nest would be considered significant. Implementation of **MM-BIO-2** will reduce potential indirect impacts to a less than significant level.

MM-BIO-1: **Coastal California Gnatcatcher.** In order to reduce any potential indirect impact to nesting coastal California gnatcatchers, a pre-construction survey shall be conducted by a permitted biologist to determine the presence/absence of gnatcatchers at any time of the year. The one-day survey will be conducted within 3 days prior to the start of construction and will focus on all suitable habitat areas within 300-feet of the project site. If a gnatcatcher or nest is found, additional avoidance measures will be required such as limiting construction to outside of the species' breeding season of March through June. If project activities must commence during the breeding season and a gnatcatcher has been previously found, a biological monitor must be on site during construction activities adjacent to suitable/occupied habitat to ensure no incidental indirect take of the species occurs. If the monitor determines that an indirect take may occur by the project, coordination with USFWS will be required to establish appropriate avoidance measures for a Covered Species that will be impacted by a non-Covered Activity.

MM-BIO-2 **Nesting Birds.** In order to reduce any potential indirect impact to nesting birds, project construction should commence outside of the general avian nesting season from February through August. If construction activities cannot avoid the nesting season, then a pre-construction survey shall be conducted by a trained biologist to determine the presence/absence of any nesting birds within the project site and 500-foot buffer around the site. If an active nest is found, a suitable buffer based on the species sensitivity and proximity to the project site shall be placed around the nest for the duration of the nesting period. Construction may continue within this buffer only at the discretion of a monitoring biologist. The buffer can be removed when the nest is no longer active, as determined by a trained biologist.

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

Less-Than-Significant Impact. While the western portion of the study area does occur within the vicinity of riparian habitat, the 16" pipe installation portion of the project will be limited to a relatively small disturbance area contained within a dirt access road at the top of a slope that descends towards Arroyo Trabuco, approximately 800 feet to the west. Arroyo Trabuco contains relatively undisturbed arroyo willow riparian habitat and is listed as a S4 community by CDFW and therefore, not considered sensitive. Additionally, a tributary to Arroyo Trabuco occurs within approximately 80 to 200 feet from the proposed 16" pipe installation that contains coast live oak woodland riparian habitat that is listed as a S4 community by CDFW and is therefore, not considered sensitive. However, because both communities are associated with a potentially jurisdictional water feature, project impacts to these communities would require permits and mitigation for impacts. Due to the relatively small project footprint of the 16" pipe installation, no direct impacts would occur to either vegetation community through trimming or removal. Furthermore, any potential indirect impact from any of the proposed components of the project would be considered less than significant with the required BMPs installed during construction as part of the project's SWPPP to comply with the Construction General Permit and NPDES. These BMPs would prevent any toxics, drainage, or hazards from spilling into the adjacent oak woodland and willow riparian habitats associated with Arroyo Trabuco and its tributaries. Lastly, no other components of the project occur within or adjacent to any sensitive natural communities or riparian habitats and therefore, the project will result in a less than significant impact.

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

Less-Than-Significant Impact. Arroyo Trabuco and an unnamed tributary (intermittent stream) occur to the west of the 16" pipe installation component of the proposed project that are potentially subject to regulatory agency jurisdiction under Sections 404 and 401 of the CWA, and California Fish and Game Code (CFGC) Section 1600 et seq. The 16" pipe installation will be contained entirely within a disturbed dirt access road located approximately 800 feet upslope from Arroyo Trabuco, and approximately 80 feet from the unnamed tributary, and therefore will not result in a direct impact to either potentially jurisdictional feature. However, there is a potential for indirect impacts to occur during construction activities from toxics and other pollutants being inadvertently discharged into either feature. BMPs installed as part of the project's required SWPPP will reduce potential indirect impacts from spilling into either jurisdictional feature that could pollute and reduce water quality. Additionally, no other project components are located within or adjacent to any jurisdictional feature that could be potentially impacted by the project. Therefore, potential impacts to state or federally protected waters and wetlands will be considered less than significant.

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

No Impact. Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. The project site is contained within existing disturbed and developed areas associated with developments within the Las Flores area of Orange County. The project site and Las Flores area are located adjacent to undeveloped open space but do not contain any potential wildlife corridors or linkages that would support wildlife movement between these open space areas, particularly for small to medium-sized mammals. The project is also not proposing to construct new buildings or above ground structures that would result in a significant alteration to the land that could prevent wildlife use in the area.

Additionally, no project-related activities would result in the closure or impediment of potential wildlife corridors in the vicinity of the project site. The Arroyo Trabuco and Tijeras Canyon occur to the west of the 16" pipe installation that functions as a corridor for wildlife movement through the region, particularly between the Pacific Ocean and the Santa Ana Mountains. The project site is located upslope and approximately 80 to 800 feet away from both features and would not result in any impacts to wildlife movement through these areas. Therefore, the project will have no impact on wildlife movement corridors.

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

No Impact. The proposed project will occur in the vicinity of a number of street and parkway trees located throughout the developed portions of the Las Flores area. However, based on the project description, no trees will be trimmed or removed in order to implement the proposed project. Therefore, there will be no impact to any local policies or ordinances protecting biological resources.

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

Less-Than-Significant Impact. The proposed project occurs within the boundaries of the NCCP/MSAA/HCP and primarily within areas not proposed for conservation due to the existing developments. However, mapped conservation areas occur immediately adjacent to the west of the 16" pipe installation component of the project. No project activities for this component will encroach into this conservation area, and implementation of BMPs for the project's SWPPP will reduce any potential indirect impact from encroaching into the conservation area. Additionally, coastal California gnatcatcher and its associated habitat are considered covered under the NCCP/MSAA/HCP, and with project implementation of MM-BIO-1, potential project-related impacts to this species and its habitat will be reduced to a less than significant level. Therefore, impacts from the proposed project on local conservation planning will be considered **less than significant.**

3.5 Cultural Resources

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

The following analysis relies on the Cultural Resources Inventory Report for the Las Flores Enhanced Water Reliability Project, Orange County, California prepared by Dudek in May 2020 and included as Appendix C.

a) ***Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?***

Less-Than-Significant Impact With Mitigation Incorporated. A Cultural Resources Inventory Report (Appendix C), was prepared for the proposed project by Dudek in March 2020, which includes a records search, a Sacred lands File search, a review of historic maps and aerial photographs, and a field survey. As discussed in the Cultural Resources Inventory Report, a South Central Coast Information Center (SCCIC) search was performed in January 2020. The SCCIC covered a one-half-mile radius around the project site and included archaeological and historical resources, locations and citations for previous cultural resource studies, and a review of the Office of Historic Preservation historic properties directory. Historic maps and aerial photographs were reviewed to assess the potential for historic archaeological resources. The SCCIC search identified 25 cultural resources studies conducted within a one-half mile radius of the project site, two of which intersect the project site. Two previously recorded archaeological resources (CA-LAN-36/H and CA-LAN-899/H) were identified within SCCIC records to fall within the project area of potential effect (APE), and a number of additional sites are recorded in the surrounding vicinity. CA-LAN-36/H, the ethnohistoric Native American community of Rancho Trabuco, was last documented in 1949. CA-LAN-899/H, a prehistoric lithic scatter, was last documented in 1980 and was noted to be at risk of destruction. These resources were not identified within the APE during archaeological survey, and have likely been destroyed by previous roadway construction and utility line installation. The majority of the proposed alignment, including the unpaved SMWD access road, contain existing utility lines. Based on geomorphological evidence and the level of previous disturbance, areas within existing roads have a low potential to contain unanticipated cultural resources. The portion of the APE that includes the unpaved access road north of Oso Parkway has a moderate potential to contain unanticipated cultural deposits. Given the moderate potential for the discovery of unanticipated cultural deposits within the unpaved access road, **MM-CUL-1** shall be required for this portion of the APE. MM-CUL-1 will require that prior to the initiation of ground-disturbing work, construction crews will be made aware of the potential to encounter cultural resources and require for cultural monitors to be present during ground disturbing activities within the unpaved access road. Other areas within the APE are not recommended to require archaeological monitoring, as any potential resources have likely been destroyed through previous road and utility construction. With implementation of MM-CUL-1, impacts would be reduced to **less than significant.**

MM-CUL-1: **Archeological Monitoring.** Prior to the initiation of ground-disturbing work, construction crews shall be made aware of the potential to encounter cultural resources and the requirement for cultural monitors to be present during ground-disturbing activities in the portion of the area of potential effect along the unpaved access road north of Oso Parkway. Archaeological monitoring may be adjusted at the recommendation of the qualified archaeological principal investigator, meeting the Secretary of the Interior's Professional Qualification Standards, and in consultation with Santa Margarita Water District (SMWD), based on inspection of exposed subsurface soils and their observed potential to contain intact cultural deposits or material.

The archaeological monitor shall be provided a copy of the Cultural Resources Inventory Report for the Las Flores Enhanced Water Reliability Project, Orange County, California prepared by Dudek in May 2020 and included as Appendix C of the Draft Initial Study/Mitigated Negative Declaration to inform their monitoring efforts. The archaeological monitor shall have the authority to temporarily halt work to inspect areas as needed for potential cultural material or deposits. In the event that archaeological resources (e.g., sites, features, or artifacts) are exposed during construction activities for the project, all construction work occurring within 100 feet of the find shall immediately stop until the qualified archaeological principal investigator can evaluate the significance of the find and determine whether additional study is warranted. Prehistoric archaeological deposits may be indicated by the presence of discolored or dark soil, fire-affected material, concentrations of fragmented or whole freshwater bivalve shell, burned or complete bone, non-local lithic materials, or the characteristic observed to be atypical of the surrounding area.

Common prehistoric artifacts may include modified or battered lithic materials; lithic or bone tools that appear to have been used for chopping, drilling, or grinding; projectile points; fired clay ceramics or non-functional items; and other items. Historic-age deposits are often indicated by the presence of glass bottles and shards, ceramic material, building or domestic refuse, ferrous metal, or old features such as concrete foundations or privies.

If there is any indication that the find could be of interest of Native Americans, the archaeological principal investigator shall notify a representative from the Juaneño Band of Mission Indians, Acjachemen Nation of the find. Should it be required, temporary flagging may be installed around this resource in order to avoid any disturbances from construction equipment. Depending upon the significance of the find under the California Environmental Quality Act (CEQA) (14 CCR 15064.5[f]; California Public Resources Code Section 21082), the archaeological monitor, in correspondence with the qualified archaeological principal investigator and Native American representative (if applicable), may simply record the find to appropriate standards (thereby addressing any data potential) and allow work to continue. If the qualified archaeological principal investigator observes the discovery to be potentially significant under CEQA or Section 106 of the National Historic Preservation Act, additional efforts (such as preparation of an archaeological treatment plan, testing, and/or data recovery) may be warranted prior to allowing construction to proceed in this area. The feasibility for avoidance will also be discussed with SMWD, the Native American representative (if applicable), and other appropriate parties prior to any investigation that may result in disturbance to archaeological resources.

The project archaeologist will be responsible for ensuring that all cultural materials collected will be cleaned, catalogued, and permanently curated with an appropriate institution; that a letter of acceptance from the curation institution has been submitted to the lead agency; that all artifacts are analyzed to identify function and chronology as they relate to the history of the area; that faunal material will be identified as to species; and specialty studies are completed, as appropriate.

Within 3 months following the completion of monitoring, two copies of a monitoring results report (even if negative) and/or evaluation report, if applicable, that describes the results, analysis, and conclusions of the archaeological monitoring program (with appropriate graphics) will be submitted to the lead agency. It is recommended that SMWD consult directly with the State Historic Preservation Office on the findings of this report.

The archaeologist will be responsible for recording (on the appropriate California Department of Parks and Recreation forms—DPR 523 A and B) any significant or potentially significant resources encountered during the archaeological monitoring program in accordance with the California Environmental Quality Act Cultural Resources Guidelines, and submitting such forms to the South Central Coast Information Center at California State University, Fullerton, with the final monitoring results report.

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

Less-Than-Significant Impact With Mitigation Incorporated. As described in Section 3.5(a), the previously recorded archaeological sites within the APE appear to have been completely destroyed by previous development, and no other cultural materials are located within the APE. However, due to the moderate potential for the discovery of unanticipated cultural deposits within the unpaved access road, **MM-CUL-1** shall be required for this portion of the APE. MM-CUL-1 will require that prior to the initiation of ground-disturbing work, construction crews will be made aware of the potential to encounter cultural resources and require for cultural monitors to be present during ground disturbing activities within the unpaved access road. Other areas within the APE are not recommended to require archaeological monitoring, as any potential resources have likely been destroyed through previous road and utility

c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Less-Than-Significant Impact. As described in Section 3.5(b), the previously recorded archaeological sites within the APE appear to have been completely destroyed by previous development, and no other cultural materials are located within the APE. However, should human remains be discovered, work would halt in that area and procedures set forth in the California Public Resources Code (Section 5097.98) and State Health and Safety Code (Section 7050.5) would be followed, beginning with notification to the SMWD and County Coroner. If Native American remains are present, the County Coroner would contact the Native American Heritage Commission to designate a most likely descendent, who would arrange for the dignified disposition and treatment of the remains. Therefore, with compliance with State Health and Safety Code Section 7050.5, potential impacts to human remains would be **less than significant**.

3.6 Energy

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

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

Less-Than-Significant Impact. Construction of the proposed project would require the use of electric power for as-necessary lighting and electronic equipment. The amount of electricity used during construction would be minimal because typical energy demand stems from the use of electrically powered equipment. This electricity demand would be temporary and would cease upon completion of construction; therefore, the proposed project would not have an adverse impact on the available electricity supply. During construction, natural gas would typically not be consumed on the project site. The majority of the energy used during construction would be from petroleum, as detailed below.

Heavy-duty construction equipment associated with construction activities would rely on diesel fuel, as would haul and vendor trucks involved in delivery of materials to the project site. Construction workers would travel to and from the project site throughout the duration of construction. It is assumed in this analysis that construction workers would travel to and from the site in gasoline-powered vehicles.

Heavy-duty construction equipment of various types would be used during each phase of project construction. Appendix A lists the assumed equipment usage for each phase of construction. The project's construction equipment is estimated to operate a total combined 5,144 hours.

Fuel consumption from construction equipment was estimated by converting the total carbon dioxide (CO_2) emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. The conversion factor for gasoline is 8.78 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton CO_2 per gallon (The Climate Registry 2019). The estimated diesel fuel usage from construction equipment is shown in Table 5.

Table 5. Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO_2 (MT)	Kg CO_2/Gallon	Gallons
Site Preparation	2	5.11	10.21	500.08
Pipeline Trenching/Grading	4	73.14	10.21	7,163.51
Conversion of Lift Station	2	22.94	10.21	2,247.12
Paving	3	1.97	10.21	192.57
Demobilization	2	1.10	10.21	107.99
			Total	**10,211.26**

Sources: Pieces of equipment and equipment CO_2 (Appendix A); kg CO_2/Gallon (The Climate Registry 2019).
Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.

Fuel estimates for total worker vehicles, vendors, and haul truck fuel consumption are provided in Table 6.

Table 6. Construction Worker, Vendor, and Haul Truck Petroleum Demand

Phase	Trips	Vehicle MT CO_2	Kg CO_2/ Gallon	Gallons
Worker Vehicles (Gasoline)				
Site Preparation	144	0.68	8.78	77.92
Pipeline Trenching/Grading	1,384	6.52	8.78	742.72
Conversion of Lift Station	780	3.62	8.78	412.37
Paving	48	0.22	8.78	25.07
Demobilization	40	0.18	8.78	20.89
			Total	**1,278.96**
Vendor Trucks (Diesel)				
Site Preparation	72	0.88	10.21	85.83
Pipeline Trenching/Grading	1,384	16.81	10.21	1,646.49
Conversion of Lift Station	1,560	18.88	10.21	1,849.07
Paving	60	0.72	10.21	70.91

Table 6. Construction Worker, Vendor, and Haul Truck Petroleum Demand

Phase	Trips	Vehicle MT CO_2	Kg CO_2/ Gallon	Gallons
Demobilization	10	0.12	10.21	11.82
			Total	**3,664.12**
Haul Trucks (Diesel)				
Site Preparation	72	2.77	10.21	271.14
Pipeline Trenching/Grading	938	35.96	10.21	3,522.05
Conversion of Lift Station	0	0.00	10.21	0.00
Paving	24	0.91	10.21	89.28
Demobilization	20	0.76	10.21	74.40
			Total	**3,956.86**

Sources: Trips and vehicle CO_2 (Appendix A); kg CO_2/Gallon (The Climate Registry 2019).
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram.

In summary, construction of the project is conservatively anticipated to consume a total of 19,111 gallons of petroleum over a period of approximately 235 days. For disclosure, by comparison, approximately 18.5 billion gallons of petroleum would be consumed in California over the course of the project's construction phase, based on the California daily petroleum consumption estimate of approximately 78.6 million gallons per day (EIA 2019). Overall, because petroleum use during construction would be temporary, and would not be wasteful or inefficient, impacts would be less than significant.

In regard to long-term operations, the project would replace the two existing 150 horsepower pumps at the Las Flores Lift Station with two 250 horsepower pumps (one main and one backup). Although electricity consumption under the project would increase compared to baseline conditions (because the existing lift station is not currently running),, the new local supply of approximately 209 acre-feet of recycled water per year would reduce the equivalent amount of potable water imported from Northern California. From an energy perspective, the ability to utilize local sources of water reduces use and future dependency on imported water supplies, the conveyance of which is one of the largest consumers of energy in California. Additionally, although not accounted for in this energy analysis, the booster pump station would consume less energy on an annual basis than the lift station historically consumed, as lift stations operate continuously throughout the day as sewage is generated, and recycled water booster pump stations are typically only operated a few times throughout the day when recycled water is required for irrigation. The project would therefore not use energy in a wasteful, inefficient, or unnecessary manner and impacts would be **less than significant.**

b) ***Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?***

Less-Than-Significant Impact. As discussed in Section 3.6(a), the proposed project would not result in wasteful, inefficient, and unnecessary consumption of energy during construction or operation. Energy use during construction would be minimal and temporary. Further, although the project would result in increased electricity from the booster station pumps, the proposed project would result in new locally supplied recycled water for irrigation, which would reduce the imported water (and associated energy) from Northern California. Based on the above considerations, the potential of the project to conflict with a state or local renewable energy or energy efficiency plan would be **less than significant.**

3.7 Geology and Soils

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

a) ***Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:***

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

No Impact. The Alquist–Priolo Earthquake Zoning Act (Alquist–Priolo Act) requires the delineation of fault zones along active faults in California. The purpose of the Alquist–Priolo Act is to regulate development on or near active fault traces to reduce hazards associated with fault rupture. The Alquist–Priolo Earthquake Fault Zones are the regulatory zones that include surface traces of active faults. Active faults within Orange County include the Whittier Fault and Newport–Inglewood Fault (CGS 2010). The project site is not located within a designated Alquist–Priolo Earthquake Fault Zone (CGS 2010). The nearest active Alquist-Priolo Fault Zone to the project site is the Newport-Inglewood-Rose Canyon fault zone, located approximately 10 miles east of the project site. According to the California Department of Conservation Fault Activity Map (DOC 2010), the project site is not located in a designated earthquake fault zone. Therefore, **no impact** associated with fault rupture would occur.

ii) ***Strong seismic ground shaking?***

Less-Than-Significant Impact. The proposed project is within a seismically active region of Southern California; however, there are no known active, or potentially active, faults that traverse the project site. The nearest active major faults are the Newport-Inglewood-Rose Canyon fault zone fault approximately 10 miles east of the project site. The most significant seismic hazard that has the potential to occur would be considered strong ground shaking caused by an earthquake occurring on a nearby or distant active fault. However, all project components would be constructed in accordance with the seismic design parameters of the most recent California Building Code, SMWD's Standard Specifications for Public Works Construction (Green Book), and other regulatory requirements, which would reduce the potential for risks related to strong seismic events. In addition, flexible pipeline connections on the forcemain at each abutment would help the forcemain withstand seismic forces. Therefore, since the proposed project would be in compliance with all applicable regulatory requirements, impacts associated with strong seismic ground shaking would be **less than significant**.

iii) ***Seismic-related ground failure, including liquefaction?***

Less-Than-Significant Impact. Liquefaction is the phenomenon in which loosely deposited granular soils and silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration causes the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesion-less soils at depths shallower than 50 feet below the ground surface. According to the County's General Plan, the proposed project is not located within a liquefaction-designated area and the potential for liquefaction is considered low. In addition, all components would be designed in accordance with the seismic parameters of the most recent version of the California Building Code, SMWD's Standard Specifications for Public Works Construction (Green Book), and other regulatory requirements, which would minimize potential effects of seismic-related ground failure. Compliance with such regulations would ensure impacts associated with seismic-related ground failure, including liquefaction would be **less than significant**.

iv) Landslides?

Less-Than-Significant Impact. Landslides are typical on moderate to steep slopes. Many factors including slope height, slope steepness, shear strength, and orientation of weak layers in the underlying geologic units contribute to landslide susceptibility. The proposed project is located in close proximity to landslide-designated areas, west of the project site. However, the project site does not have underlying bedrock with existing failures and is not subject to landslides. In addition, the proposed project would be designed and built in accordance with the seismic parameters of the most recent California Building Code, SMWD's Standard Specifications for Public Works Construction (Green Book), and other regulatory requirements. Compliance with such regulations would further reduce potential impacts related to landslides. Adverse impacts related to landslides is consider low and impacts would be **less than significant**.

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

Less-Than-Significant Impact. Excavation and ground-disturbing activities during construction of the proposed project could potentially leave loose soil exposed to the erosive forces of rainfall and high winds, which would increase the potential for soil erosion and loss of topsoil. Adequate drainage on the project site is critical in reducing potential soil erosion or the loss of topsoil. SMWD would be required to prepare and implement a stormwater pollution prevention plan (SWPPP), which would include construction BMPs to control erosion and sediment during construction activities. With adherence to the SWPPP and associated construction BMPs related to erosion and sediment control, construction-related impacts to soil erosion and the loss of topsoil would remain below a level of significance. Upon completion of construction, all disturbed surfaces would be stabilized and restored to initial condition. It is therefore not anticipated that the proposed project would result in substantial soil erosion or significant losses in topsoil. Impacts to soil erosion or the loss of topsoil would be **less than significant**.

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

Less-Than-Significant Impact. As previously discussed, the project site is located in close proximity to liquefaction-designated and landslide-designated zones. However, the project site is not located on potentially liquefiable land or unstable bedrock. The potential for lateral spreading due to a nearby seismic event is considered low. Soils that underlie the project site also have low potential for subsidence or collapse to occur. Compliance with federal, state, and local building regulations would reduce potential impacts associated with unstable soils. With adherence to all recommendations for the proposed project, impacts related to unstable soils would be **less than significant**.

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

Less-Than-Significant Impact. Expansive soils are characterized by the ability to undergo significant volume change (shrink and swell) as a result of variation in soil moisture content. Soil moisture content can change due to many factors, including perched groundwater, landscape irrigation, rainfall, and utility leakage. Expansive soils are commonly very fine-grained with a high to very high percentage of clay. Most of community of Las Flores is underlain by sedimentary units (both bedrock and alluvium), that are composed primarily of granular soils (silty sand, sand, and gravel). Such soils are typically in the low to moderately-low range for expansion potential. No specific areas of expansive soils have been identified within the project site. The proposed project components would be constructed in accordance with their respective agency requirements for construction, which would reduce potential risks involving expansive soils. Impacts associated with expansive soils would be considered **less than significant.**

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

No Impact. The proposed project would not involve the use of septic tanks or alternative wastewater disposal systems. As a result, the proposed project would have **no impact** to soils related to the use of alternative wastewater disposal systems.

f) ***Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?***

Less-Than-Significant Impact With Mitigation Incorporated. The proposed project is located within the northern Peninsular Ranges geomorphic province (CGS 2002; Harden 2004). This geomorphic province is characterized by northwest trending mountain ranges and valleys that extend over 900 miles from the tip of the Baja Peninsula to the Transverse Ranges (i.e., the San Bernardino and San Gabriel Mountains in southern California). Regionally, the Peninsular Ranges are bounded to the east by the Colorado Desert and to the west by the continental shelf and offshore islands (Santa Catalina, Santa Barbara, San Nicholas, and San Clemente) (CGS 2002; Harden 2004). Regional mountain ranges in the Peninsular Ranges geomorphic province include the Santa Ana, San Jacinto, and Santa Rosa Mountains. Geologically, these mountains are dominated by Mesozoic, plutonic igneous and metamorphic rocks that are part of the Peninsular Ranges batholith (Southern California batholith) (Jahns 1954; Harden 2004).

A paleontological records search request was sent to the Natural History Museum of Los Angeles County (LACM) on January 17, 2020, and the results were received on January 31, 2020. According to the LACM paleontological records search and surficial geological mapping by Morton and Miller (2006a, 2006b) at a scale of 1:100,000, the following geological units from youngest to oldest underlie the proposed project alignment:

- Middle to early Pleistocene (~126,000–2.58 million years ago [mya]) very old axial channel deposits (map unit Qvoa$_{a-}$= older Quaternary deposits hereafter)
- Late Miocene (~12 mya–5.33 mya) Monterey Formation (map unit Tm)
- Oligocene (~34 mya–23 mya) San Onofre Breccia
- Late Eocene to Early Miocene (~ 38 mya–23 mya) Sespe Formation (map unit Ts).

The LACM records search results agreed with published geological mapping of Morton and Miller (2006a, 2006b) except they indicated the central eastern portion of proposed project is underlain by the middle Miocene (~16 mya–12 mya), marine Topanga Formation. However, the LACM did not cite specific geological mapping.

The LACM did not report any vertebrate fossil localities within the proposed project alignment; however, they reported vertebrate paleontological localities nearby from the same geological units that occur within the proposed project alignment. Fossil localities from older Quaternary deposits include LACM 4119, which yielded a fossil bison (*Bison*) specimen northwest of the proposed project alignment within a drainage connecting to Oso Creek (McLeod 2020). In addition, LACM 1215 produced undetermined fossil teeth of shark (Chondrichthyes) and mammal (Mammalia) from Oso Creek near the intersection of Crown Valley Parkway and Interstate 5.

The LACM reported numerous fossil localities from the late Miocene Monterey Formation, which crops out on the western edge of the proposed project alignment, and likely relatively shallowly underlies the older Quaternary deposits. LACM 5487, which is the closest Monterey Formation locality reported by the LACM, produced undetermined fossil fish specimens (Osteichthyes) from a ridge on the eastern bank of Oso Creek. Monterey Formation localities LACM 3863, 4919, 5786, 7952, and 7953 yielded fossil fish, sea lion, sea cow, and whale specimens from northwest of La Paz Road west of the southern proposed project area. McLeod (1988) reported on the fossil sperm whale from LACM 5786 in the scientific literature (McLeod 2020). Monterey Formation locality LACM 7136, which is located immediately southeast of the aforementioned Monterey Formation localities, but still on the northwest side of La Paz Road, produced fossil fish specimens (bonito sharks, snake mackerel, and bass), leatherback turtle, birds (auklet, false-toothed bird, booby, and shearwater), sea lions, and dolphin. Howard (1978) reported the birds in the scientific literature (McLeod 2020).

While it is unclear if the Topanga Formation crops out within the proposed project alignment, the LACM reported the following fossil locality from the Topanga Formation near the proposed project site. LACM 6064, from the second ridge on the western side of the proposed project, yielded fossil specimens of desmostylian (*Paleoparadoxia*) and sea lion (*Eotaria crypta*) as published in the scientific literature by Panofsky (1998) and Velez-Juarbe (2017), respectively.

The LACM reported no fossil localities from the San Onofre Breccia, and indicated that rock unit is likely also coarse-grained to yield significant fossil vertebrates.

The terrestrial Sespe Formation is known to produce scientific significant vertebrate fossils in this portion of Orange County. McLeod (2020) reported Sespe Formation fossil localities (LACM 4553 and 4554) from the Upper Oso Reservoir north of the proposed project alignment. These localities produced fossil specimens of turtle (*Testudinata*), opossum (*Peratherium*), rabbit (*Archaeolagus*), deer mouse (*Yatkolamys*), pocket mouse (*Trogomys*), and badger (*Mustelidae*).

In addition to the fossil localities reported by the LACM, numerous fossils from Pleistocene deposits, the Monterey Formation, and the Sespe Formation have been recovered in the area surrounding the proposed project. In his compilation of Pleistocene and early Holocene fossil localities, Jefferson (1991) reported localities from southern Orange County that yielded Ice Age fossil amphibians, reptiles, birds, and mammals. Similarly, Whistler and Lander (2003) reported over 100 localities from the Sespe Formation and undifferentiated Sespe and Vaqueros Formations in the Santa Ana Mountains and San Joaquin Hills of Orange County. These localities, which were discovered during major grading projects since the early 1980s, have yielded more than 4,000 fossil specimens (Whistler and Lander 2003). Finally, during construction of the Upper Chiquita Reservoir in Rancho Santa Margarita, isolated mammal teeth were recovered from the Sespe Formation through wet screening (Kelly 2011).

No paleontological resources were identified within the project area as a result of the institutional records search and desktop geological and paleontological review, and the proposed project site is not anticipated to be underlain by unique geologic features. The Pleistocene deposits, Monterey Formation, Topanga Formation, and Sespe Formation have produced significant paleontological resources in the area and are considered to have high paleontological sensitivity. The San Onofre Breccia, which does not have a record of producing significant paleontological resources, is considered to have low paleontological sensitivity. Given the proximity of past fossil discoveries in the surrounding area and the potential for significant vertebrate fossils below any artificial fill present within the proposed project alignment, the proposed project site is highly sensitive for supporting paleontological resources. In the event that intact paleontological resources are located on the proposed project site, ground-disturbing activities associated with construction of the proposed project, such trenching for pipelines or utilities have the potential to destroy a unique paleontological resource or site. Without mitigation, the potential damage to paleontological resources during construction would be a potentially significant impact. However, upon implementation of **MM-GEO-1**, impacts would be reduced to below a level of significance. Impacts of the proposed project are considered **less than significant with mitigation incorporated** during construction.

MM-GEO-1: **Paleontological Resources Impact Mitigation Program and Paleontological Monitoring.** Prior to commencement of any ground-disturbing activity on site, Santa Margarita Water District shall retain a certified Orange County paleontologist. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed project. The PRIMP shall be consistent with the guidelines of the Society of Vertebrate Paleontology (SVP) (2010) and should outline requirements for preconstruction meeting attendance and worker environmental awareness training, where monitoring is required within the proposed project site based on construction plans and/or geotechnical reports, procedures for adequate paleontological monitoring and discoveries treatment, paleontological methods (including sediment sampling for microvertebrate fossils), reporting, and collections management. The certified paleontologist shall attend the preconstruction meeting and be on-site (or a qualified paleontological monitor) during all significant ground-disturbing activities in Pleistocene deposits, Monterey Formation, Topanga Formation (if present), and Sespe Formation, if encountered. These deposits may be present directly below ground surface or directly under any artificial fill. In the event that paleontological resources (e.g., fossils) are unearthed during ground-disturbing activities, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow grading to recommence in the area of the find.

3.8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

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

Less-Than-Significant Impact. Climate change refers to any significant change in measures of climate (e.g., temperature, precipitation, or wind patterns) lasting for an extended period of time (i.e., decades or longer). Earth's temperature depends on the balance between energy entering and leaving the planet's system, and many factors (natural and human) can cause changes in Earth's energy balance. The greenhouse effect is the trapping and buildup of heat in the atmosphere near Earth's surface (the troposphere). The greenhouse effect is a natural process that contributes to regulating Earth's temperature, and it creates a livable environment on Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing Earth's surface temperature to rise. Global climate change is a cumulative impact; a project contributes to this impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. Thus, GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008).

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code Section 38505(g) for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) (see also 14 CCR 15364.5).[6] The three GHGs evaluated herein are CO_2, CH_4, and N_2O. Emissions of HFCs, PFCs, SF_6, and NF_3 are generally associated with industrial activities including the manufacturing of electrical components, heavy-duty air conditioning units, and insulation of electrical transmission equipment (substations, power lines, and switch gears.). Therefore, emissions of these GHGs were not evaluated or estimated in this analysis because the project would not include these activities or components and would not generate HFCs, PFCs, SF_6, and NF_3 in measurable quantities.

The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of CO_2 equivalent (CO_2e). Consistent with CalEEMod version 2016.3.2, this GHG emissions analysis assumed the GWP for CH_4 is 25 (i.e., emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC's Fourth Assessment Report (IPCC 2007).

This analysis uses the SCAQMD recommended (not adopted) numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of industrial development projects. In October 2008, the SCAQMD proposed recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects as presented in its Draft Guidance Document—Interim CEQA Greenhouse Gas (GHG) Significance Threshold (SCAQMD 2008b). This document, which builds on the previous guidance prepared by the California Air Pollution Control Officers Association, explored various approaches for establishing a significance threshold for GHG emissions. The draft interim CEQA thresholds guidance document was not adopted or approved by the Governing Board. However, in December 2008, the SCAQMD adopted an interim 10,000 MT CO_2e per-year screening level threshold for stationary source/industrial projects for which the SCAQMD is the lead agency (see SCAQMD Resolution No. 08-35, December 5, 2008).

6 Climate-forcing substances include GHGs and other substances such as black carbon and aerosols. This discussion focuses on the seven GHGs identified in California Health and Safety Code Section 38505; impacts associated with other climate-forcing substances are not evaluated herein.

SCAQMD formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. From December 2008 to September 2010, SCAQMD hosted working group meetings and revised the draft threshold proposal several times, although it did not officially provide these proposals in a subsequent document. SCAQMD has continued to consider adoption of significance thresholds for residential and general land-use development projects. The most-recent proposal issued by SCAQMD (in September 2010) uses the following tiered approach to evaluate potential GHG impacts from various uses (SCAQMD 2010):

- **Tier 1.** Determine if CEQA categorical exemptions are applicable. If not, move to Tier 2.
- **Tier 2.** Consider whether the proposed project is consistent with a locally adopted GHG reduction plan that has gone through public hearing and CEQA review that has an approved inventory, includes monitoring, etc. If not, move to Tier 3.
- **Tier 3.** Consider whether the project generates GHG emissions in excess of screening thresholds for individual land uses. The 10,000 MT CO_2e per year threshold for industrial uses would be recommended for use by all lead agencies. Under option 1, separate screening thresholds are proposed for residential projects (3,500 MT CO_2e per year), commercial projects (1,400 MT CO_2e per year), and mixed-use projects (3,000 MT CO_2e per year). Under option 2, a single numerical screening threshold of 3,000 MT CO_2e per year would be used for all non-industrial projects. If the proposed project generates emissions in excess of the applicable screening threshold, move to Tier 4.
- **Tier 4.** Consider whether the proposed project generates GHG emissions in excess of applicable performance standards for the project service population (population plus employment). The efficiency targets were established based on the goal of Assembly Bill (AB) 32 to reduce statewide GHG emissions to 1990 levels by 2020. The 2020 efficiency targets are 4.8 MT CO_2e per service population for project-level analyses and 6.6 MT CO_2e per service population for plan-level analyses. If the project generates emissions in excess of the applicable efficiency targets, move to Tier 5.
- **Tier 5.** Consider the implementation of CEQA mitigation (including the purchase of GHG offsets) to reduce the project efficiency target to Tier 4 levels.

To determine the project's potential to generate GHG emissions that would have a significant impact on the environment, because the project does not conform to the standard land use types, the project's GHG emissions were compared to the non-industrial land project quantitative threshold of 3,000 MT CO_2e per year, which was identified under Tier 3 Option 1. Construction of the proposed project would result in GHG emissions that are primarily associated with the use of off-road construction equipment, on-road haul and vendor trucks, and worker vehicles. SCAQMD recommends that "construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies" (SCAQMD 2008b).

CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 3.3. Construction of the proposed project is anticipated to commence in June 2020 and would last through April 2021 (approximately 235 workdays). On-site sources of GHG emissions include off-road equipment; off-site sources include haul trucks, vendor trucks, and worker vehicles. Table 7 presents construction GHG emissions for the proposed project from on-site and off-site emission sources.

Table 7. Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2020	126.07	0.03	0.00	126.75
2021	67.23	0.01	0.00	67.58
Total	**193.30**	**0.04**	**0.00**	**194.33**
Amortized Emissions (over 30 years)				**6.48**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix A for complete results.

As shown in Table 7, the estimated total GHG emissions during construction of the proposed project would be approximately 194 MT CO_2e. Estimated project-generated construction emissions amortized over 30 years would be approximately 7 MT CO_2e per year, which would not exceed the SCAQMD threshold of 3,000 MT CO_2e per year. As with project-generated construction air quality pollutant emissions, GHG emissions generated during the construction of the proposed project would be short-term in nature, lasting only the duration of the construction period, and would not represent a long-term source of GHG emissions.

In regards to long-term operations, the project would be served by existing staff and no increase in vehicle trips and associated criteria air pollutant emissions above baseline is anticipated to occur. The project would result in the replacement of two existing 150 horsepower pumps at the Las Flores Lift Station with two 250 horsepower pumps (one main and one backup). Although electricity consumption under the project would increase compared to baseline conditions (because the existing lift station is not currently running), the new local supply of approximately 209 acre-feet of recycled water per year would reduce the equivalent amount of potable water imported from Northern California, which would off-set the increase in booster pump electricity and associated GHGs. Additionally, although not accounted for in this GHG analysis, the booster pump station would consume less energy on an annual basis than the lift station historically consumed, as lift stations operate continuously throughout the day as sewage is generated, and recycled water booster pump stations are typically only operated a few times throughout the day when recycled water is required for irrigation. Therefore, the proposed project's GHG contribution would not be cumulatively considerable and is **less than significant.**

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

Less-Than-Significant Impact. Although there are no mandatory GHG plans, policies, or regulations or finalized agency guidelines that would apply to implementation of the proposed project, a description of relevant plans with GHG reduction strategies is provided below.

California's 2017 Climate Change Scoping Plan, approved by CARB in 2008 and updated in 2014 and 2017, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The scoping plan is not directly applicable to specific projects, and it is not intended to be used for project-level evaluations.[7] Under the

7 The Final Statement of Reasons for the amendments to the CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009).

scoping plan, however, there are several state regulatory measures aimed at identifying and reducing GHG emissions. CARB and other state agencies have adopted many of the measures identified in the scoping plan. Most of these measures focus on area-source emissions (e.g., energy usage and high-GWP GHGs in consumer products) and changes to the vehicle fleet (e.g., hybrid, electric, and more-fuel-efficient vehicles) and associated fuels, among others.

The Southern California Association of Governments' (SCAG's) 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) is a regional growth-management strategy that targets per-capita GHG reduction from passenger vehicles and light-duty trucks in the Southern California region (SCAG 2016). The 2016 RTP/SCS incorporates local land use projections and circulation networks in city and county general plans. The 2016 RTP/SCS is not directly applicable to the proposed project because the purpose of the 2016 RTP/SCS is to provide direction and guidance by making the best transportation and land use choices for future development. However, the development of a recycled water pipeline and conversion of the Las Flores Lift Station to a recycled water booster pump station under the proposed project would not conflict with implementation of the strategies identified in the 2016 RTP/SCS that would reduce GHG emissions.

Regarding consistency with SB 32 (goal of reducing GHG emissions to 40% below 1990 levels by 2030) and Executive Order S-3-05 (goal of reducing GHG emissions to 80% below 1990 levels by 2050), there are no established protocols or thresholds of significance for that future-year analysis. However, CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the First Update to the Climate Change Scoping Plan: Building on the Framework that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014). Regarding the 2050 target for reducing GHG emissions to 80% below 1990 levels, CARB (2014) states the following:

> This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under Assembly Bill 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions.

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and Executive Order S-3-05. This is confirmed in the 2017 Climate Change Scoping Plan Update, which states (CARB 2017):

> The Proposed Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while also identifying new, technologically feasible and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Proposed Plan is developed to be consistent with requirements set forth in AB 32, SB 32, and AB 197.

The proposed project would not interfere with implementation of GHG reduction goals for 2030 or 2050 because it would result in a minimal increase in local GHG emissions from pump station electricity when compared to baseline conditions (because the existing lift station is not currently operating). In addition, the proposed project would not conflict with the state's trajectory toward future GHG reductions. As mentioned previously, from an energy perspective, the ability to utilize local sources of water reduces use and future dependency on imported water supplies, the conveyance of which is one of the largest consumers of energy in California. Based on the preceding considerations, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs; therefore, the impact would be **less than significant.**

3.9 Hazards and Hazardous Materials

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

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

Construction Impacts

Less-Than-Significant Impact. A variety of hazardous substances and wastes would be stored, used, and generated during construction of the proposed project. These would include fuels for machinery and vehicles, new and used motor oils, cleaning solvents, paints, and storage containers and applicators containing such materials. All contractors would be required to comply with applicable laws and regulations regarding hazardous materials, hazardous waste management, and disposal. Furthermore, the proposed project would be required to be under a Construction General Permit, which requires a SWPPP and development of BMPs for all phases of construction and potential pollutants generated by the construction activities.

All chemicals that would be used during construction of the proposed project would be required to be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (22 CCR, Division 4.5). Compliance with all applicable regulations regarding the transport, use, and disposal of hazardous materials would ensure that impacts would remain below a level of significance. Thus, impacts related to creation of a significant hazard to the public or the environment as a result of the proposed project would be **less than significant.**

Operational Impacts

SMWD uses a number of hazardous materials in the maintenance and repair of the facility. These hazardous materials consist of small quantities of "off-the-shelf" substances that do not represent a significant potential health hazard, and include materials such as lubricant oils, paints, and diesel fuel (used to power the emergency generator). SMWD is one of 18 water and wastewater utilities that participates in the Orange County Regional Water & Wastewater Multi-Jurisdictional Hazard Mitigation Plan (HMP), which provides a framework for water and wastewater utilities in Orange County to reduce their vulnerability to the impacts of natural and man-made hazard events such as earthquakes, flooding, and hazardous materials spills. SMWD provides adequate equipment and training to its personnel to detect, respond to, mitigate, and abate hazards that could occur during an accidental release of hazardous materials. The proposed project would not introduce any additional hazardous materials to the site during the operation and maintenance phase that do not currently exist at the facility. Therefore, the proposed project would pose a **less-than-significant impact** to the public or the environment through the routine transport, use, or disposal of hazardous materials.

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

Less-Than-Significant Impact. Construction activities on the project site would involve the transport of gasoline and other materials to the site during construction. Relatively small amounts of commonly used hazardous substances, such as gasoline, diesel fuel, lubricating oil, grease, and solvents would be used on site for construction and maintenance. The materials alone and use of these materials for their intended purpose would not pose a significant risk to the public or environment; however, accidental spills of hazardous materials during construction could potentially result in soil contamination or water quality impacts. To minimize/eliminate fuel spillage, all construction vehicles would be adequately maintained and equipped. All equipment maintenance work, including refueling, would occur off site or within the designated construction staging area. All potentially hazardous construction waste, including trash, litter, garbage, other solid wastes, petroleum products, and other potentially hazardous materials, would be removed to a hazardous waste facility permitted to treat, store, or dispose of such materials. Additionally, any potentially hazardous material handled on the project site during operation of the project would be limited in both quantity and concentration, and any handling, transport, use, and disposal would be consistent with SMWD protocol and comply with applicable federal, state, and local regulations. Therefore, with compliance with all applicable federal, state, and local regulations, the project would not 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, and impacts would be **less than significant**.

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

No Impact. Las Flores Elementary and Middle School is in close proximity to the proposed project. However, as described in Section 3.9(a), the proposed project does not involve chemical storage or use and would not result in hazardous emissions. Therefore, the project would have **no impact** on schools.

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

No Impact. According to a review of regulatory databases, the project area is not included in the list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5. Therefore, **no impact** would occur.

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?***

No Impact. The closest airport to the project site is the John Wayne Airport, located approximately 14 miles to the west. The proposed project would not be located in the airport influence area for the John Wayne Airport (ALUC 2008). Therefore, the project would not result in a safety hazard for people residing or working in the project area, and there would be **no impact.**

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

Less-Than-Significant Impact. Emergency response within the Orange County Operational Area is managed by the County's Emergency Operations Center (EOC), which coordinates disaster response and recovery for the Operational Area, including all political subdivisions of Orange County, and communicates resource requirements and availability with the State Regional Operations Center. The EOC has a number of emergency response plans in place should an emergency or disaster occur. Construction activities related to the lift station conversion and pipeline installation within the unpaved access road would not obstruct the normal flow of traffic or require any lane closures, which could interfere with an emergency evacuation route. Construction along the paved portions of the road could potentially result in temporary lane closures.

However, any lane or driveway closures would be coordinated with the County of Orange as part of the encroachment permit process, which sets forth requirements for traffic control measures to be implemented, including measures to preserve access in the case of an emergency. In addition, SMWD will notice the neighborhood regarding dates for construction, hours of construction activities, and access requirements for emergency vehicles and residents. Once constructed, the proposed recycled water distribution system would be entirely underground or within the existing footprint of the Las Flores Lift Station and would not impair or interfere with the applicable emergency response plans.

Construction and operation of the proposed project would not interfere with an adopted emergency response plan or evacuation plan, nor would it substantially impede public access or roadway circulation. Therefore, the proposed project would have **less-than-significant impacts.**

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

Less-Than-Significant Impact. The project area is subject to wildland fires and urban fires. Weather, topography, and vegetation types all affect the intensity of wildfires. The County of Orange identifies the project area as being within, or in close proximity to, very high fire hazard severity zones. The project site is in an area that contains residential, commercial, and institutional uses, as well as open space. However, once constructed, the proposed project would be entirely underground and would not include development of any human occupancy structures and the components would be restricted from public use. The proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires; therefore, impacts would be **less than significant.**

3.10 Hydrology and Water Quality

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on or off site;	☐	☐	☒	☐

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

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

Less-Than-Significant Impact. Construction of the project would include earthwork activities that could potentially result in erosion and sedimentation, which could subsequently degrade downstream receiving waters and violate water quality standards. Stormwater runoff during the construction phase may contain silt and debris, resulting in a short-term increase in the sediment load of the municipal storm drain system. Substances such as oils, fuels, paints, and solvents may be inadvertently spilled on the project site and subsequently conveyed via stormwater to nearby drainages, watersheds, and groundwater.

Because the project would result in more than 1 acre of ground disturbance, the project would be subject to the NPDES stormwater program, which includes obtaining coverage under the State Water Resources Control Board's Construction General Permit. Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. The Construction General Permit requires development and implementation of a SWPPP. Among the required items that must be included within a SWPPP are project design features intended to protect against substantial soil erosion as a result of water and wind erosion, commonly known as BMPs. The implementation of a Construction General Permit, including preparation of a SWPPP and implementation of BMPs, would reduce stormwater runoff during project construction impacts to acceptable levels. It follows that because construction of the project would not violate any water quality standards or waste discharge requirements, the project would not otherwise substantially degrade surface or groundwater quality.

Furthermore, upon completion of construction, all exposed areas would be returned to conditions similar to those prior to ground-disturbing activities (i.e., hardscape areas would be repaved, and landscaped areas would be re-vegetated). Therefore, the project would not violate any water quality standards, and impacts would be **less than significant.**

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

Less-Than-Significant Impact. The proposed project is not anticipated to encounter groundwater during excavation or ground-disturbing activities; however, the potential for encountering groundwater exists depending on the depth to groundwater. Should groundwater be encountered and dewatering be necessary during construction, a general National Pollutant Discharge Elimination System dewatering permit from the San Diego Regional Water Quality Control Board would be obtained. Discharges would be made in accordance with the San Diego Regional Water Quality Control Board requirements outlined in Order No. R9-2008-0002, General Waste Discharge Requirements for Discharges from Groundwater Extraction and Similar Discharges to Surface Waters within the San Diego Region, which includes southern Orange County. If necessary, the groundwater would be pumped out of the excavation and discharged in accordance with the SWPPP and/or general waste discharge requirements. The amount of potential groundwater pumped would have minimal effects on the local aquifer because it would be temporary, would be localized in nature, and would most likely consist of perched groundwater. Potential impacts associated with dewatering would be further reduced through the incorporation of waste management and materials pollution control BMPs and non-stormwater management BMPs included in the SWPPP. For these reasons, the proposed project would have **less-than-significant impacts** on groundwater.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in substantial erosion or siltation on or off site;

Less-Than-Significant Impact. The existing drainage pattern along the proposed alignment would be temporarily altered as a result of open-cut trenching. While surface disturbances associated with open-cut trenching and installation of the proposed pipelines would alter existing drainage patterns, a SWPPP would be prepared, and BMPs would be implemented during project construction to prevent pollutants from contacting stormwater and to reduce the potential for on-site and off-site erosion and sedimentation. With regard to sedimentation, control measures could include perimeter protection, storm drain inlet protection, and/or velocity reduction measures. Once the proposed pipelines are installed, the disturbed areas would be returned to pre-project conditions. As such, the project would have a minimal impact on existing drainage patterns that could potentially result in substantial on-site or off-site erosion or siltation. Therefore, with implementation of BMPs identified in the SWPPP, construction impacts associated with substantial on- or off-site erosion or sedimentation would be **less than significant.**

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;

Less-Than-Significant Impact. While surface disturbance associated with construction of the proposed project is not anticipated to increase the rate or amount of surface runoff, a SWPPP would be prepared and erosion- and sedimentation-control BMPs would be implemented to reduce the potential for on-site or off-site flooding. Also, once the proposed improvements are installed, trenches and other disturbed areas would be returned to pre-project conditions, and existing drainage patterns would be restored. The proposed pipelines would be installed underground, and disturbed areas would be returned to pre-project conditions. Therefore, impacts associated with surface runoff and on-site or off-site flooding during construction would be **less than significant.**

iii) ***create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or***

Less-Than-Significant Impact. As discussed, a SWPPP would be prepared and erosion- and sedimentation-control BMPs would be implemented to reduce the potential for on-site or off-site flooding. Once the proposed improvements are installed, trenches and other disturbed areas would be returned to pre-project conditions, and existing drainage patterns would be restored. Upon restoration of project areas, the project would not 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. Therefore, impacts associated with runoff would be **less than significant.**

iv) ***impede or redirect flood flows?***

No Impact. The project site is not located within or near a 100-year flood hazard zone (FEMA 2009a, 2009b). Additionally, the project would be located entirely underground, or within the existing footprint of the Las Flores Lift Station, which is not within flood hazard zones. Therefore, **no impact** would occur.

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

No Impact. The project site is not located within a flood hazard zone, or in the vicinity of a water body that would result in a tsunami or seiche. Therefore, **no impact** would occur.

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

Less-Than-Significant Impact. As discussed above, the proposed project would have minimal less-than-significant impacts on water quality with implementation of a SWPPP, and would not conflict with or obstruct with a water quality control plan. Additionally, implementation of the proposed project would expand upon SMWD's efforts to promote water use efficiency. This goal is consistent with SMWD's 2015 Urban Water Management Plan (SMWD 2016) and the Integrated Regional Water Management Plan for South Orange County (County of Orange and IRWM Group 2018), which have the stated goals of developing strategies to reduce risks from drought climate change. Implementation of the project would permanently conserve 209 AFY by providing a new source of recycled water supply for irrigation, thereby reducing drought impacts on the San Juan Basin, which is impacted by limited groundwater supply and storage. Over time, as drought conditions occur, implementation of projects similar to the proposed project, will allow SMWD to free up additional water supply that would otherwise come from the San Juan Basin. Therefore, because the project would indirectly assist long-term management of the San Juan Basin and is consistent with the goals of the SMWD's 2015 Urban Water Management Plan and the Integrated Regional Water Management Plan for South Orange County, impacts would be **less than significant.**

3.11 Land Use and Planning

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XI. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

a) Would the project physically divide an established community?

No Impact. The physical division of an established community is typically associated with the construction of a linear feature, such as a major highway or railroad tracks, or removal of a means of access, such as a local road or bridge, which would impair mobility within an existing community or between a community and an outlying area. The proposed project would be located entirely underground in streets or within the footprint of the existing Las Flores Lift Station and would not physically divide an established community. Therefore, **no impact** would occur.

b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less-Than-Significant Impact. The proposed project involves the conversion of an existing irrigation system that uses potable water into one that uses recycled water. The project site is within the jurisdiction of the SMWD and the County of Orange, and is located within residential and open space areas of the Las Flores Planned Community. According to the Las Flores Planned Community Program (County of Orange 1991), public utilities buildings, structures, and facilities, including but not limited to electrical, natural gas, cable television, water, sewage, telephone and telegraph, and their operation, storage, distribution, or production facilities are permitted within any planning area of the Las Flores Planned Community. As such, implementation of the project would be consistent with the Las Flores Planned Planed Community Program. In addition, proposed pipeline installation, rehabilitation, and lift station conversion would occur within existing easements held by SMWD. SMWD is allowed to use the land for construction, reconstruction, enlargement, improvement, repair, operation or maintenance of pipelines and incidental appurtenances. Therefore, the proposed project would not conflict with any applicable plans or regulations, impacts would be **less than significant.**

3.12 Mineral Resources

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XII. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

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

No Impact. According to the County of Orange General Plan Resources Element (County of Orange 2005b), there are several aggregate resources areas, including the Santa Ana River, Lower Santiago Creek, Upper Santiago Creek, San Juan Creek, and Arroyo Trabuco. According to the California Department of Conservation Division of Mines and Geology, aggregate resource areas are not located within the vicinity of the proposed project site. Therefore, **no impacts** to regionally valuable mineral resources would occur as a result of the proposed project.

b) ***Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?***

No Impact. As previously discussed, according to the County of Orange General Plan Resources Element (The County of Orange 2005b), there are several aggregate resources areas, including the Santa Ana River, Lower Santiago Creek, Upper Santiago Creek, San Juan Creek, and Arroyo Trabuco. The proposed project is not identified as being located on or near a locally important mineral resource recovery site. Therefore, **no impact** to a mineral resource recovery site would result from the proposed project.

3.13 Noise

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

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

Less-Than-Significant Impact With Mitigation Incorporated. Ambient noise in the project vicinity is primarily generated from traffic along various roads, including Oso Parkway, Antonio Parkway, and Meandering Trail.

Land uses near the site generally consist of residential, commercial, institutional, and open space uses. Multifamily residences, local retail/commercial uses, SMWD headquarters, a park and the Las Flores Elementary and Middle School exist near and around the westerly portion of the project site; single-family residences exist near and around the northerly and eastern portions of the project site, and single-family residences surround the southern portion.

Since the project site is located in the County of Orange, the established construction noise guidelines in the County's municipal code applies to the proposed project. The County of Orange municipal code permits construction activities between the hours of 7:00 a.m. and 8:00 p.m., Monday through Friday. No construction activity is allowed on Saturdays, Sundays, or federal holidays (County of Orange 2019).

Community construction noise levels can be expressed in terms of the equivalent continuous noise level (L_{eq}), also referred to as the average sound level. The L_{eq} noise metric is the energy-average noise level during the specified time period.

Ambient Noise Monitoring

Noise measurements were conducted along the proposed pipeline alignments and near the existing lift station/proposed recycled water booster pump station to determine the approximate ambient daytime noise level (see Figure 3, Noise Measurement Locations). The noise measurements were conducted on February 13, 2020, between the hours of 10:00 a.m. and 12:00 p.m. (see Appendix D, Noise Data Sheets and Modeling). Short-term (1 hour or less) attended sound level measurements were taken with a SoftdB Piccolo sound-level meter. The sound-level meter meets the current American National Standards Institute standard for a Type 2 general-purpose sound-level meter. The sound-level meter was positioned at a height of approximately 5 feet above the ground. The measurement results are in terms of A-weighted decibels (dBA), using the energy-averaged, level-equivalent (L_{eq}) noise metric. The measured daytime average sound levels range from approximately 54 to 65 dBA L_{eq}, as shown in Table 8.

Table 8. Ambient Measured Noise Levels

Site	Location	Sound Level (dB L_{eq})	Noise Sources
ST1	SW corner of Las Flores Apartment Homes (1201–1275 Sable), north of existing lift station / proposed water booster pump station.	64.7	Traffic noise from Oso Parkway; birdsong (secondary)
ST2	Southwest corner of multifamily residential building at 31 Sea Country Lane, east of proposed 16-inch pipeline alignment.	53.7	Traffic noise from Antonio Parkway; Pool pump motor noise (secondary)
ST3	Southerly property line of single-family residence at 9 Summit Court, east of 10-inch pipe installation and 8-inch pipe installation	64.1	Traffic noise from Oso Parkway
ST4	Southwest corner of single-family residential building at 164 Bloomfield Lane, northeast of proposed 8-inch pipeline alignment.	60.3	Traffic noise on Meandering Trail; traffic noise on Oso Parkway and Bloomfield (secondary)

Source: See Appendix D for complete results.

Construction Noise

Construction of the proposed project would involve a series of construction activities, including site preparation, pipeline trenching, paving, demobilization, and conversion of the existing lift station to a recycled water boost station. Construction of the proposed project would take approximately 11 months (approximately 235 workdays). The construction activity would be limited to the County of Orange allowable construction hours and days.

Equipment would include the use of tractors/loaders/backhoes, pickup trucks, excavators, pavers, rollers and haul trucks.

Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptors to the project site are residences located approximately 45 feet from the project alignment. Because of the linear nature of the project, the amount of time that construction work would occur immediately adjacent to any one noise-sensitive receiver would generally be relatively short (typically, one to two days for pipeline installation). For conversion of the lift station work, much of the work (aside from on-site pipeline trenching/installation) would take place within the existing masonry building.

Construction of the proposed project would result in temporary localized increases in noise levels from on-site construction equipment, as well as from off-site trucks hauling construction materials. Noise generated by construction equipment would occur with varying intensities and durations during the various phases of construction. The typical maximum noise levels at a distance of 50 feet for various pieces of construction equipment anticipated to be used during construction are listed in Table 9. Note that these are maximum noise levels, not an average sound level. The equipment would operate in alternating cycles of full power and low power, thus producing noise levels that would ultimately fall below the maximum levels. The average sound level of the construction activity as a whole depends upon the amount of time that the equipment operates and the intensity of construction. As such, the average noise level during construction activity is generally lower, since maximum noise generation may only occur up to 50% of the time. Noise levels from construction operations decrease at a rate of approximately 6 dBA per doubling of distance from the source.

Table 9. Construction Equipment Noise Levels

Equipment Type	Maximum Noise Level dB(A) at 50 feet
Backhoe	80
Compactor	82
Concrete Mixer	85
Crane	83
Generator	81
Loader	85
Paver	89
Roller	74
Truck	88
Saw	76

Source: FTA 2018.

Noise from the construction phase of the proposed project was estimated using the Federal Highway Administration Roadway Construction Noise Model (FHWA 2008). Input variables for the Roadway Construction Noise Model consist of the receiver/land use types, the equipment type and number of each (e.g., two graders, a loader, a tractor), the duty cycle for each piece of equipment (e.g., percentage of hours the equipment typically works per day), and the distance from the noise-sensitive receiver. No topographical or structural shielding was assumed in the modeling of construction noise. Construction scenario assumptions, including phasing and equipment mix, were based on the project construction details described in Section 2.3, Project Characteristics, and the CalEEMod default values developed for the Air Quality impacts analysis. Construction noise levels were assessed at two distances for each project phase. One represents the anticipated construction noise that may be experienced at the closest possible sensitive receptor (residences nearest to the proposed work areas). The second represents anticipated construction noise that may be experienced within the general vicinity of construction. Table 10 summarizes these estimated construction noise levels, with separate calculations provided for the different types of construction activities that would occur for this project. The detailed Roadway Construction Noise Model input and output is provided in Appendix D.

Table 10. Construction Noise Model Results Summary

Construction Phase	Construction Noise at Representative Receiver Distances (L_{eq} [dBA])	
	Nearest Source - Residence Distance (45 feet)[1]	*Typical Source - Residence Distance (200 feet)[2]*
Site Preparation	78	65
Pipeline Trenching	81	69
Paving	78	66
Demobilization	78	65
Conversion of Lift Station	62	59

Source: Appendix D
Notes:
1 The exception is for the Conversion of Lift Station phase, for which the nearest source/receiver distance is approximately 360 feet.
2 The exception is for the Conversion of Lift Station phase, for which the typical source/receiver distance is approximately 500 feet.

As shown in Table 10, noise levels from construction activities would be as high as 81 dBA equivalent continuous sound level (L_{eq}) at the nearest existing residences, approximately 45 feet away, during the relatively brief time period of time during which pipeline trenching would occur at any one location. At more typical distances, construction noise would range from approximately 65 to 69 dBA L_{eq}. Noise from the conversion of the existing lift station to a recycled water booster pump station improvements is estimated to range from approximately 59 to 62 dBA L_{eq} or less, as most of the construction activities would occur inside the existing building.

Although nearby off-site residences would be exposed to elevated construction noise levels, the exposure would be short term and would cease upon completion of project construction. It is anticipated that active construction associated with the proposed project would take place within the allowable hours per Section 4.6-7 of the County of Orange Codified Code of Ordinances (7:00 a.m. through 8:00 p.m. Monday through Saturday), and would not occur outside of those hours, or on Sundays or national holidays). In the event that construction is required to extend beyond these times, extended hours permits would be required. As such, construction would not violate County of Orange standards for construction noise.

Construction noise levels would be substantially higher than existing ambient daytime noise levels, particularly when occurring at the nearest residences (see Table 10). For this reason, noise impacts from construction would be considered potentially significant. However, **MM-NOI-1** and **MM-NOI-2** would be required to reduce construction noise associated with the proposed project and to ensure that nearby receptors are informed of construction activities. The effectiveness of the measures listed in MM-NOI-1 would vary from several decibels (which in general is a relatively small change) to ten or more decibels (which would be perceived as a substantial change). The range of effectiveness would vary based on the equipment in use, the original condition of the equipment, the specific location of the noise source and receiver, etc. The noise reduction achieved by equipment silencers, for example, would range from several decibels to well over 10 decibels. Limiting equipment idling could reduce overall noise levels up to several decibels. However, the measures listed in MM-NOI-1, in combination, would result in a substantial decrease in construction noise. While MM-NOI-2 would not reduce construction noise levels, it would ensure that receptors in the project area are prepared for any nuisances that may occur and would allow them to plan accordingly. Upon implementation of MM-NOI-1 and MM-NOI-2, impacts would be **less than significant with mitigation** incorporated.

MM-NOI-1: **Construction Noise Reduction.** The Santa Margarita Water District and/or its construction contractor shall comply with the following measures during construction:

1. Construction activities shall not occur between the hours of 8:00 p.m. and 7:00 a.m. Monday through Saturday, or on Sundays or national holidays. In the event that construction is required to extend beyond these times, extended hours permits shall be required.
2. Pumps and associated equipment (e.g., portable generators) shall be situated and configured to minimize noise at nearby noise-sensitive receivers.
3. Where possible, staging of construction equipment shall be situated at least 45 feet from noise- or vibration-sensitive land uses.
4. All noise-producing equipment and vehicles using internal combustion engines shall be equipped with mufflers; air-inlet silencers where appropriate; and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.
5. All mobile or fixed noise-producing equipment used for the project that are regulated for noise output by a local, state, or federal agency shall be in compliance with regulations.
6. Idling equipment shall be kept to a minimum and moved as far as practicable from noise-sensitive land uses.
7. Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where feasible.
8. Mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.
9. The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be used for safety warning purposes only.

MM-NOI-2: **Notification.** Effective communication with local residents shall be maintained prior to and during construction. Specifically, Santa Margarita Water District or its designee shall inform local residents of the schedule, duration, and progress of the construction. Additionally, residents shall be provided contact information for noise- or vibration-related complaints.

Operational Noise

Operation of the proposed project would be predominantly belowground and would primarily be passive in nature. Any noise generated by the pipeline and associated mechanical equipment would occur predominantly underground and is anticipated to be negligible.

The proposed recycled water booster pump station would include replacing two existing 150 HP pumps/motors with two new 250 HP pumps/ motors. During any one time, it is anticipated that only one pump/motor combination would be operating; the other pump and motor set would serve as backup. Although the new booster pump station would result in higher noise levels compared to baseline conditions (because the existing lift station is not currently operating), the pumps, motors and ancillary equipment would be located within an enclosed, noise-attenuated building, which is located approximately 360 feet from the nearest noise-sensitive land uses (residences located to the north). Additionally, the existing noise conditions are dominated by traffic noise associated with Oso Parkway and Antonio Parkway, making any residual noise that escapes from the noise-attenuated building difficult to perceive, As such, proposed aboveground appurtenant equipment would not contribute to a notable change in the noise environment when compared to existing conditions. Furthermore, although not accounted for in this noise analysis, it is anticipated that noise levels from the new booster pump station would not be significantly greater that the historical noise levels from when the lift station was in operation, because the replacement pumps and motors would be at least 20 years newer than the existing equipment. Maintenance activities would be minimal and would be similar to those that occur throughout SMWD's service area under existing conditions. No permanent workers would be required to operate or maintain the proposed project. Activities associated with long-term operations and maintenance would therefore be minimal. Noise associated with these activities would range from no noise to negligible amounts of noise and, therefore, would be **less than significant.**

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

Less-Than-Significant Impact. Ground-borne vibration is a small, rapidly fluctuating motion transmitted through the ground, which diminishes (attenuates) fairly rapidly over distance. onstruction activities may generate excessive groundborne vibration or groundborne noise, causing a potentially significant impact. Caltrans has collected groundborne vibration information related to construction activities (Caltrans 2013). Information from Caltrans indicates that transient vibration levels of 0.035 peak particle velocity in inches per second represents the approximately threshold of perception for persons of normal sensitivity, and continuous vibrations with a peak particle velocity of approximately 0.1 inch/second begin to cause annoyance. Heavier pieces of construction equipment, such as bulldozers, have peak particle velocities of approximately 0.089 inch/second or less at a distance of 25 feet (FTA 2018). Ground-borne vibration from heavy equipment operations during construction of the proposed project was evaluated and compared with relevant vibration impact criteria using the Federal Transit Administration's *Transit Noise and Vibration Impact Assessment*, which provides vibration impact criteria and recommended methodologies and guidance for assessment of vibration effects (FTA 2018).

At a distance of approximately 45 feet, the vibration level from heavy construction equipment (such as a heavy bulldozer) would be approximately 0.037 peak particle velocity in inches per second (PPV IPS). Vibration levels of this magnitude may be barely perceptible at nearby residences, but they would be below the Caltrans threshold of annoyance. Furthermore, the vibration from construction would be below the FTA threshold of potential damage for normal structures (0.20 PPV IPS) and would not be considered excessive. Therefore, short-term construction related vibration impacts would be less than significant.

Once operational, the project would not generate excessive levels of groundborne vibration. Any vibrating machinery, such as pumps or motors, would be fastened to the foundation using flexible mounts as necessary, and as such would not impart substantial levels of vibration into the surrounding ground. Additionally, the nearest vibration-sensitive uses (residences) are located approximately 360 feet away. As such, no annoyance or building damage would occur as a result of project-related vibration during construction or operation. Impacts related to groundborne vibration would be **less than significant.**

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

No Impact. No private airstrips exist in the project vicinity. The closest airport to the project site is John Wayne Airport, located approximately 15 miles to the west (Caltrans 2020). The project site is not within an area influenced by an airport land use plan (ALUC 2008). Therefore, there would be **no impact.**

3.14 Population and Housing

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

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

Less-Than-Significant Impact. The proposed project would involve the construction of a recycled water distribution system. The project would help enable SMWD to provide up to 209 AFY of additional tertiary-treated recycled water to existing dedicated irrigation customers within the SMWD service area. The project would expand SMWD's ability to distribute recycled water within its service area, which would potentially reduce the demand on available potable water supplies. However, no direct growth constraint would be removed, nor would a direct stimulus to growth be added. Therefore, the impact on local population trends would be **less than significant.**

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

No Impact. The project would be located within an existing SMWD ROW and within existing street ROWs where no housing currently exists. Therefore, housing would not be displaced and **no impact** would occur.

3.15 Public Services

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XV. PUBLIC SERVICES				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

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

Fire protection?

No Impact. The project would not include the addition of housing, schools, or other community facilities that might require fire protection or that would change service ratios. The project would also not indirectly induce the addition of housing, schools, or other community facilities (see Section 3.14[a]) because the recycled water line would serve existing communities. As a result, no impact to fire protection services would occur.

Police protection?

No Impact. The project would not include the addition of housing, schools, or other community facilities that might require police protection. The project would also not indirectly induce additional housing, schools, or other community facilities (see Section 3.14[a]). Construction of the distribution system would not change local police protection response times or affect demand for police protection services in the project area. Therefore, there would be **no impact** to police protection.

Schools?

No Impact. The project would not involve a housing component that would result in population growth and increased demands on existing schools within the area. Therefore, **no impact** to schools would occur.

Parks?

No Impact. The project would not involve a housing component or increase employment opportunities that would result in population growth. Therefore, additional demands on existing public parks would not occur as a result of project implementation and there would be **no impact.**

Other public facilities?

No Impact. Refer to the responses above. Since the project would not involve any housing or increase in employment opportunities within the area, there would be **no impact** on other public facilities.

3.16 Recreation

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

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

No Impact. The proposed project would not involve a housing component or substantially increase employment opportunities within the area; therefore, the project would not increase the use of existing neighborhood and regional parks or other recreational facilities and there would be **no impact.**

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

No Impact. The project would not affect existing recreational resources or require the need for new or expanded recreational facilities. Therefore, there would be **no impact** associated with recreational facilities.

3.17 Transportation

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

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

Less-Than-Significant Impact. The project has the potential to create temporary lane closures, sidewalk closures, and bicycle lane closures during installation of pipelines within Antonio Parkway, Oso Parkway, and Meandering Trail, which may increase congestion during peak travel times due to a decrease of vehicle lane capacity. Any potential lane and driveway closures would be coordinated with area residents, businesses to provide proper access. In addition, SMWD would obtain an Encroachment Permit from the County of Orange for work in County streets (i.e., Antonio Parkway, Oso Parkway, and Meandering Trail), and would be required to prepare a traffic control plan to minimize impacts to area roadways. With implementation of the traffic control plan, construction impacts would be **less than significant.**

Once constructed, the pipelines would be below the surface of the roadways and would require only occasional maintenance. Impacts due to operation of the project would therefore be **less than significant.**

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

No Impact. CEQA Guidelines Section 15064.3 subdivision (b) sets forth specific criteria for determining the significance of transportation impacts. Subdivision (b) pertains to land use projects and describes factors that may indicate whether the amount of a land use project's vehicle miles traveled may be significant or not. Project-related traffic would be limited predominantly to a relatively small number of temporary trips during the construction period and an occasional trip for maintenance purposes. Because the project is not a land use project and would not generate substantial vehicle miles traveled, the project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) and **no impact** would result.

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

Less-Than-Significant Impact. The proposed project would use existing roadways and would not involve permanent alteration of existing roadways, nor would it require incompatible vehicular access. As discussed previously, the project has the potential to create temporary lane closures, sidewalk closures, and bicycle lane closures during installation of pipelines within Antonio Parkway, Oso Parkway, and Meandering Trail, which may increase hazards to users of those facilities. Heavy machinery would also be used during construction of the project; however, operation of all construction machinery would be conducted in accordance with the procedures set forth within the project's traffic control plan as required by the County. SMWD would obtain an Encroachment Permit from the County and would be required to prepare a traffic control plan to minimize impacts to area roadways. With implementation of the traffic control plan, the project's increase in potential hazards would be **less than significant.**

d) ***Would the project result in inadequate emergency access?***

Less-Than-Significant Impact. As discussed previously, construction activities related to the lift station conversion and pipeline installation within the unpaved access road would not affect normal circulation flow or emergency access, as those portions of the project site are outside of public rights-of way and emergency access routes. Construction along the paved portions of the road within the public ROWs could potentially result in temporary lane closures. However, any lane or driveway closures would be coordinated with the County of Orange and all local emergency service providers as part of the Encroachment Permit process, which sets forth requirements for traffic control measures to be implemented, including measures to preserve access in the case of an emergency. In addition, SMWD will notice the neighborhood regarding dates for construction, hours of construction activities, and access requirements for emergency vehicles and residents. Once constructed, the proposed recycled water distribution system would be entirely underground or within the existing footprint of the Las Flores Lift Station and would not impair or interfere with the applicable emergency access. Therefore, impacts would be **less than significant.**

3.18 Tribal Cultural Resources

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES				
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☒	☐	☐

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☒	☐	☐

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

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

Less-Than-Significant Impact with Mitigation Incorporated. As previously discussed in Section 3.5, two previously recorded archaeological resources (CA-LAN-36/H and CA-LAN-899/H) were identified within SCCIC records to fall within the project APE, and a number of additional sites are recorded in the surrounding vicinity. CA-LAN-36/H, the ethnohistoric Native American community of Rancho Trabuco, was last documented in 1949. CA-LAN-899/H, a prehistoric lithic scatter, was last documented in 1980 and was noted to be at risk of destruction. These resources were not identified within the APE during the archaeological survey, and have likely been destroyed. Based on geomorphological evidence and the level of previous disturbance, areas within existing roads have a low potential to contain unanticipated cultural resources. The portion of the APE that includes the unpaved access road north of Oso Parkway has a moderate potential to contain unanticipated cultural deposits. Additionally, the NAHC Sacred Lands File search did not indicate that cultural resources are in present in the project area; however, as discussed further below, Native American outreach for the project suggests that the area is of high cultural value to the Juaneno Band of Mission Indians community, although no resources have been identified within the APE. For these reasons, MM-CUL-1 shall be required for the portion of the APE that includes the unpaved access road north of Oso Parkway. With implementation of MM-CUL-1, the project would not cause a substantial adverse change in the significance of a tribal cultural resource 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). Therefore, impacts would be less than significant with mitigation incorporated.

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

Less-Than-Significant Impact with Mitigation Incorporated. As discussed previously, two previously recorded archaeological resources records to fall within the project APE, and a number of additional sites are recorded in the surrounding vicinity. These resources were not identified within the APE during the archaeological survey, and have likely been destroyed. Additionally, SMWD consulted tribes that have previously requested consultation pursuant to Assembly Bill (AB) 52. To date, the following four tribes responded: Agua Caliente Band of Cahuilla Indians, Pala Band of Mission Indians, Rincon Band of Luiseno Indians, and Juaneño Band of Mission Indians, Acjachemen Nation. The Agua Caliente Band of Cahuilla Indians, Pala Band of Mission Indians, and Rincon Band of Luiseno Indians have indicated that the project site is not located within a cultural significant area to any of the tribes, and they defer to the tribes in closer proximity to the area. The Juaneño Band of Mission Indians, Acjachemen Nation indicated that the project site is culturally sensitive to the tribe, and requested formal consultation pursuant to AB 52. On April 10, 2020, Don Bunts and Karla Houlihan, representing SMWD, consulted with Joyce Perry, representing the Juaneño Band of Mission Indians, Acjachemen Nation. During consultation, Mr. Bunts and Ms. Houlihan provided Ms. Perry with an overview of the project, and explained that SMWD would have an archaeological monitor on the jobsite during times excavation will be taking place within the portion of the APE that includes the unpaved access road north of Oso Parkway (per MM-CUL-1), and that the monitor would contact a representative from the Juaneño Band of Mission Indians, Acjachemen Nation if there were to be any indication of the presence of any archeological items of interest related to Native Americans. As a result of the consultation, SMWD and Juaneño Band of Mission Indians, Acjachemen Nation agreed to close consultation, and Ms. Perry requested that SMWD provide her with an electronic copy of the project's archaeological assessment, as well as an electronic version of this IS/MND. No tribal cultural resources were identified within the APE as a result of tribal consultation. Therefore, with implementation of MM-CUL-1, impacts would be less than significant with mitigation incorporated.

3.19 Utilities and Service Systems

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☐	☒
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

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

Less-Than-Significant Impact. The project involves the construction of a new recycled water system within existing SMWD easements. However, any potential environmental impacts related to installation of new water facilities are already accounted for in this IS/MND as part of the impact assessment conducted for the entirety of the proposed project. No adverse physical effects beyond those already disclosed in this IS/MND would occur as a result of installation of new water facilities. As such, impacts associated with the installation of new water facilities would be **less than significant**

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

No Impact. Upon completion, the project would permanently convert a total of 209 AFY of irrigation demand from potable to recycled water. Consequently, the project would expand SMWD's potable water supplies, and **no impact** would occur.

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

No Impact. Upon completion, the project would permanently convert a total of 209 AFY of irrigation demand from potable to recycled water. As such, the project would not result in an increased demand for wastewater treatment, and **no impact** would occur.

d) ***Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?***

Less-Than-Significant Impact. Waste generation and disposal requirements associated with the proposed project would be limited to minor quantities derived from construction activities (e.g., material packaging) and employees (e.g., food-related trash). Solid waste from the project would be disposed of at the County's Prima Deshecha Landfill south of the project site near San Juan Capistrano. The Prima Deshecha Landfill has a remaining capacity of 134,300,000 cubic yards and a maximum permitted throughput of 4,000 tons per day (CalRecycle 2019). Therefore, given the minimal waste that would be produced by the project and the remaining capacity and permitted throughput of Prima Deshecha Landfill, it is anticipated that the landfill would sufficient capacity to accommodate the minimal amount of project-related waste. Associated potential impacts from project implementation would be **less than significant.**

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

No Impact. Construction and operation of the proposed project would generate minimal solid waste and would not affect landfill capacity. During construction of the project, construction debris (e.g., excavated soil, asphalt) would be generated. Solid waste debris would be disposed of at a permitted landfill. Moreover, AB 939, also known as the Integrated Waste Management Act, mandates the reduction of solid waste disposal in landfills by requiring a minimum of 50% diversion rate. Accordingly, at least half of the potential construction waste would be diverted from a landfill. The remaining quantity is reasonably anticipated to be within the permitted capacity of the permitted landfills serving the project area. Therefore, **no impact** related to solid waste would occur.

3.20 Wildfire

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XX. **WILDFIRE** – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

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

Less-Than-Significant Impact. As discussed in Section 3.9, Hazards and Hazardous Materials, the County of Orange identifies the project area as being within, or in close proximity to, very high fire hazard severity zones, and the County has a number of emergency response plans in place should an emergency or disaster occur. However, as discussed in Section 3.9(f), construction activities related to the lift station conversion and pipeline installation within the unpaved access road would not obstruct the normal flow of traffic or require any lane closures, which could interfere with an emergency evacuation route. Construction along the paved portions of the road could potentially result in temporary lane closures. However, any lane closures would be coordinated with the County of Orange as part of the encroachment permit process, which sets forth requirements for traffic control measures to be implemented, including measures to preserve access in the case of an emergency. In addition, SMWD will notice the neighborhood regarding dates for construction, hours of construction activities, and access requirements for emergency vehicles and residents. Once constructed, the proposed recycled water distribution system would be entirely underground or within the existing footprint of the Las Flores Lift Station and would not impair or interfere with the applicable emergency response plans. Therefore, the project would not interfere with an adopted emergency response plan or evacuation plan, and impacts would be **less than significant.**

b) Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less-Than-Significant Impact. As discussed previously, the project site is within close proximity to, very high fire hazard severity zones. However, once constructed, the proposed recycled water distribution system would be entirely underground in streets or within the existing footprint of the Las Flores Lift Station and would not introduce new project occupants to the project site. Consequently, in the case of a wildfire, project implementation would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would be **less than significant.**

c) ***Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?***

Less-Than-Significant Impact. The proposed project would involve the installation and maintenance of infrastructure within, or in close proximity to, very high fire hazard severity zones. However, once constructed, the proposed recycled water distribution system would be entirely underground in streets or within the existing footprint of the Las Flores Lift Station and would not exacerbate fire risk. On the contrary, the project involves the installation of a recycled water irrigation system, which could potentially mitigate wildfire risks by ensuring that landscaping within the Las Flores community is well-irrigated even during times of drought. Additionally, while the project would result in temporary impacts to the environment associated with the installation of infrastructure within, or in close proximity to, very high fire hazard severity zones, as discussed throughout this IS/MND, all project impacts are at, or have been sufficiently mitigated to, less-than-significant levels. Therefore, impacts associated with the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment would be **less than significant.**

d) ***Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?***

Less-Than-Significant Impact. As discussed in Section 3.10, Hydrology and Water Quality, once construction is completed, the project site would be restored to a condition similar to that of the existing conditions. Therefore, because the project would not result in a permanent change to ground surfaces or topography, the project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Impacts would be **less than significant.**

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

	Potentially Significant Impact	Less-Than Significant-Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less-Than-Significant Impact With Mitigation Incorporated. As discussed in Section 3.4, Biological Resources, potential indirect impacts could occur to sensitive vegetation communities. Although the project site occurs within an urban setting and there is an existing, baseline level of disturbance, indirect impacts associated with construction noise could be significant to coastal California gnatcatcher if impacts occur during the breeding/nesting season. Implementation of MM-BIO-1 and MM-BIO-2 would reduce these indirect impacts to less than significant.

In addition, it is always possible that intact archaeological deposits are present at subsurface levels. For this reason, the project site should be treated as potentially sensitive for archaeological resources. Therefore, MM-CUL-1 is recommended to reduce potential impacts to unanticipated archaeological resources to less than significant. Furthermore, in the event that intact paleontological resources are located on the project site, ground-disturbing activities associated with construction of the proposed project, such as excavating during site preparation, have the potential to destroy a unique paleontological resource or site. Without mitigation, the potential damage to paleontological resources during construction would be a potentially significant impact. However, upon implementation of MM-GEO-1, impacts would be reduced to below a level of significance.

Therefore, impacts would be less than significant with mitigation incorporated.

b) ***Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?***

Less-Than-Significant Impact With Mitigation Incorporated. When evaluating cumulative impacts, it is important to remain consistent with Section 15064(h) of the CEQA Guidelines, which states that an EIR must be prepared if the cumulative impact may be significant and the project's incremental effect, though individually limited, is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

Alternatively, a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable through mitigation measures set forth in an MND or if the project will comply with the requirements in a previously approved plan or mitigation program (including, but not limited to, water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, plans or regulations for the reduction of greenhouse gas emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located.

The proposed project would potentially result in project-related biological resources, cultural resources, geological resources, and tribal cultural resources impacts that could be potentially significant without the incorporation of mitigation. Thus, when coupled with biological resources, cultural resources, geological resources, and tribal cultural resources impacts related to the implementation of other related projects throughout the broader project area, the project would potentially result in cumulative-level impacts if these significant impacts are left unmitigated.

However, with the incorporation of mitigation identified herein, the project's impacts to biological resources, cultural resources, geological resources, and tribal cultural resources would be reduced to less-than-significant levels and would not considerably contribute to cumulative impacts in the greater project region. In addition, these other related projects would presumably be bound by their applicable lead agency to (1) comply with the all applicable federal, state, and local regulatory requirements; and (2) incorporate all feasible mitigation measures, consistent with CEQA, to further ensure that their potentially cumulative impacts would be reduced to less-than-significant levels.

Although cumulative impacts are always possible, the project, by incorporating all mitigation measures outlined herein, would reduce its contribution to any such cumulative impacts to less than cumulatively considerable; therefore, the project would result in individually limited, but not cumulatively considerable, **less-than-significant impacts with mitigation incorporated.**

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

Less-Than-Significant Impact. As evaluated throughout this IS/MND, environmental impacts associated with the proposed project would be reduced to less-than-significant levels. Thus, the proposed project would not directly or indirectly cause substantial adverse effects on human beings. Impacts would be **less than significant.**

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4.2 List of Preparers

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Dennis Pascua, Transportation Planner
Carrie Kubaki, Geographic Information Systems Specialist
Nicole Sanchez-Sullivan, Technical Editor
Chelsea Ringenback, Senior Publications Specialist

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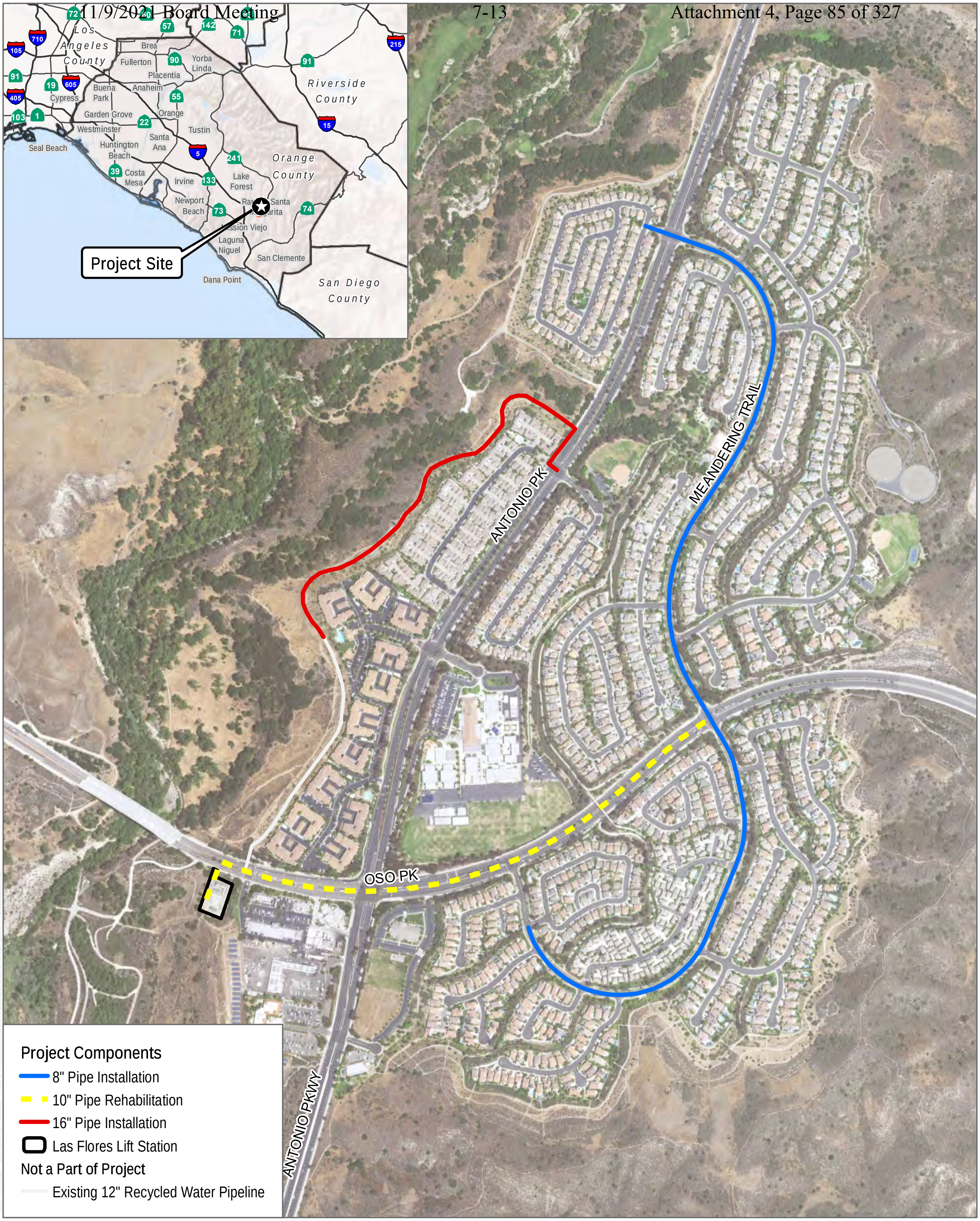

SOURCE: NAIP 2016; Orange County 2018

DUDEK

0 400 800 Feet

FIGURE 1

Project Location

Las Flores Enhanced Water Reliability Project

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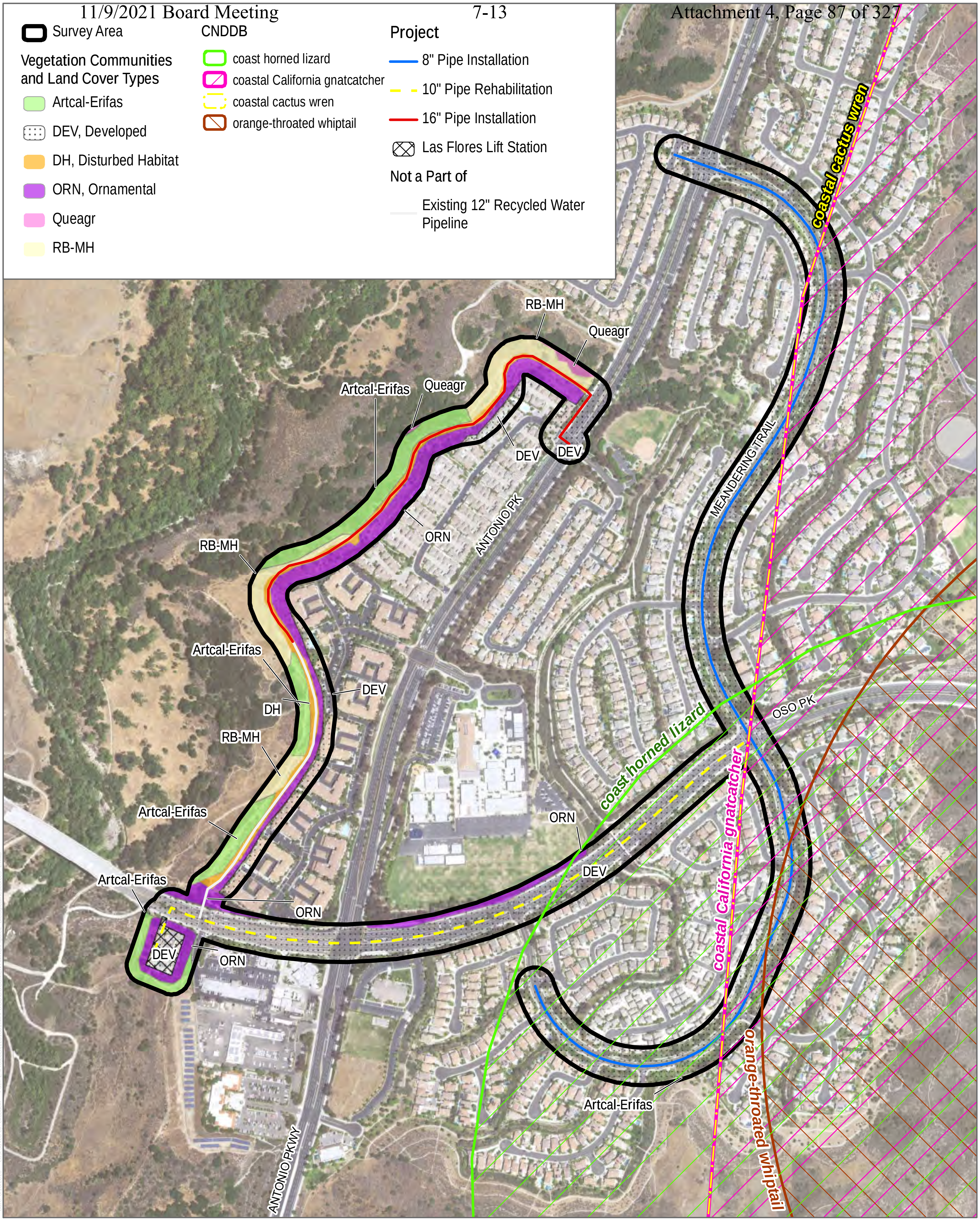

SOURCE: NAIP 2016; Orange County 2018

DUDEK

0 340 680 Feet

FIGURE 2

Biological Resources Map

Las Flores Enhanced Water Reliability Project

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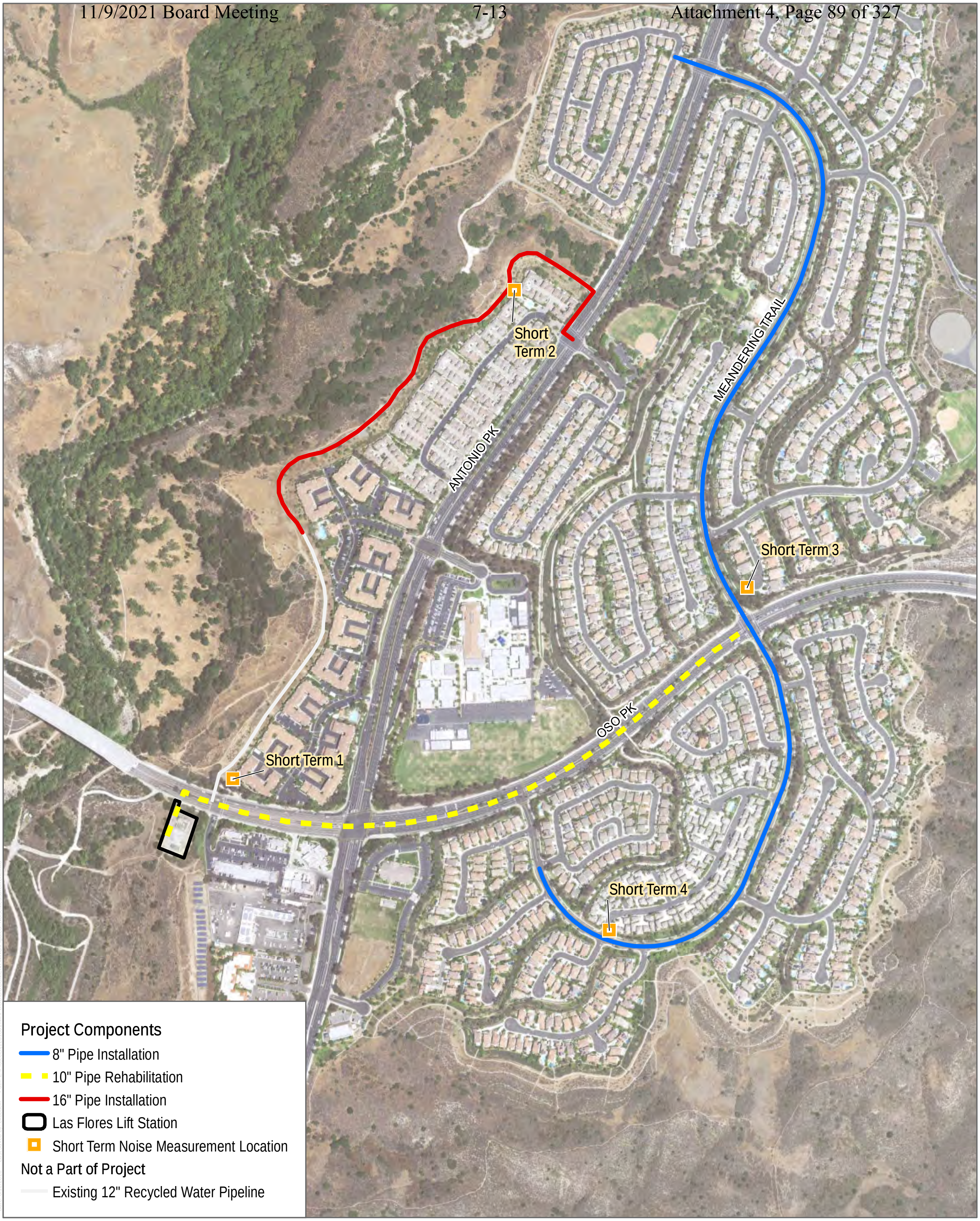

SOURCE: NAIP 2016; Orange County 2018

DUDEK

FIGURE 3
Noise Measurement Locations
Las Flores Enhanced Water Reliability Project

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Appendix A

Air Quality and GHG Emission Calculations

SMWD Las Flores Recycled Water Pipeline Project

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	70.00	1000sqft	1.61	70,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2022
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	448.3	**CH4 Intensity (lb/MWhr)**	0.018	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted GHG intensity factors based on 2017 Power Content Label for SDG&E

Land Use - Per SMWD, approximately 40,200 SF would be graded/disturbed for pipe trenching, and 70,000 SF area would be paved

Construction Phase - Adjusted construction phases and duration based on input from SMWD

Off-road Equipment - Revised equipment list based on input from SMWD

Trips and VMT - Revised construction trips based on input from SMWD

Grading - Approximately 7,500 CY of soils to be exported

Area Coating - No operational architectural coatings

Energy Use -

Construction Off-road Equipment Mitigation - Water Exposed Area, Frequency: 2 times per day. Unpaved Road Mitigation, Vehicle Speed: 15 mph.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	4200	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	2.00	18.00
tblConstructionPhase	NumDays	4.00	173.00
tblConstructionPhase	NumDays	200.00	130.00
tblConstructionPhase	NumDays	10.00	6.00
tblConstructionPhase	NumDays	200.00	5.00
tblGrading	AcresOfGrading	0.00	1.60
tblGrading	MaterialExported	0.00	7,500.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	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	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.018
tblProjectCharacteristics	CO2IntensityFactor	720.49	448.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblTripsAndVMT	HaulingTripNumber	0.00	72.00
tblTripsAndVMT	HaulingTripNumber	0.00	24.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	11.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	11.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	8.00
tblTripsAndVMT	WorkerTripNumber	10.00	8.00
tblTripsAndVMT	WorkerTripNumber	29.00	6.00
tblTripsAndVMT	WorkerTripNumber	29.00	8.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
2020	1.1918	13.6216	12.3294	0.0280	0.4565	0.6605	1.0762	0.1217	0.6083	0.7197	0.0000	2,860.8615	2,860.8615	0.6173	0.0000	2,876.2935
2021	1.6417	12.4357	10.9280	0.0241	0.6242	0.5748	1.1990	0.1626	0.5292	0.6917	0.0000	2,463.0999	2,463.0999	0.5200	0.0000	2,476.1005
Maximum	**1.6417**	**13.6216**	**12.3294**	**0.0280**	**0.6242**	**0.6605**	**1.1990**	**0.1626**	**0.6083**	**0.7197**	**0.0000**	**2,860.8615**	**2,860.8615**	**0.6173**	**0.0000**	**2,876.2935**

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
2020	1.1918	13.6216	12.3294	0.0280	0.4485	0.6605	1.0681	0.1207	0.6083	0.7187	0.0000	2,860.8615	2,860.8615	0.6173	0.0000	2,876.2935
2021	1.6417	12.4357	10.9280	0.0241	0.6161	0.5748	1.1909	0.1616	0.5292	0.6907	0.0000	2,463.0999	2,463.0999	0.5200	0.0000	2,476.1005
Maximum	**1.6417**	**13.6216**	**12.3294**	**0.0280**	**0.6161**	**0.6605**	**1.1909**	**0.1616**	**0.6083**	**0.7187**	**0.0000**	**2,860.8615**	**2,860.8615**	**0.6173**	**0.0000**	**2,876.2935**

	ROG	**NOx**	**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**	**1.50**	**0.00**	**0.71**	**0.70**	**0.00**	**0.14**	**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	0.0255	7.0000e-005	7.1600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0163
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
Total	**0.0255**	**7.0000e-005**	**7.1600e-003**	**0.0000**	**0.0000**	**3.0000e-005**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**3.0000e-005**		**0.0153**	**0.0153**	**4.0000e-005**	**0.0000**	**0.0163**

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	0.0255	7.0000e-005	7.1600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0163
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
Total	**0.0255**	**7.0000e-005**	**7.1600e-003**	**0.0000**	**0.0000**	**3.0000e-005**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**3.0000e-005**		**0.0153**	**0.0153**	**4.0000e-005**	**0.0000**	**0.0163**

	ROG	**NOx**	**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	Site Preparation	Site Preparation	6/7/2020	7/1/2020	5	18	
2	Pipeline Trenching/Grading	Grading	7/1/2020	2/26/2021	5	173	
3	Conversion of Lift Station	Building Construction	11/1/2020	5/1/2021	5	130	
4	Paving	Paving	3/1/2021	3/8/2021	5	6	
5	Demobilization	Building Construction	4/24/2021	4/30/2021	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.61

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	6.00	158	0.38
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rough Terrain Forklifts	1	6.00	100	0.40
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Pipeline Trenching/Grading	Excavators	1	6.00	158	0.38
Pipeline Trenching/Grading	Graders	0	0.00	187	0.41
Pipeline Trenching/Grading	Rough Terrain Forklifts	1	6.00	100	0.40
Pipeline Trenching/Grading	Rubber Tired Dozers	0	0.00	247	0.40
Pipeline Trenching/Grading	Sweepers/Scrubbers	1	2.00	64	0.46
Pipeline Trenching/Grading	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Pipeline Trenching/Grading	Trenchers	1	6.00	78	0.50
Conversion of Lift Station	Cranes	0	0.00	231	0.29
Conversion of Lift Station	Forklifts	0	0.00	89	0.20

Conversion of Lift Station	Generator Sets	0	0.00	84	0.74
Conversion of Lift Station	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Conversion of Lift Station	Trenchers	1	4.00	78	0.50
Conversion of Lift Station	Welders	0	0.00	46	0.45
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	0	0.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Demobilization	Cranes	0	0.00	231	0.29
Demobilization	Excavators	1	6.00	158	0.38
Demobilization	Forklifts	1	6.00	89	0.20
Demobilization	Generator Sets	0	0.00	84	0.74
Demobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Demobilization	Welders	0	0.00	46	0.45

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
Site Preparation	2	8.00	4.00	72.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline Trenching/Grading	4	8.00	8.00	938.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Conversion of Lift Station	2	6.00	12.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	10.00	24.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demobilization	2	8.00	2.00	20.00	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

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2839	3.1070	4.1735	6.4600e-003		0.1419	0.1419		0.1306	0.1306		625.3492	625.3492	0.2023		630.4055
Total	**0.2839**	**3.1070**	**4.1735**	**6.4600e-003**	**0.0000**	**0.1419**	**0.1419**	**0.0000**	**0.1306**	**0.1306**		**625.3492**	**625.3492**	**0.2023**		**630.4055**

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	0.0302	1.0999	0.2779	3.0600e-003	0.0697	3.5600e-003	0.0732	0.0191	3.4100e-003	0.0225		341.2232	341.2232	0.0354		342.1074
Vendor	0.0128	0.4167	0.1100	1.0000e-003	0.0256	2.1700e-003	0.0277	7.3500e-003	2.0800e-003	9.4300e-003		108.4516	108.4516	8.7700e-003		108.6709
Worker	0.0307	0.0194	0.2619	8.7000e-004	0.0894	5.9000e-004	0.0900	0.0237	5.4000e-004	0.0243		87.2035	87.2035	1.9900e-003		87.2532
Total	**0.0737**	**1.5360**	**0.6498**	**4.9300e-003**	**0.1846**	**6.3200e-003**	**0.1910**	**0.0501**	**6.0300e-003**	**0.0562**		**536.8782**	**536.8782**	**0.0461**		**538.0315**

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	0.2839	3.1070	4.1735	6.4600e-003		0.1419	0.1419		0.1306	0.1306	0.0000	625.3492	625.3492	0.2023		630.4055
Total	**0.2839**	**3.1070**	**4.1735**	**6.4600e-003**	**0.0000**	**0.1419**	**0.1419**	**0.0000**	**0.1306**	**0.1306**	**0.0000**	**625.3492**	**625.3492**	**0.2023**		**630.4055**

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	0.0302	1.0999	0.2779	3.0600e-003	0.0697	3.5600e-003	0.0732	0.0191	3.4100e-003	0.0225		341.2232	341.2232	0.0354		342.1074
Vendor	0.0128	0.4167	0.1100	1.0000e-003	0.0256	2.1700e-003	0.0277	7.3500e-003	2.0800e-003	9.4300e-003		108.4516	108.4516	8.7700e-003		108.6709
Worker	0.0307	0.0194	0.2619	8.7000e-004	0.0894	5.9000e-004	0.0900	0.0237	5.4000e-004	0.0243		87.2035	87.2035	1.9900e-003		87.2532
Total	**0.0737**	**1.5360**	**0.6498**	**4.9300e-003**	**0.1846**	**6.3200e-003**	**0.1910**	**0.0501**	**6.0300e-003**	**0.0562**		**536.8782**	**536.8782**	**0.0461**		**538.0315**

3.3 Pipeline Trenching/Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0147	0.0000	0.0147	1.8000e-003	0.0000	1.8000e-003			0.0000			0.0000
Off-Road	0.6662	6.5362	6.6476	9.6200e-003		0.4018	0.4018		0.3697	0.3697		932.0024	932.0024	0.3014		939.5381
Total	**0.6662**	**6.5362**	**6.6476**	**9.6200e-003**	**0.0147**	**0.4018**	**0.4166**	**1.8000e-003**	**0.3697**	**0.3715**		**932.0024**	**932.0024**	**0.3014**		**939.5381**

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	0.0409	1.4909	0.3767	4.1500e-003	0.1167	4.8300e-003	0.1215	0.0313	4.6200e-003	0.0359		462.5250	462.5250	0.0479		463.7236
Vendor	0.0256	0.8334	0.2200	1.9900e-003	0.0511	4.3500e-003	0.0555	0.0147	4.1600e-003	0.0189		216.9032	216.9032	0.0175		217.3417
Worker	0.0307	0.0194	0.2619	8.7000e-004	0.0894	5.9000e-004	0.0900	0.0237	5.4000e-004	0.0243		87.2035	87.2035	1.9900e-003		87.2532
Total	**0.0972**	**2.3437**	**0.8585**	**7.0100e-003**	**0.2572**	**9.7700e-003**	**0.2670**	**0.0697**	**9.3200e-003**	**0.0791**		**766.6317**	**766.6317**	**0.0675**		**768.3185**

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					6.6200e-003	0.0000	6.6200e-003	8.1000e-004	0.0000	8.1000e-004			0.0000			0.0000
Off-Road	0.6662	6.5362	6.6476	9.6200e-003		0.4018	0.4018		0.3697	0.3697	0.0000	932.0024	932.0024	0.3014		939.5381
Total	**0.6662**	**6.5362**	**6.6476**	**9.6200e-003**	**6.6200e-003**	**0.4018**	**0.4085**	**8.1000e-004**	**0.3697**	**0.3705**	**0.0000**	**932.0024**	**932.0024**	**0.3014**		**939.5381**

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	0.0409	1.4909	0.3767	4.1500e-003	0.1167	4.8300e-003	0.1215	0.0313	4.6200e-003	0.0359		462.5250	462.5250	0.0479		463.7236

Vendor	0.0256	0.8334	0.2200	1.9900e-003	0.0511	4.3500e-003	0.0555	0.0147	4.1600e-003	0.0189		216.9032	216.9032	0.0175		217.3417
Worker	0.0307	0.0194	0.2619	8.7000e-004	0.0894	5.9000e-004	0.0900	0.0237	5.4000e-004	0.0243		87.2035	87.2035	1.9900e-003		87.2532
Total	**0.0972**	**2.3437**	**0.8585**	**7.0100e-003**	**0.2572**	**9.7700e-003**	**0.2670**	**0.0697**	**9.3200e-003**	**0.0791**		**766.6317**	**766.6317**	**0.0675**		**768.3185**

3.3 Pipeline Trenching/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					0.0147	0.0000	0.0147	1.8000e-003	0.0000	1.8000e-003			0.0000			0.0000
Off-Road	0.6083	5.9726	6.6170	9.6300e-003		0.3543	0.3543		0.3259	0.3259		932.2069	932.2069	0.3015		939.7443
Total	**0.6083**	**5.9726**	**6.6170**	**9.6300e-003**	**0.0147**	**0.3543**	**0.3690**	**1.8000e-003**	**0.3259**	**0.3277**		**932.2069**	**932.2069**	**0.3015**		**939.7443**

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	0.0391	1.3783	0.3787	4.0900e-003	0.3252	4.3300e-003	0.3295	0.0825	4.1400e-003	0.0866		456.8645	456.8645	0.0474		458.0486
Vendor	0.0214	0.7505	0.2035	1.9700e-003	0.0511	1.5600e-003	0.0527	0.0147	1.4900e-003	0.0162		215.0340	215.0340	0.0169		215.4555
Worker	0.0289	0.0175	0.2430	8.4000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		84.1755	84.1755	1.8000e-003		84.2206
Total	**0.0893**	**2.1463**	**0.8252**	**6.9000e-003**	**0.4657**	**6.4700e-003**	**0.4722**	**0.1209**	**6.1600e-003**	**0.1271**		**756.0740**	**756.0740**	**0.0660**		**757.7248**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					6.6200e-003	0.0000	6.6200e-003	8.1000e-004	0.0000	8.1000e-004			0.0000			0.0000
Off-Road	0.6083	5.9726	6.6170	9.6300e-003		0.3543	0.3543		0.3259	0.3259	0.0000	932.2069	932.2069	0.3015		939.7443
Total	**0.6083**	**5.9726**	**6.6170**	**9.6300e-003**	**6.6200e-003**	**0.3543**	**0.3609**	**8.1000e-004**	**0.3259**	**0.3267**	**0.0000**	**932.2069**	**932.2069**	**0.3015**		**939.7443**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0391	1.3783	0.3787	4.0900e-003	0.3252	4.3300e-003	0.3295	0.0825	4.1400e-003	0.0866		456.8645	456.8645	0.0474		458.0486
Vendor	0.0214	0.7505	0.2035	1.9700e-003	0.0511	1.5600e-003	0.0527	0.0147	1.4900e-003	0.0162		215.0340	215.0340	0.0169		215.4555
Worker	0.0289	0.0175	0.2430	8.4000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		84.1755	84.1755	1.8000e-003		84.2206
Total	**0.0893**	**2.1463**	**0.8252**	**6.9000e-003**	**0.4657**	**6.4700e-003**	**0.4722**	**0.1209**	**6.1600e-003**	**0.1271**		**756.0740**	**756.0740**	**0.0660**		**757.7248**

3.4 Conversion of Lift Station - 2020

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	0.3670	3.4771	3.0279	4.0100e-003		0.2420	0.2420		0.2226	0.2226		388.9824	388.9824	0.1258		392.1275

Total	**0.3670**	**3.4771**	**3.0279**	**4.0100e-003**		**0.2420**	**0.2420**		**0.2226**	**0.2226**		**388.9824**	**388.9824**	**0.1258**		**392.1275**

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	0.0383	1.2501	0.3300	2.9900e-003	0.0767	6.5200e-003	0.0832	0.0221	6.2400e-003	0.0283		325.3547	325.3547	0.0263		326.0126
Worker	0.0231	0.0145	0.1964	6.6000e-004	0.0671	4.4000e-004	0.0675	0.0178	4.1000e-004	0.0182		65.4026	65.4026	1.4900e-003		65.4399
Total	**0.0614**	**1.2647**	**0.5264**	**3.6500e-003**	**0.1437**	**6.9600e-003**	**0.1507**	**0.0399**	**6.6500e-003**	**0.0465**		**390.7573**	**390.7573**	**0.0278**		**391.4525**

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	0.3670	3.4771	3.0279	4.0100e-003		0.2420	0.2420		0.2226	0.2226	0.0000	388.9824	388.9824	0.1258		392.1275
Total	**0.3670**	**3.4771**	**3.0279**	**4.0100e-003**		**0.2420**	**0.2420**		**0.2226**	**0.2226**	**0.0000**	**388.9824**	**388.9824**	**0.1258**		**392.1275**

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	0.0383	1.2501	0.3300	2.9900e-003	0.0767	6.5200e-003	0.0832	0.0221	6.2400e-003	0.0283		325.3547	325.3547	0.0263		326.0126
Worker	0.0231	0.0145	0.1964	6.6000e-004	0.0671	4.4000e-004	0.0675	0.0178	4.1000e-004	0.0182		65.4026	65.4026	1.4900e-003		65.4399
Total	**0.0614**	**1.2647**	**0.5264**	**3.6500e-003**	**0.1437**	**6.9600e-003**	**0.1507**	**0.0399**	**6.6500e-003**	**0.0465**		**390.7573**	**390.7573**	**0.0278**		**391.4525**

3.4 Conversion of Lift Station - 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	0.3317	3.1779	2.9983	4.0200e-003		0.2113	0.2113		0.1944	0.1944		389.1363	389.1363	0.1259		392.2827
Total	**0.3317**	**3.1779**	**2.9983**	**4.0200e-003**		**0.2113**	**0.2113**		**0.1944**	**0.1944**		**389.1363**	**389.1363**	**0.1259**		**392.2827**

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Vendor	0.0320	1.1258	0.3053	2.9600e-003	0.0767	2.3400e-003	0.0790	0.0221	2.2400e-003	0.0243		322.5510	322.5510	0.0253		323.1833
Worker	0.0217	0.0131	0.1822	6.3000e-004	0.0671	4.3000e-004	0.0675	0.0178	4.0000e-004	0.0182		63.1317	63.1317	1.3500e-003		63.1655
Total	**0.0537**	**1.1389**	**0.4876**	**3.5900e-003**	**0.1437**	**2.7700e-003**	**0.1465**	**0.0399**	**2.6400e-003**	**0.0425**		**385.6827**	**385.6827**	**0.0266**		**386.3488**

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	0.3317	3.1779	2.9983	4.0200e-003		0.2113	0.2113		0.1944	0.1944	0.0000	389.1363	389.1363	0.1259		392.2827
Total	**0.3317**	**3.1779**	**2.9983**	**4.0200e-003**		**0.2113**	**0.2113**		**0.1944**	**0.1944**	**0.0000**	**389.1363**	**389.1363**	**0.1259**		**392.2827**

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	0.0320	1.1258	0.3053	2.9600e-003	0.0767	2.3400e-003	0.0790	0.0221	2.2400e-003	0.0243		322.5510	322.5510	0.0253		323.1833
Worker	0.0217	0.0131	0.1822	6.3000e-004	0.0671	4.3000e-004	0.0675	0.0178	4.0000e-004	0.0182		63.1317	63.1317	1.3500e-003		63.1655
Total	**0.0537**	**1.1389**	**0.4876**	**3.5900e-003**	**0.1437**	**2.7700e-003**	**0.1465**	**0.0399**	**2.6400e-003**	**0.0425**		**385.6827**	**385.6827**	**0.0266**		**386.3488**

3.5 Paving - 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	0.4689	4.8326	4.9992	7.4600e-003		0.2705	0.2705		0.2489	0.2489		722.4290	722.4290	0.2337		728.2702
Paving	0.7030					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1720**	**4.8326**	**4.9992**	**7.4600e-003**		**0.2705**	**0.2705**		**0.2489**	**0.2489**		**722.4290**	**722.4290**	**0.2337**		**728.2702**

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	0.0288	1.0169	0.2794	3.0200e-003	0.0696	3.1900e-003	0.0728	0.0191	3.0600e-003	0.0221		337.0471	337.0471	0.0349		337.9207
Vendor	0.0267	0.9381	0.2544	2.4700e-003	0.0639	1.9500e-003	0.0658	0.0184	1.8600e-003	0.0203		268.7925	268.7925	0.0211		269.3194
Worker	0.0289	0.0175	0.2430	8.4000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		84.1755	84.1755	1.8000e-003		84.2206
Total	**0.0844**	**1.9725**	**0.7768**	**6.3300e-003**	**0.2230**	**5.7200e-003**	**0.2287**	**0.0612**	**5.4500e-003**	**0.0666**		**690.0152**	**690.0152**	**0.0578**		**691.4608**

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	0.4689	4.8326	4.9992	7.4600e-003		0.2705	0.2705		0.2489	0.2489	0.0000	722.4290	722.4290	0.2337		728.2702

Paving	0.7030					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1720**	**4.8326**	**4.9992**	**7.4600e-003**		**0.2705**	**0.2705**		**0.2489**	**0.2489**	**0.0000**	**722.4290**	**722.4290**	**0.2337**		**728.2702**

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	0.0288	1.0169	0.2794	3.0200e-003	0.0696	3.1900e-003	0.0728	0.0191	3.0600e-003	0.0221		337.0471	337.0471	0.0349		337.9207
Vendor	0.0267	0.9381	0.2544	2.4700e-003	0.0639	1.9500e-003	0.0658	0.0184	1.8600e-003	0.0203		268.7925	268.7925	0.0211		269.3194
Worker	0.0289	0.0175	0.2430	8.4000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		84.1755	84.1755	1.8000e-003		84.2206
Total	**0.0844**	**1.9725**	**0.7768**	**6.3300e-003**	**0.2230**	**5.7200e-003**	**0.2287**	**0.0612**	**5.4500e-003**	**0.0666**		**690.0152**	**690.0152**	**0.0578**		**691.4608**

3.6 Demobilization - 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	0.2689	2.4994	3.3297	5.0200e-003		0.1411	0.1411		0.1298	0.1298		486.1671	486.1671	0.1572		490.0980
Total	**0.2689**	**2.4994**	**3.3297**	**5.0200e-003**		**0.1411**	**0.1411**		**0.1298**	**0.1298**		**486.1671**	**486.1671**	**0.1572**		**490.0980**

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	0.0288	1.0169	0.2794	3.0200e-003	0.0696	3.1900e-003	0.0728	0.0191	3.0600e-003	0.0221		337.0471	337.0471	0.0349		337.9207
Vendor	5.3400e-003	0.1876	0.0509	4.9000e-004	0.0128	3.9000e-004	0.0132	3.6800e-003	3.7000e-004	4.0500e-003		53.7585	53.7585	4.2200e-003		53.8639
Worker	0.0289	0.0175	0.2430	8.4000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		84.1755	84.1755	1.8000e-003		84.2206
Total	**0.0630**	**1.2220**	**0.5732**	**4.3500e-003**	**0.1718**	**4.1600e-003**	**0.1760**	**0.0465**	**3.9600e-003**	**0.0504**		**474.9812**	**474.9812**	**0.0410**		**476.0052**

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	0.2689	2.4994	3.3297	5.0200e-003		0.1411	0.1411		0.1298	0.1298	0.0000	486.1671	486.1671	0.1572		490.0980
Total	**0.2689**	**2.4994**	**3.3297**	**5.0200e-003**		**0.1411**	**0.1411**		**0.1298**	**0.1298**	**0.0000**	**486.1671**	**486.1671**	**0.1572**		**490.0980**

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	0.0288	1.0169	0.2794	3.0200e-003	0.0696	3.1900e-003	0.0728	0.0191	3.0600e-003	0.0221		337.0471	337.0471	0.0349		337.9207

Vendor	5.3400e-003	0.1876	0.0509	4.9000e-004	0.0128	3.9000e-004	0.0132	3.6800e-003	3.7000e-004	4.0500e-003		53.7585	53.7585	4.2200e-003		53.8639
Worker	0.0289	0.0175	0.2430	8.4000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		84.1755	84.1755	1.8000e-003		84.2206
Total	**0.0630**	**1.2220**	**0.5732**	**4.3500e-003**	**0.1718**	**4.1600e-003**	**0.1760**	**0.0465**	**3.9600e-003**	**0.0504**		**474.9812**	**474.9812**	**0.0410**		**476.0052**

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
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

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-	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	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

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**

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	0.0255	7.0000e-005	7.1600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0163
Unmitigated	0.0255	7.0000e-005	7.1600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0163

6.2 Area by SubCategory

Unmitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0248					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.7000e-004	7.0000e-005	7.1600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0163
Total	**0.0255**	**7.0000e-005**	**7.1600e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0153**	**0.0153**	**4.0000e-005**		**0.0163**

<u>Mitigated</u>

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0248					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.7000e-004	7.0000e-005	7.1600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0163
Total	**0.0255**	**7.0000e-005**	**7.1600e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0153**	**0.0153**	**4.0000e-005**		**0.0163**

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

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

SMWD Las Flores Recycled Water Pipeline Project
Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	70.00	1000sqft	1.61	70,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2022
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	448.3	**CH4 Intensity (lb/MWhr)**	0.018	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted GHG intensity factors based on 2017 Power Content Label for SDG&E

Land Use - Per SMWD, approximately 40,200 SF would be graded/disturbed for pipe trenching, and 70,000 SF area would be paved

Construction Phase - Adjusted construction phases and duration based on input from SMWD

Off-road Equipment - Revised equipment list based on input from SMWD

Trips and VMT - Revised construction trips based on input from SMWD

Grading - Approximately 7,500 CY of soils to be exported

Area Coating - No operational architectural coatings

Energy Use -

Construction Off-road Equipment Mitigation - Water Exposed Area, Frequency: 2 times per day. Unpaved Road Mitigation, Vehicle Speed: 15 mph.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	4200	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	2.00	18.00
tblConstructionPhase	NumDays	4.00	173.00
tblConstructionPhase	NumDays	200.00	130.00
tblConstructionPhase	NumDays	10.00	6.00
tblConstructionPhase	NumDays	200.00	5.00
tblGrading	AcresOfGrading	0.00	1.60
tblGrading	MaterialExported	0.00	7,500.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	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	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.018
tblProjectCharacteristics	CO2IntensityFactor	720.49	448.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblTripsAndVMT	HaulingTripNumber	0.00	72.00
tblTripsAndVMT	HaulingTripNumber	0.00	24.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	11.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	11.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	8.00
tblTripsAndVMT	WorkerTripNumber	10.00	8.00
tblTripsAndVMT	WorkerTripNumber	29.00	6.00
tblTripsAndVMT	WorkerTripNumber	29.00	8.00

2.0 Emissions Summary

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					
2020	1.2026	13.6431	12.3560	0.0278	0.4565	0.6608	1.0765	0.1217	0.6085	0.7199	0.0000	2,831.3848	2,831.3848	0.6204	0.0000	2,846.8944
2021	1.6520	12.4506	10.9634	0.0239	0.6242	0.5751	1.1992	0.1626	0.5294	0.6919	0.0000	2,435.0797	2,435.0797	0.5230	0.0000	2,448.1541
Maximum	**1.6520**	**13.6431**	**12.3560**	**0.0278**	**0.6242**	**0.6608**	**1.1992**	**0.1626**	**0.6085**	**0.7199**	**0.0000**	**2,831.3848**	**2,831.3848**	**0.6204**	**0.0000**	**2,846.8944**

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					
2020	1.2026	13.6431	12.3560	0.0278	0.4485	0.6608	1.0684	0.1207	0.6085	0.7189	0.0000	2,831.3848	2,831.3848	0.6204	0.0000	2,846.8944
2021	1.6520	12.4506	10.9634	0.0239	0.6161	0.5751	1.1912	0.1616	0.5294	0.6910	0.0000	2,435.0797	2,435.0797	0.5230	0.0000	2,448.1541
Maximum	**1.6520**	**13.6431**	**12.3560**	**0.0278**	**0.6161**	**0.6608**	**1.1912**	**0.1616**	**0.6085**	**0.7189**	**0.0000**	**2,831.3848**	**2,831.3848**	**0.6204**	**0.0000**	**2,846.8944**

	ROG	**NOx**	**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**	**1.50**	**0.00**	**0.71**	**0.70**	**0.00**	**0.14**	**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	0.0255	7.0000e-005	7.1600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0163
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
Total	**0.0255**	**7.0000e-005**	**7.1600e-003**	**0.0000**	**0.0000**	**3.0000e-005**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**3.0000e-005**		**0.0153**	**0.0153**	**4.0000e-005**	**0.0000**	**0.0163**

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	0.0255	7.0000e-005	7.1600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0163
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
Total	**0.0255**	**7.0000e-005**	**7.1600e-003**	**0.0000**	**0.0000**	**3.0000e-005**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**3.0000e-005**		**0.0153**	**0.0153**	**4.0000e-005**	**0.0000**	**0.0163**

	ROG	**NOx**	**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	Site Preparation	Site Preparation	6/7/2020	7/1/2020	5	18	
2	Pipeline Trenching/Grading	Grading	7/1/2020	2/26/2021	5	173	
3	Conversion of Lift Station	Building Construction	11/1/2020	5/1/2021	5	130	
4	Paving	Paving	3/1/2021	3/8/2021	5	6	
5	Demobilization	Building Construction	4/24/2021	4/30/2021	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.61

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	6.00	158	0.38
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rough Terrain Forklifts	1	6.00	100	0.40
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Pipeline Trenching/Grading	Excavators	1	6.00	158	0.38
Pipeline Trenching/Grading	Graders	0	0.00	187	0.41
Pipeline Trenching/Grading	Rough Terrain Forklifts	1	6.00	100	0.40
Pipeline Trenching/Grading	Rubber Tired Dozers	0	0.00	247	0.40
Pipeline Trenching/Grading	Sweepers/Scrubbers	1	2.00	64	0.46
Pipeline Trenching/Grading	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Pipeline Trenching/Grading	Trenchers	1	6.00	78	0.50
Conversion of Lift Station	Cranes	0	0.00	231	0.29
Conversion of Lift Station	Forklifts	0	0.00	89	0.20

Conversion of Lift Station	Generator Sets	0	0.00	84	0.74
Conversion of Lift Station	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Conversion of Lift Station	Trenchers	1	4.00	78	0.50
Conversion of Lift Station	Welders	0	0.00	46	0.45
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	0	0.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Demobilization	Cranes	0	0.00	231	0.29
Demobilization	Excavators	1	6.00	158	0.38
Demobilization	Forklifts	1	6.00	89	0.20
Demobilization	Generator Sets	0	0.00	84	0.74
Demobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Demobilization	Welders	0	0.00	46	0.45

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
Site Preparation	2	8.00	4.00	72.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline Trenching/Grading	4	8.00	8.00	938.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Conversion of Lift Station	2	6.00	12.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	10.00	24.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demobilization	2	8.00	2.00	20.00	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

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2839	3.1070	4.1735	6.4600e-003		0.1419	0.1419		0.1306	0.1306		625.3492	625.3492	0.2023		630.4055
Total	**0.2839**	**3.1070**	**4.1735**	**6.4600e-003**	**0.0000**	**0.1419**	**0.1419**	**0.0000**	**0.1306**	**0.1306**		**625.3492**	**625.3492**	**0.2023**		**630.4055**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0310	1.1137	0.2926	3.0200e-003	0.0697	3.6300e-003	0.0733	0.0191	3.4700e-003	0.0225		336.0720	336.0720	0.0362		336.9773
Vendor	0.0133	0.4166	0.1206	9.7000e-004	0.0256	2.2100e-003	0.0278	7.3500e-003	2.1200e-003	9.4700e-003		105.7864	105.7864	9.2100e-003		106.0168
Worker	0.0347	0.0213	0.2420	8.3000e-004	0.0894	5.9000e-004	0.0900	0.0237	5.4000e-004	0.0243		82.5297	82.5297	1.8800e-003		82.5768
Total	**0.0790**	**1.5516**	**0.6552**	**4.8200e-003**	**0.1846**	**6.4300e-003**	**0.1911**	**0.0501**	**6.1300e-003**	**0.0563**		**524.3881**	**524.3881**	**0.0473**		**525.5708**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					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	N2O	CO2e
Off-Road	0.2839	3.1070	4.1735	6.4600e-003		0.1419	0.1419		0.1306	0.1306	0.0000	625.3492	625.3492	0.2023		630.4055
Total	**0.2839**	**3.1070**	**4.1735**	**6.4600e-003**	**0.0000**	**0.1419**	**0.1419**	**0.0000**	**0.1306**	**0.1306**	**0.0000**	**625.3492**	**625.3492**	**0.2023**		**630.4055**

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	0.0310	1.1137	0.2926	3.0200e-003	0.0697	3.6300e-003	0.0733	0.0191	3.4700e-003	0.0225		336.0720	336.0720	0.0362		336.9773
Vendor	0.0133	0.4166	0.1206	9.7000e-004	0.0256	2.2100e-003	0.0278	7.3500e-003	2.1200e-003	9.4700e-003		105.7864	105.7864	9.2100e-003		106.0168
Worker	0.0347	0.0213	0.2420	8.3000e-004	0.0894	5.9000e-004	0.0900	0.0237	5.4000e-004	0.0243		82.5297	82.5297	1.8800e-003		82.5768
Total	**0.0790**	**1.5516**	**0.6552**	**4.8200e-003**	**0.1846**	**6.4300e-003**	**0.1911**	**0.0501**	**6.1300e-003**	**0.0563**		**524.3881**	**524.3881**	**0.0473**		**525.5708**

3.3 Pipeline Trenching/Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0147	0.0000	0.0147	1.8000e-003	0.0000	1.8000e-003			0.0000			0.0000
Off-Road	0.6662	6.5362	6.6476	9.6200e-003		0.4018	0.4018		0.3697	0.3697		932.0024	932.0024	0.3014		939.5381
Total	**0.6662**	**6.5362**	**6.6476**	**9.6200e-003**	**0.0147**	**0.4018**	**0.4166**	**1.8000e-003**	**0.3697**	**0.3715**		**932.0024**	**932.0024**	**0.3014**		**939.5381**

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	0.0420	1.5096	0.3966	4.0900e-003	0.1167	4.9200e-003	0.1216	0.0313	4.7000e-003	0.0360		455.5426	455.5426	0.0491		456.7697
Vendor	0.0267	0.8331	0.2411	1.9400e-003	0.0511	4.4200e-003	0.0555	0.0147	4.2300e-003	0.0189		211.5728	211.5728	0.0184		212.0335
Worker	0.0347	0.0213	0.2420	8.3000e-004	0.0894	5.9000e-004	0.0900	0.0237	5.4000e-004	0.0243		82.5297	82.5297	1.8800e-003		82.5768
Total	**0.1034**	**2.3641**	**0.8798**	**6.8600e-003**	**0.2572**	**9.9300e-003**	**0.2671**	**0.0697**	**9.4700e-003**	**0.0792**		**749.6452**	**749.6452**	**0.0694**		**751.3800**

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					6.6200e-003	0.0000	6.6200e-003	8.1000e-004	0.0000	8.1000e-004			0.0000			0.0000
Off-Road	0.6662	6.5362	6.6476	9.6200e-003		0.4018	0.4018		0.3697	0.3697	0.0000	932.0024	932.0024	0.3014		939.5381
Total	**0.6662**	**6.5362**	**6.6476**	**9.6200e-003**	**6.6200e-003**	**0.4018**	**0.4085**	**8.1000e-004**	**0.3697**	**0.3705**	**0.0000**	**932.0024**	**932.0024**	**0.3014**		**939.5381**

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	0.0420	1.5096	0.3966	4.0900e-003	0.1167	4.9200e-003	0.1216	0.0313	4.7000e-003	0.0360		455.5426	455.5426	0.0491		456.7697

Vendor	0.0267	0.8331	0.2411	1.9400e-003	0.0511	4.4200e-003	0.0555	0.0147	4.2300e-003	0.0189		211.5728	211.5728	0.0184		212.0335
Worker	0.0347	0.0213	0.2420	8.3000e-004	0.0894	5.9000e-004	0.0900	0.0237	5.4000e-004	0.0243		82.5297	82.5297	1.8800e-003		82.5768
Total	**0.1034**	**2.3641**	**0.8798**	**6.8600e-003**	**0.2572**	**9.9300e-003**	**0.2671**	**0.0697**	**9.4700e-003**	**0.0792**		**749.6452**	**749.6452**	**0.0694**		**751.3800**

3.3 Pipeline Trenching/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					0.0147	0.0000	0.0147	1.8000e-003	0.0000	1.8000e-003			0.0000			0.0000
Off-Road	0.6083	5.9726	6.6170	9.6300e-003		0.3543	0.3543		0.3259	0.3259		932.2069	932.2069	0.3015		939.7443
Total	**0.6083**	**5.9726**	**6.6170**	**9.6300e-003**	**0.0147**	**0.3543**	**0.3690**	**1.8000e-003**	**0.3259**	**0.3277**		**932.2069**	**932.2069**	**0.3015**		**939.7443**

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	0.0400	1.3946	0.3975	4.0300e-003	0.3252	4.4100e-003	0.3296	0.0825	4.2200e-003	0.0867		449.9420	449.9420	0.0484		451.1526
Vendor	0.0224	0.7488	0.2233	1.9300e-003	0.0511	1.6200e-003	0.0527	0.0147	1.5500e-003	0.0163		209.7512	209.7512	0.0177		210.1934
Worker	0.0327	0.0192	0.2242	8.0000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		79.6666	79.6666	1.7100e-003		79.7092
Total	**0.0951**	**2.1626**	**0.8450**	**6.7600e-003**	**0.4657**	**6.6100e-003**	**0.4723**	**0.1209**	**6.3000e-003**	**0.1272**		**739.3598**	**739.3598**	**0.0678**		**741.0552**

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					6.6200e-003	0.0000	6.6200e-003	8.1000e-004	0.0000	8.1000e-004			0.0000			0.0000
Off-Road	0.6083	5.9726	6.6170	9.6300e-003		0.3543	0.3543		0.3259	0.3259	0.0000	932.2069	932.2069	0.3015		939.7443
Total	**0.6083**	**5.9726**	**6.6170**	**9.6300e-003**	**6.6200e-003**	**0.3543**	**0.3609**	**8.1000e-004**	**0.3259**	**0.3267**	**0.0000**	**932.2069**	**932.2069**	**0.3015**		**939.7443**

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	0.0400	1.3946	0.3975	4.0300e-003	0.3252	4.4100e-003	0.3296	0.0825	4.2200e-003	0.0867		449.9420	449.9420	0.0484		451.1526
Vendor	0.0224	0.7488	0.2233	1.9300e-003	0.0511	1.6200e-003	0.0527	0.0147	1.5500e-003	0.0163		209.7512	209.7512	0.0177		210.1934
Worker	0.0327	0.0192	0.2242	8.0000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		79.6666	79.6666	1.7100e-003		79.7092
Total	**0.0951**	**2.1626**	**0.8450**	**6.7600e-003**	**0.4657**	**6.6100e-003**	**0.4723**	**0.1209**	**6.3000e-003**	**0.1272**		**739.3598**	**739.3598**	**0.0678**		**741.0552**

3.4 Conversion of Lift Station - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3670	3.4771	3.0279	4.0100e-003		0.2420	0.2420		0.2226	0.2226		388.9824	388.9824	0.1258		392.1275

Total	**0.3670**	**3.4771**	**3.0279**	**4.0100e-003**		**0.2420**	**0.2420**		**0.2226**	**0.2226**		**388.9824**	**388.9824**	**0.1258**		**392.1275**

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	0.0400	1.2497	0.3617	2.9200e-003	0.0767	6.6300e-003	0.0833	0.0221	6.3500e-003	0.0284		317.3593	317.3593	0.0276		318.0503
Worker	0.0261	0.0160	0.1815	6.2000e-004	0.0671	4.4000e-004	0.0675	0.0178	4.1000e-004	0.0182		61.8973	61.8973	1.4100e-003		61.9326
Total	**0.0661**	**1.2657**	**0.5432**	**3.5400e-003**	**0.1437**	**7.0700e-003**	**0.1508**	**0.0399**	**6.7600e-003**	**0.0466**		**379.2565**	**379.2565**	**0.0291**		**379.9829**

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	0.3670	3.4771	3.0279	4.0100e-003		0.2420	0.2420		0.2226	0.2226	0.0000	388.9824	388.9824	0.1258		392.1275
Total	**0.3670**	**3.4771**	**3.0279**	**4.0100e-003**		**0.2420**	**0.2420**		**0.2226**	**0.2226**	**0.0000**	**388.9824**	**388.9824**	**0.1258**		**392.1275**

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	0.0400	1.2497	0.3617	2.9200e-003	0.0767	6.6300e-003	0.0833	0.0221	6.3500e-003	0.0284		317.3593	317.3593	0.0276		318.0503
Worker	0.0261	0.0160	0.1815	6.2000e-004	0.0671	4.4000e-004	0.0675	0.0178	4.1000e-004	0.0182		61.8973	61.8973	1.4100e-003		61.9326
Total	**0.0661**	**1.2657**	**0.5432**	**3.5400e-003**	**0.1437**	**7.0700e-003**	**0.1508**	**0.0399**	**6.7600e-003**	**0.0466**		**379.2565**	**379.2565**	**0.0291**		**379.9829**

3.4 Conversion of Lift Station - 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	0.3317	3.1779	2.9983	4.0200e-003		0.2113	0.2113		0.1944	0.1944		389.1363	389.1363	0.1259		392.2827
Total	**0.3317**	**3.1779**	**2.9983**	**4.0200e-003**		**0.2113**	**0.2113**		**0.1944**	**0.1944**		**389.1363**	**389.1363**	**0.1259**		**392.2827**

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	0.0336	1.1231	0.3350	2.8900e-003	0.0767	2.4300e-003	0.0791	0.0221	2.3200e-003	0.0244		314.6268	314.6268	0.0265		315.2900
Worker	0.0245	0.0144	0.1682	6.0000e-004	0.0671	4.3000e-004	0.0675	0.0178	4.0000e-004	0.0182		59.7499	59.7499	1.2800e-003		59.7819
Total	**0.0581**	**1.1375**	**0.5031**	**3.4900e-003**	**0.1437**	**2.8600e-003**	**0.1466**	**0.0399**	**2.7200e-003**	**0.0426**		**374.3767**	**374.3767**	**0.0278**		**375.0720**

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	0.3317	3.1779	2.9983	4.0200e-003		0.2113	0.2113		0.1944	0.1944	0.0000	389.1363	389.1363	0.1259		392.2827
Total	**0.3317**	**3.1779**	**2.9983**	**4.0200e-003**		**0.2113**	**0.2113**		**0.1944**	**0.1944**	**0.0000**	**389.1363**	**389.1363**	**0.1259**		**392.2827**

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	0.0336	1.1231	0.3350	2.8900e-003	0.0767	2.4300e-003	0.0791	0.0221	2.3200e-003	0.0244		314.6268	314.6268	0.0265		315.2900
Worker	0.0245	0.0144	0.1682	6.0000e-004	0.0671	4.3000e-004	0.0675	0.0178	4.0000e-004	0.0182		59.7499	59.7499	1.2800e-003		59.7819
Total	**0.0581**	**1.1375**	**0.5031**	**3.4900e-003**	**0.1437**	**2.8600e-003**	**0.1466**	**0.0399**	**2.7200e-003**	**0.0426**		**374.3767**	**374.3767**	**0.0278**		**375.0720**

3.5 Paving - 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	0.4689	4.8326	4.9992	7.4600e-003		0.2705	0.2705		0.2489	0.2489		722.4290	722.4290	0.2337		728.2702
Paving	0.7030					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1720**	**4.8326**	**4.9992**	**7.4600e-003**		**0.2705**	**0.2705**		**0.2489**	**0.2489**		**722.4290**	**722.4290**	**0.2337**		**728.2702**

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	0.0295	1.0289	0.2933	2.9700e-003	0.0696	3.2500e-003	0.0729	0.0191	3.1100e-003	0.0222		331.9401	331.9401	0.0357		332.8333
Vendor	0.0280	0.9359	0.2791	2.4100e-003	0.0639	2.0200e-003	0.0659	0.0184	1.9300e-003	0.0203		262.1890	262.1890	0.0221		262.7417
Worker	0.0327	0.0192	0.2242	8.0000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		79.6666	79.6666	1.7100e-003		79.7092
Total	**0.0902**	**1.9840**	**0.7966**	**6.1800e-003**	**0.2230**	**5.8500e-003**	**0.2288**	**0.0612**	**5.5700e-003**	**0.0668**		**673.7957**	**673.7957**	**0.0596**		**675.2842**

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	0.4689	4.8326	4.9992	7.4600e-003		0.2705	0.2705		0.2489	0.2489	0.0000	722.4290	722.4290	0.2337		728.2702

Paving	0.7030					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1720**	**4.8326**	**4.9992**	**7.4600e-003**		**0.2705**	**0.2705**		**0.2489**	**0.2489**	**0.0000**	**722.4290**	**722.4290**	**0.2337**		**728.2702**

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	0.0295	1.0289	0.2933	2.9700e-003	0.0696	3.2500e-003	0.0729	0.0191	3.1100e-003	0.0222		331.9401	331.9401	0.0357		332.8333
Vendor	0.0280	0.9359	0.2791	2.4100e-003	0.0639	2.0200e-003	0.0659	0.0184	1.9300e-003	0.0203		262.1890	262.1890	0.0221		262.7417
Worker	0.0327	0.0192	0.2242	8.0000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		79.6666	79.6666	1.7100e-003		79.7092
Total	**0.0902**	**1.9840**	**0.7966**	**6.1800e-003**	**0.2230**	**5.8500e-003**	**0.2288**	**0.0612**	**5.5700e-003**	**0.0668**		**673.7957**	**673.7957**	**0.0596**		**675.2842**

3.6 Demobilization - 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	0.2689	2.4994	3.3297	5.0200e-003		0.1411	0.1411		0.1298	0.1298		486.1671	486.1671	0.1572		490.0980
Total	**0.2689**	**2.4994**	**3.3297**	**5.0200e-003**		**0.1411**	**0.1411**		**0.1298**	**0.1298**		**486.1671**	**486.1671**	**0.1572**		**490.0980**

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	0.0295	1.0289	0.2933	2.9700e-003	0.0696	3.2500e-003	0.0729	0.0191	3.1100e-003	0.0222		331.9401	331.9401	0.0357		332.8333
Vendor	5.6000e-003	0.1872	0.0558	4.8000e-004	0.0128	4.0000e-004	0.0132	3.6800e-003	3.9000e-004	4.0600e-003		52.4378	52.4378	4.4200e-003		52.5483
Worker	0.0327	0.0192	0.2242	8.0000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		79.6666	79.6666	1.7100e-003		79.7092
Total	**0.0678**	**1.2353**	**0.5733**	**4.2500e-003**	**0.1718**	**4.2300e-003**	**0.1761**	**0.0465**	**4.0300e-003**	**0.0505**		**464.0445**	**464.0445**	**0.0419**		**465.0909**

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	0.2689	2.4994	3.3297	5.0200e-003		0.1411	0.1411		0.1298	0.1298	0.0000	486.1671	486.1671	0.1572		490.0980
Total	**0.2689**	**2.4994**	**3.3297**	**5.0200e-003**		**0.1411**	**0.1411**		**0.1298**	**0.1298**	**0.0000**	**486.1671**	**486.1671**	**0.1572**		**490.0980**

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	0.0295	1.0289	0.2933	2.9700e-003	0.0696	3.2500e-003	0.0729	0.0191	3.1100e-003	0.0222		331.9401	331.9401	0.0357		332.8333

Vendor	5.6000e-003	0.1872	0.0558	4.8000e-004	0.0128	4.0000e-004	0.0132	3.6800e-003	3.9000e-004	4.0600e-003		52.4378	52.4378	4.4200e-003		52.5483
Worker	0.0327	0.0192	0.2242	8.0000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		79.6666	79.6666	1.7100e-003		79.7092
Total	**0.0678**	**1.2353**	**0.5733**	**4.2500e-003**	**0.1718**	**4.2300e-003**	**0.1761**	**0.0465**	**4.0300e-003**	**0.0505**		**464.0445**	**464.0445**	**0.0419**		**465.0909**

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
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

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-	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	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

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**

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	0.0255	7.0000e-005	7.1600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0163
Unmitigated	0.0255	7.0000e-005	7.1600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0163

6.2 Area by SubCategory

Unmitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0248					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.7000e-004	7.0000e-005	7.1600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0163
Total	**0.0255**	**7.0000e-005**	**7.1600e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0153**	**0.0153**	**4.0000e-005**		**0.0163**

Mitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0248					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.7000e-004	7.0000e-005	7.1600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0153	0.0153	4.0000e-005		0.0163
Total	**0.0255**	**7.0000e-005**	**7.1600e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0153**	**0.0153**	**4.0000e-005**		**0.0163**

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

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

SMWD Las Flores Recycled Water Pipeline Project
Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	70.00	1000sqft	1.61	70,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2022
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	448.3	**CH4 Intensity (lb/MWhr)**	0.018	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted GHG intensity factors based on 2017 Power Content Label for SDG&E

Land Use - Per SMWD, approximately 40,200 SF would be graded/disturbed for pipe trenching, and 70,000 SF area would be paved

Construction Phase - Adjusted construction phases and duration based on input from SMWD

Off-road Equipment - Revised equipment list based on input from SMWD

Trips and VMT - Revised construction trips based on input from SMWD

Grading - Approximately 7,500 CY of soils to be exported

Area Coating - No operational architectural coatings

Energy Use -

Construction Off-road Equipment Mitigation - Water Exposed Area, Frequency: 2 times per day. Unpaved Road Mitigation, Vehicle Speed: 15 mph.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	4200	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	2.00	18.00
tblConstructionPhase	NumDays	4.00	173.00
tblConstructionPhase	NumDays	200.00	130.00
tblConstructionPhase	NumDays	10.00	6.00
tblConstructionPhase	NumDays	200.00	5.00
tblGrading	AcresOfGrading	0.00	1.60
tblGrading	MaterialExported	0.00	7,500.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	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	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.018
tblProjectCharacteristics	CO2IntensityFactor	720.49	448.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblTripsAndVMT	HaulingTripNumber	0.00	72.00
tblTripsAndVMT	HaulingTripNumber	0.00	24.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	11.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	11.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	8.00
tblTripsAndVMT	WorkerTripNumber	10.00	8.00
tblTripsAndVMT	WorkerTripNumber	29.00	6.00
tblTripsAndVMT	WorkerTripNumber	29.00	8.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0632	0.7374	0.6175	1.3600e-003	0.0227	0.0340	0.0567	6.0000e-003	0.0313	0.0373	0.0000	126.0688	126.0688	0.0272	0.0000	126.7499
2021	0.0356	0.3840	0.3299	7.3000e-004	0.0178	0.0178	0.0356	4.5800e-003	0.0164	0.0210	0.0000	67.2275	67.2275	0.0141	0.0000	67.5791
Maximum	**0.0632**	**0.7374**	**0.6175**	**1.3600e-003**	**0.0227**	**0.0340**	**0.0567**	**6.0000e-003**	**0.0313**	**0.0373**	**0.0000**	**126.0688**	**126.0688**	**0.0272**	**0.0000**	**126.7499**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0632	0.7374	0.6175	1.3600e-003	0.0220	0.0340	0.0560	5.9100e-003	0.0313	0.0372	0.0000	126.0687	126.0687	0.0272	0.0000	126.7499
2021	0.0356	0.3840	0.3299	7.3000e-004	0.0171	0.0178	0.0349	4.4900e-003	0.0164	0.0209	0.0000	67.2275	67.2275	0.0141	0.0000	67.5790
Maximum	**0.0632**	**0.7374**	**0.6175**	**1.3600e-003**	**0.0220**	**0.0340**	**0.0560**	**5.9100e-003**	**0.0313**	**0.0372**	**0.0000**	**126.0687**	**126.0687**	**0.0272**	**0.0000**	**126.7499**

	ROG	**NOx**	**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**	**3.46**	**0.00**	**1.52**	**1.70**	**0.00**	**0.29**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-7-2020**	**9-6-2020**	0.2788	0.2788
2	**9-7-2020**	**12-6-2020**	0.3806	0.3806
3	**12-7-2020**	**3-6-2021**	0.4390	0.4390
4	**3-7-2021**	**6-6-2021**	0.1100	0.1100
		Highest	0.4390	0.4390

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	4.6100e-003	1.0000e-005	8.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7400e-003	1.7400e-003	0.0000	0.0000	1.8500e-003
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	**4.6100e-003**	**1.0000e-005**	**8.9000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.7400e-003**	**1.7400e-003**	**0.0000**	**0.0000**	**1.8500e-003**

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	4.6100e-003	1.0000e-005	8.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7400e-003	1.7400e-003	0.0000	0.0000	1.8500e-003
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	**4.6100e-003**	**1.0000e-005**	**8.9000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.7400e-003**	**1.7400e-003**	**0.0000**	**0.0000**	**1.8500e-003**

	ROG	**NOx**	**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	Site Preparation	Site Preparation	6/7/2020	7/1/2020	5	18	
2	Pipeline Trenching/Grading	Grading	7/1/2020	2/26/2021	5	173	
3	Conversion of Lift Station	Building Construction	11/1/2020	5/1/2021	5	130	
4	Paving	Paving	3/1/2021	3/8/2021	5	6	
5	Demobilization	Building Construction	4/24/2021	4/30/2021	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.61

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	6.00	158	0.38
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rough Terrain Forklifts	1	6.00	100	0.40
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Pipeline Trenching/Grading	Excavators	1	6.00	158	0.38
Pipeline Trenching/Grading	Graders	0	0.00	187	0.41
Pipeline Trenching/Grading	Rough Terrain Forklifts	1	6.00	100	0.40
Pipeline Trenching/Grading	Rubber Tired Dozers	0	0.00	247	0.40
Pipeline Trenching/Grading	Sweepers/Scrubbers	1	2.00	64	0.46
Pipeline Trenching/Grading	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Pipeline Trenching/Grading	Trenchers	1	6.00	78	0.50
Conversion of Lift Station	Cranes	0	0.00	231	0.29
Conversion of Lift Station	Forklifts	0	0.00	89	0.20
Conversion of Lift Station	Generator Sets	0	0.00	84	0.74
Conversion of Lift Station	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Conversion of Lift Station	Trenchers	1	4.00	78	0.50

Conversion of Lift Station	Welders	0	0.00	46	0.45
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	0	0.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Demobilization	Cranes	0	0.00	231	0.29
Demobilization	Excavators	1	6.00	158	0.38
Demobilization	Forklifts	1	6.00	89	0.20
Demobilization	Generator Sets	0	0.00	84	0.74
Demobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Demobilization	Welders	0	0.00	46	0.45

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
Site Preparation	2	8.00	4.00	72.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline Trenching/Grading	4	8.00	8.00	938.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Conversion of Lift Station	2	6.00	12.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	10.00	24.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demobilization	2	8.00	2.00	20.00	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

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

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

Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5500e-003	0.0280	0.0376	6.0000e-005		1.2800e-003	1.2800e-003		1.1800e-003	1.1800e-003	0.0000	5.1058	5.1058	1.6500e-003	0.0000	5.1471
Total	**2.5500e-003**	**0.0280**	**0.0376**	**6.0000e-005**	**0.0000**	**1.2800e-003**	**1.2800e-003**	**0.0000**	**1.1800e-003**	**1.1800e-003**	**0.0000**	**5.1058**	**5.1058**	**1.6500e-003**	**0.0000**	**5.1471**

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	2.7000e-004	0.0102	2.5600e-003	3.0000e-005	6.2000e-004	3.0000e-005	6.5000e-004	1.7000e-004	3.0000e-005	2.0000e-004	0.0000	2.7683	2.7683	2.9000e-004	0.0000	2.7756
Vendor	1.2000e-004	3.8200e-003	1.0400e-003	1.0000e-005	2.3000e-004	2.0000e-005	2.5000e-004	7.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.8763	0.8763	7.0000e-005	0.0000	0.8782
Worker	2.8000e-004	2.0000e-004	2.2300e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6841	0.6841	2.0000e-005	0.0000	0.6845
Total	**6.7000e-004**	**0.0142**	**5.8300e-003**	**5.0000e-005**	**1.6400e-003**	**6.0000e-005**	**1.7000e-003**	**4.5000e-004**	**5.0000e-005**	**4.9000e-004**	**0.0000**	**4.3288**	**4.3288**	**3.8000e-004**	**0.0000**	**4.3383**

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	2.5500e-003	0.0280	0.0376	6.0000e-005		1.2800e-003	1.2800e-003		1.1800e-003	1.1800e-003	0.0000	5.1058	5.1058	1.6500e-003	0.0000	5.1470
Total	**2.5500e-003**	**0.0280**	**0.0376**	**6.0000e-005**	**0.0000**	**1.2800e-003**	**1.2800e-003**	**0.0000**	**1.1800e-003**	**1.1800e-003**	**0.0000**	**5.1058**	**5.1058**	**1.6500e-003**	**0.0000**	**5.1470**

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	2.7000e-004	0.0102	2.5600e-003	3.0000e-005	6.2000e-004	3.0000e-005	6.5000e-004	1.7000e-004	3.0000e-005	2.0000e-004	0.0000	2.7683	2.7683	2.9000e-004	0.0000	2.7756
Vendor	1.2000e-004	3.8200e-003	1.0400e-003	1.0000e-005	2.3000e-004	2.0000e-005	2.5000e-004	7.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.8763	0.8763	7.0000e-005	0.0000	0.8782
Worker	2.8000e-004	2.0000e-004	2.2300e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6841	0.6841	2.0000e-005	0.0000	0.6845
Total	**6.7000e-004**	**0.0142**	**5.8300e-003**	**5.0000e-005**	**1.6400e-003**	**6.0000e-005**	**1.7000e-003**	**4.5000e-004**	**5.0000e-005**	**4.9000e-004**	**0.0000**	**4.3288**	**4.3288**	**3.8000e-004**	**0.0000**	**4.3383**

3.3 Pipeline Trenching/Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2700e-003	0.0000	1.2700e-003	1.6000e-004	0.0000	1.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0440	0.4314	0.4387	6.4000e-004		0.0265	0.0265		0.0244	0.0244	0.0000	55.8029	55.8029	0.0181	0.0000	56.2541
Total	**0.0440**	**0.4314**	**0.4387**	**6.4000e-004**	**1.2700e-003**	**0.0265**	**0.0278**	**1.6000e-004**	**0.0244**	**0.0246**	**0.0000**	**55.8029**	**55.8029**	**0.0181**	**0.0000**	**56.2541**

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	2.7300e-003	0.1016	0.0254	2.7000e-004	7.5700e-003	3.2000e-004	7.8900e-003	2.0400e-003	3.1000e-004	2.3400e-003	0.0000	27.5177	27.5177	2.9000e-003	0.0000	27.5902
Vendor	1.7200e-003	0.0560	0.0152	1.3000e-004	3.3200e-003	2.9000e-004	3.6100e-003	9.6000e-004	2.8000e-004	1.2400e-003	0.0000	12.8529	12.8529	1.0700e-003	0.0000	12.8797
Worker	2.0600e-003	1.4400e-003	0.0164	6.0000e-005	5.8000e-003	4.0000e-005	5.8400e-003	1.5400e-003	4.0000e-005	1.5800e-003	0.0000	5.0169	5.0169	1.1000e-004	0.0000	5.0197
Total	**6.5100e-003**	**0.1590**	**0.0570**	**4.6000e-004**	**0.0167**	**6.5000e-004**	**0.0173**	**4.5400e-003**	**6.3000e-004**	**5.1600e-003**	**0.0000**	**45.3874**	**45.3874**	**4.0800e-003**	**0.0000**	**45.4897**

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					5.7000e-004	0.0000	5.7000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0440	0.4314	0.4387	6.4000e-004		0.0265	0.0265		0.0244	0.0244	0.0000	55.8028	55.8028	0.0181	0.0000	56.2540
Total	**0.0440**	**0.4314**	**0.4387**	**6.4000e-004**	**5.7000e-004**	**0.0265**	**0.0271**	**7.0000e-005**	**0.0244**	**0.0245**	**0.0000**	**55.8028**	**55.8028**	**0.0181**	**0.0000**	**56.2540**

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	2.7300e-003	0.1016	0.0254	2.7000e-004	7.5700e-003	3.2000e-004	7.8900e-003	2.0400e-003	3.1000e-004	2.3400e-003	0.0000	27.5177	27.5177	2.9000e-003	0.0000	27.5902
Vendor	1.7200e-003	0.0560	0.0152	1.3000e-004	3.3200e-003	2.9000e-004	3.6100e-003	9.6000e-004	2.8000e-004	1.2400e-003	0.0000	12.8529	12.8529	1.0700e-003	0.0000	12.8797
Worker	2.0600e-003	1.4400e-003	0.0164	6.0000e-005	5.8000e-003	4.0000e-005	5.8400e-003	1.5400e-003	4.0000e-005	1.5800e-003	0.0000	5.0169	5.0169	1.1000e-004	0.0000	5.0197

Total	**6.5100e-003**	**0.1590**	**0.0570**	**4.6000e-004**	**0.0167**	**6.5000e-004**	**0.0173**	**4.5400e-003**	**6.3000e-004**	**5.1600e-003**	**0.0000**	**45.3874**	**45.3874**	**4.0800e-003**	**0.0000**	**45.4897**

3.3 Pipeline Trenching/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					1.2700e-003	0.0000	1.2700e-003	1.6000e-004	0.0000	1.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0125	0.1224	0.1357	2.0000e-004		7.2600e-003	7.2600e-003		6.6800e-003	6.6800e-003	0.0000	17.3365	17.3365	5.6100e-003	0.0000	17.4767
Total	**0.0125**	**0.1224**	**0.1357**	**2.0000e-004**	**1.2700e-003**	**7.2600e-003**	**8.5300e-003**	**1.6000e-004**	**6.6800e-003**	**6.8400e-003**	**0.0000**	**17.3365**	**17.3365**	**5.6100e-003**	**0.0000**	**17.4767**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.1000e-004	0.0291	7.9300e-003	8.0000e-005	6.5400e-003	9.0000e-005	6.6300e-003	1.6600e-003	9.0000e-005	1.7500e-003	0.0000	8.4424	8.4424	8.9000e-004	0.0000	8.4646
Vendor	4.5000e-004	0.0156	4.3800e-003	4.0000e-005	1.0300e-003	3.0000e-005	1.0600e-003	3.0000e-004	3.0000e-005	3.3000e-004	0.0000	3.9578	3.9578	3.2000e-004	0.0000	3.9658
Worker	6.0000e-004	4.0000e-004	4.7100e-003	2.0000e-005	1.8000e-003	1.0000e-005	1.8100e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5042	1.5042	3.0000e-005	0.0000	1.5050
Total	**1.8600e-003**	**0.0452**	**0.0170**	**1.4000e-004**	**9.3700e-003**	**1.3000e-004**	**9.5000e-003**	**2.4400e-003**	**1.3000e-004**	**2.5700e-003**	**0.0000**	**13.9044**	**13.9044**	**1.2400e-003**	**0.0000**	**13.9354**

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					5.7000e-004	0.0000	5.7000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0125	0.1224	0.1357	2.0000e-004		7.2600e-003	7.2600e-003		6.6800e-003	6.6800e-003	0.0000	17.3365	17.3365	5.6100e-003	0.0000	17.4767
Total	**0.0125**	**0.1224**	**0.1357**	**2.0000e-004**	**5.7000e-004**	**7.2600e-003**	**7.8300e-003**	**7.0000e-005**	**6.6800e-003**	**6.7500e-003**	**0.0000**	**17.3365**	**17.3365**	**5.6100e-003**	**0.0000**	**17.4767**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.1000e-004	0.0291	7.9300e-003	8.0000e-005	6.5400e-003	9.0000e-005	6.6300e-003	1.6600e-003	9.0000e-005	1.7500e-003	0.0000	8.4424	8.4424	8.9000e-004	0.0000	8.4646
Vendor	4.5000e-004	0.0156	4.3800e-003	4.0000e-005	1.0300e-003	3.0000e-005	1.0600e-003	3.0000e-004	3.0000e-005	3.3000e-004	0.0000	3.9578	3.9578	3.2000e-004	0.0000	3.9658
Worker	6.0000e-004	4.0000e-004	4.7100e-003	2.0000e-005	1.8000e-003	1.0000e-005	1.8100e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5042	1.5042	3.0000e-005	0.0000	1.5050
Total	**1.8600e-003**	**0.0452**	**0.0170**	**1.4000e-004**	**9.3700e-003**	**1.3000e-004**	**9.5000e-003**	**2.4400e-003**	**1.3000e-004**	**2.5700e-003**	**0.0000**	**13.9044**	**13.9044**	**1.2400e-003**	**0.0000**	**13.9354**

3.4 Conversion of Lift Station - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.0700e-003	0.0765	0.0666	9.0000e-005		5.3200e-003	5.3200e-003		4.9000e-003	4.9000e-003	0.0000	7.7633	7.7633	2.5100e-003	0.0000	7.8261
Total	**8.0700e-003**	**0.0765**	**0.0666**	**9.0000e-005**		**5.3200e-003**	**5.3200e-003**		**4.9000e-003**	**4.9000e-003**	**0.0000**	**7.7633**	**7.7633**	**2.5100e-003**	**0.0000**	**7.8261**

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	8.6000e-004	0.0280	7.6100e-003	7.0000e-005	1.6600e-003	1.4000e-004	1.8100e-003	4.8000e-004	1.4000e-004	6.2000e-004	0.0000	6.4264	6.4264	5.4000e-004	0.0000	6.4399
Worker	5.1000e-004	3.6000e-004	4.0900e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2542	1.2542	3.0000e-005	0.0000	1.2549
Total	**1.3700e-003**	**0.0284**	**0.0117**	**8.0000e-005**	**3.1100e-003**	**1.5000e-004**	**3.2700e-003**	**8.6000e-004**	**1.5000e-004**	**1.0100e-003**	**0.0000**	**7.6806**	**7.6806**	**5.7000e-004**	**0.0000**	**7.6948**

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	8.0700e-003	0.0765	0.0666	9.0000e-005		5.3200e-003	5.3200e-003		4.9000e-003	4.9000e-003	0.0000	7.7633	7.7633	2.5100e-003	0.0000	7.8261
Total	**8.0700e-003**	**0.0765**	**0.0666**	**9.0000e-005**		**5.3200e-003**	**5.3200e-003**		**4.9000e-003**	**4.9000e-003**	**0.0000**	**7.7633**	**7.7633**	**2.5100e-003**	**0.0000**	**7.8261**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	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	8.6000e-004	0.0280	7.6100e-003	7.0000e-005	1.6600e-003	1.4000e-004	1.8100e-003	4.8000e-004	1.4000e-004	6.2000e-004	0.0000	6.4264	6.4264	5.4000e-004	0.0000	6.4399
Worker	5.1000e-004	3.6000e-004	4.0900e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2542	1.2542	3.0000e-005	0.0000	1.2549
Total	**1.3700e-003**	**0.0284**	**0.0117**	**8.0000e-005**	**3.1100e-003**	**1.5000e-004**	**3.2700e-003**	**8.6000e-004**	**1.5000e-004**	**1.0100e-003**	**0.0000**	**7.6806**	**7.6806**	**5.7000e-004**	**0.0000**	**7.6948**

3.4 Conversion of Lift Station - 2021

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	0.0143	0.1367	0.1289	1.7000e-004		9.0900e-003	9.0900e-003		8.3600e-003	8.3600e-003	0.0000	15.1798	15.1798	4.9100e-003	0.0000	15.3025
Total	**0.0143**	**0.1367**	**0.1289**	**1.7000e-004**		**9.0900e-003**	**9.0900e-003**		**8.3600e-003**	**8.3600e-003**	**0.0000**	**15.1798**	**15.1798**	**4.9100e-003**	**0.0000**	**15.3025**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	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	1.4100e-003	0.0492	0.0138	1.3000e-004	3.2500e-003	1.0000e-004	3.3500e-003	9.4000e-004	1.0000e-004	1.0300e-003	0.0000	12.4526	12.4526	1.0100e-003	0.0000	12.4778

Worker	9.5000e-004	6.4000e-004	7.4100e-003	3.0000e-005	2.8300e-003	2.0000e-005	2.8500e-003	7.5000e-004	2.0000e-005	7.7000e-004	0.0000	2.3664	2.3664	5.0000e-005	0.0000	2.3676
Total	**2.3600e-003**	**0.0498**	**0.0212**	**1.6000e-004**	**6.0800e-003**	**1.2000e-004**	**6.2000e-003**	**1.6900e-003**	**1.2000e-004**	**1.8000e-003**	**0.0000**	**14.8189**	**14.8189**	**1.0600e-003**	**0.0000**	**14.8454**

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	0.0143	0.1367	0.1289	1.7000e-004		9.0900e-003	9.0900e-003		8.3600e-003	8.3600e-003	0.0000	15.1798	15.1798	4.9100e-003	0.0000	15.3025
Total	**0.0143**	**0.1367**	**0.1289**	**1.7000e-004**		**9.0900e-003**	**9.0900e-003**		**8.3600e-003**	**8.3600e-003**	**0.0000**	**15.1798**	**15.1798**	**4.9100e-003**	**0.0000**	**15.3025**

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	1.4100e-003	0.0492	0.0138	1.3000e-004	3.2500e-003	1.0000e-004	3.3500e-003	9.4000e-004	1.0000e-004	1.0300e-003	0.0000	12.4526	12.4526	1.0100e-003	0.0000	12.4778
Worker	9.5000e-004	6.4000e-004	7.4100e-003	3.0000e-005	2.8300e-003	2.0000e-005	2.8500e-003	7.5000e-004	2.0000e-005	7.7000e-004	0.0000	2.3664	2.3664	5.0000e-005	0.0000	2.3676
Total	**2.3600e-003**	**0.0498**	**0.0212**	**1.6000e-004**	**6.0800e-003**	**1.2000e-004**	**6.2000e-003**	**1.6900e-003**	**1.2000e-004**	**1.8000e-003**	**0.0000**	**14.8189**	**14.8189**	**1.0600e-003**	**0.0000**	**14.8454**

3.5 Paving - 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	1.4100e-003	0.0145	0.0150	2.0000e-005		8.1000e-004	8.1000e-004		7.5000e-004	7.5000e-004	0.0000	1.9661	1.9661	6.4000e-004	0.0000	1.9820
Paving	2.1100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5200e-003**	**0.0145**	**0.0150**	**2.0000e-005**		**8.1000e-004**	**8.1000e-004**		**7.5000e-004**	**7.5000e-004**	**0.0000**	**1.9661**	**1.9661**	**6.4000e-004**	**0.0000**	**1.9820**

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	9.0000e-005	3.1500e-003	8.6000e-004	1.0000e-005	2.1000e-004	1.0000e-005	2.2000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.9115	0.9115	1.0000e-004	0.0000	0.9139
Vendor	8.0000e-005	2.8600e-003	8.0000e-004	1.0000e-005	1.9000e-004	1.0000e-005	1.9000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.7240	0.7240	6.0000e-005	0.0000	0.7255
Worker	9.0000e-005	6.0000e-005	6.9000e-004	0.0000	2.6000e-004	0.0000	2.7000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2201	0.2201	0.0000	0.0000	0.2202
Total	**2.6000e-004**	**6.0700e-003**	**2.3500e-003**	**2.0000e-005**	**6.6000e-004**	**2.0000e-005**	**6.8000e-004**	**1.8000e-004**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**1.8556**	**1.8556**	**1.6000e-004**	**0.0000**	**1.8596**

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	1.4100e-003	0.0145	0.0150	2.0000e-005		8.1000e-004	8.1000e-004		7.5000e-004	7.5000e-004	0.0000	1.9661	1.9661	6.4000e-004	0.0000	1.9820

Paving	2.1100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5200e-003**	**0.0145**	**0.0150**	**2.0000e-005**		**8.1000e-004**	**8.1000e-004**		**7.5000e-004**	**7.5000e-004**	**0.0000**	**1.9661**	**1.9661**	**6.4000e-004**	**0.0000**	**1.9820**

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	9.0000e-005	3.1500e-003	8.6000e-004	1.0000e-005	2.1000e-004	1.0000e-005	2.2000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.9115	0.9115	1.0000e-004	0.0000	0.9139
Vendor	8.0000e-005	2.8600e-003	8.0000e-004	1.0000e-005	1.9000e-004	1.0000e-005	1.9000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.7240	0.7240	6.0000e-005	0.0000	0.7255
Worker	9.0000e-005	6.0000e-005	6.9000e-004	0.0000	2.6000e-004	0.0000	2.7000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2201	0.2201	0.0000	0.0000	0.2202
Total	**2.6000e-004**	**6.0700e-003**	**2.3500e-003**	**2.0000e-005**	**6.6000e-004**	**2.0000e-005**	**6.8000e-004**	**1.8000e-004**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**1.8556**	**1.8556**	**1.6000e-004**	**0.0000**	**1.8596**

3.6 Demobilization - 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	6.7000e-004	6.2500e-003	8.3200e-003	1.0000e-005		3.5000e-004	3.5000e-004		3.2000e-004	3.2000e-004	0.0000	1.1026	1.1026	3.6000e-004	0.0000	1.1115
Total	**6.7000e-004**	**6.2500e-003**	**8.3200e-003**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**1.1026**	**1.1026**	**3.6000e-004**	**0.0000**	**1.1115**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.6200e-003	7.1000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.7596	0.7596	8.0000e-005	0.0000	0.7616
Vendor	1.0000e-005	4.8000e-004	1.3000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1207	0.1207	1.0000e-005	0.0000	0.1209
Worker	7.0000e-005	5.0000e-005	5.7000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1834	0.1834	0.0000	0.0000	0.1835
Total	**1.5000e-004**	**3.1500e-003**	**1.4100e-003**	**1.0000e-005**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**1.2000e-004**	**1.0000e-005**	**1.2000e-004**	**0.0000**	**1.0637**	**1.0637**	**9.0000e-005**	**0.0000**	**1.0660**

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	6.7000e-004	6.2500e-003	8.3200e-003	1.0000e-005		3.5000e-004	3.5000e-004		3.2000e-004	3.2000e-004	0.0000	1.1026	1.1026	3.6000e-004	0.0000	1.1115
Total	**6.7000e-004**	**6.2500e-003**	**8.3200e-003**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**1.1026**	**1.1026**	**3.6000e-004**	**0.0000**	**1.1115**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.6200e-003	7.1000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.7596	0.7596	8.0000e-005	0.0000	0.7616

Vendor	1.0000e-005	4.8000e-004	1.3000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1207	0.1207	1.0000e-005	0.0000	0.1209
Worker	7.0000e-005	5.0000e-005	5.7000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1834	0.1834	0.0000	0.0000	0.1835
Total	**1.5000e-004**	**3.1500e-003**	**1.4100e-003**	**1.0000e-005**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**1.2000e-004**	**1.0000e-005**	**1.2000e-004**	**0.0000**	**1.0637**	**1.0637**	**9.0000e-005**	**0.0000**	**1.0660**

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-	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	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

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

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**

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

	ROG	NOx	CO	SO2	Fugitive 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	4.6100e-003	1.0000e-005	8.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7400e-003	1.7400e-003	0.0000	0.0000	1.8500e-003
Unmitigated	4.6100e-003	1.0000e-005	8.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7400e-003	1.7400e-003	0.0000	0.0000	1.8500e-003

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	4.5200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.0000e-005	1.0000e-005	8.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7400e-003	1.7400e-003	0.0000	0.0000	1.8500e-003

Total	**4.6000e-003**	**1.0000e-005**	**8.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.7400e-003**	**1.7400e-003**	**0.0000**	**0.0000**	**1.8500e-003**

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	4.5200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.0000e-005	1.0000e-005	8.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7400e-003	1.7400e-003	0.0000	0.0000	1.8500e-003
Total	**4.6000e-003**	**1.0000e-005**	**8.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.7400e-003**	**1.7400e-003**	**0.0000**	**0.0000**	**1.8500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	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**

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

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/21/2020 3:49 PM

SMWD Las Flores Recycled Water Pipeline Project

Orange County, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Conversion of Lift Station	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demobilization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline Trenching/Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Cement and Mortar Mixers	Diesel	No Change	0	0	No Change	0.00
Cranes	Diesel	No Change	0	0	No Change	0.00
Excavators	Diesel	No Change	0	3	No Change	0.00
Forklifts	Diesel	No Change	0	1	No Change	0.00
Generator Sets	Diesel	No Change	0	0	No Change	0.00
Graders	Diesel	No Change	0	0	No Change	0.00
Pavers	Diesel	No Change	0	1	No Change	0.00
Paving Equipment	Diesel	No Change	0	0	No Change	0.00
Rollers	Diesel	No Change	0	2	No Change	0.00

Rough Terrain Forklifts	Diesel	No Change	0	2	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	0	No Change	0.00
Sweepers/Scrubbers	Diesel	No Change	0	1	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	1	No Change	0.00
Trenchers	Diesel	No Change	0	2	No Change	0.00
Welders	Diesel	No Change	0	0	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Cement and Mortar Mixers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Excavators	1.77300E-002	1.72860E-001	2.40250E-001	3.80000E-004	8.38000E-003	7.71000E-003	0.00000E+000	3.33481E+001	3.33481E+001	1.07900E-002	0.00000E+000	3.36177E+001
Forklifts	2.40000E-004	2.21000E-003	2.19000E-003	0.00000E+000	1.60000E-004	1.40000E-004	0.00000E+000	2.51800E-001	2.51800E-001	8.00000E-005	0.00000E+000	2.53830E-001
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Pavers	5.50000E-004	5.84000E-003	6.54000E-003	1.00000E-005	2.80000E-004	2.60000E-004	0.00000E+000	9.28850E-001	9.28850E-001	3.00000E-004	0.00000E+000	9.36360E-001
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rollers	8.50000E-004	8.66000E-003	8.46000E-003	1.00000E-005	5.30000E-004	4.90000E-004	0.00000E+000	1.03728E+000	1.03728E+000	3.40000E-004	0.00000E+000	1.04566E+000
Rough Terrain Forklifts	9.40000E-003	1.22100E-001	1.64470E-001	2.50000E-004	5.03000E-003	4.63000E-003	0.00000E+000	2.16828E+001	2.16828E+001	7.01000E-003	0.00000E+000	2.18582E+001
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Sweepers/Scrubbers	5.63000E-003	4.89400E-002	4.27900E-002	5.00000E-005	3.86000E-003	3.55000E-003	0.00000E+000	4.82946E+000	4.82946E+000	1.56000E-003	0.00000E+000	4.86851E+000
Tractors/Loaders/Backhoes	9.50000E-003	9.58700E-002	1.10510E-001	1.50000E-004	5.80000E-003	5.34000E-003	0.00000E+000	1.33054E+001	1.33054E+001	4.30000E-003	0.00000E+000	1.34130E+001
Trenchers	3.95000E-002	3.59200E-001	2.55600E-001	3.30000E-004	2.66000E-002	2.44700E-002	0.00000E+000	2.88733E+001	2.88733E+001	9.34000E-003	0.00000E+000	2.91068E+001
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Cement and Mortar Mixers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Excavators	1.77300E-002	1.72860E-001	2.40250E-001	3.80000E-004	8.38000E-003	7.71000E-003	0.00000E+000	3.33481E+001	3.33481E+001	1.07900E-002	0.00000E+000	3.36177E+001
Forklifts	2.40000E-004	2.21000E-003	2.19000E-003	0.00000E+000	1.60000E-004	1.40000E-004	0.00000E+000	2.51800E-001	2.51800E-001	8.00000E-005	0.00000E+000	2.53830E-001
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Pavers	5.50000E-004	5.84000E-003	6.54000E-003	1.00000E-005	2.80000E-004	2.60000E-004	0.00000E+000	9.28850E-001	9.28850E-001	3.00000E-004	0.00000E+000	9.36360E-001
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rollers	8.50000E-004	8.66000E-003	8.46000E-003	1.00000E-005	5.30000E-004	4.90000E-004	0.00000E+000	1.03727E+000	1.03727E+000	3.40000E-004	0.00000E+000	1.04566E+000
Rough Terrain Forklifts	9.40000E-003	1.22100E-001	1.64470E-001	2.50000E-004	5.03000E-003	4.63000E-003	0.00000E+000	2.16828E+001	2.16828E+001	7.01000E-003	0.00000E+000	2.18581E+001
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Sweepers/Scrubbers	5.63000E-003	4.89400E-002	4.27900E-002	5.00000E-005	3.86000E-003	3.55000E-003	0.00000E+000	4.82945E+000	4.82945E+000	1.56000E-003	0.00000E+000	4.86850E+000
Tractors/Loaders/Backhoes	9.50000E-003	9.58700E-002	1.10510E-001	1.50000E-004	5.80000E-003	5.34000E-003	0.00000E+000	1.33054E+001	1.33054E+001	4.30000E-003	0.00000E+000	1.34130E+001
Trenchers	3.95000E-002	3.59200E-001	2.55600E-001	3.30000E-004	2.66000E-002	2.44700E-002	0.00000E+000	2.88733E+001	2.88733E+001	9.34000E-003	0.00000E+000	2.91068E+001
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Cement and Mortar Mixers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.19947E-006	1.19947E-006	0.00000E+000	0.00000E+000	1.18985E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	9.64060E-006	9.64060E-006	0.00000E+000	0.00000E+000	0.00000E+000
Rough Terrain Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	9.22389E-007	9.22389E-007	0.00000E+000	0.00000E+000	1.37249E-006
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Sweepers/Scrubbers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	2.07062E-006	2.07062E-006	0.00000E+000	0.00000E+000	2.05402E-006
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	7.51574E-007	7.51574E-007	0.00000E+000	0.00000E+000	7.45546E-007
Trenchers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.03902E-006	1.03902E-006	0.00000E+000	0.00000E+000	1.37425E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
Yes	Water Exposed Area	PM10 Reduction	55.00	PM2.5 Reduction	55.00	Frequency (per day)	2.00
No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	15.00		
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Conversion of Lift Station	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Conversion of Lift Station	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Demobilization	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Demobilization	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline Trenching/Grading	Fugitive Dust	0.00	0.00	0.00	0.00	0.55	0.55
Pipeline Trenching/Grading	Roads	0.03	0.01	0.03	0.01	0.00	0.00
Site Preparation	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Percent Reduction											
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.00	0.15		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			
No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				

No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.00			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				
No	Commute	Workplace Parking Charge				
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.00			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	

No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	50.00
No	Use Low VOC Paint (Residential Exterior)	50.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	100.00
No	Use Low VOC Paint (Parking)	100.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	

No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

SMWD Las Flores Recycled Water Pipeline Project

Project Construction Energy Demand

Construction Worker Gasoline Demand

Phase	Trips	Vehicle CO_2 (MT)	Kg CO2/Gallon	Gallons
Site Preparation	144	0.68	8.78	77.92
Pipeline Trenching/Grading	1,384	6.52	8.78	742.72
Conversion of Lift Station	780	3.62	8.78	412.37
Paving	48	0.22	8.78	25.07
Demobilization	40	0.18	8.78	20.89
Total				**1,278.96**

Construction Vendor Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)	Kg CO2/Gallon	Gallons
Site Preparation	72	0.88	10.21	85.83
Pipeline Trenching/Grading	1,384	16.81	10.21	1,646.49
Conversion of Lift Station	1,560	18.88	10.21	1,849.07
Paving	60	0.72	10.21	70.91
Demobilization	10	0.12	10.21	11.82
Total				**3,664.12**

Construction Haul Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)	Kg CO2/Gallon	Gallons
Site Preparation	72	2.77	10.21	271.14
Pipeline Trenching/Grading	938	35.96	10.21	3,522.05
Conversion of Lift Station	0	0.00	10.21	0.00
Paving	24	0.91	10.21	89.28
Demobilization	20	0.76	10.21	74.40
Total				**3,956.86**

Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO_2 (MT)	Kg CO2/Gallon	Gallons
Site Preparation	2	5.11	10.21	500.08
Pipeline Trenching/Grading	4	73.14	10.21	7,163.51
Conversion of Lift Station	2	22.94	10.21	2,247.12
Paving	3	1.97	10.21	192.57
Demobilization	2	1.10	10.21	107.99
Total				**10,211.26**

Construction Equipment Usage

Phase	Hours of Use
Site Preparation	216
Pipeline Trenching/Grading	3,460
Conversion of Lift Station	1,300
Paving	108
Demobilization	60
Total	**5,144**

Project Construction Assumptions

PhaseName	OffRoadEquipmentType	OffRoadEquipmentUı	UsageHours	Days	Total Hours	Pieces of Equi	Equip Hours
Site Preparation	Excavators	1	6	18	108	2	216
Site Preparation	Rough Terrain Forklifts	1	6	18	108		
Pipeline Trenching/Grading	Excavators	1	6	173	1038	4	3,460
Pipeline Trenching/Grading	Rough Terrain Forklifts	1	6	173	1038		
Pipeline Trenching/Grading	Sweepers/Scrubbers	1	2	173	346		
Pipeline Trenching/Grading	Trenchers	1	6	173	1038		
Conversion of Lift Station	Tractors/Loaders/Backhoes	1	6	130	780	2	1,300
Conversion of Lift Station	Trenchers	1	4	130	520		
Paving	Pavers	1	6	6	36	3	108
Paving	Rollers	2	6	6	72		
Demobilization	Excavators	1	6	5	30	2	60
Demobilization	Forklifts	1	6	5	30		
						Total	5,144

PhaseName	PhaseType	PhaseStartDate	PhaseEndDate	NumDaysV	NumDays
Site Preparation	Site Preparation	2020/06/07	2020/07/01	5	18
Pipeline Trenching/Grading	Grading	2020/07/01	2021/02/26	5	173
Conversion of Lift Station	Building Construction	2020/11/01	2021/05/01	5	130
Paving	Paving	2021/03/01	2021/03/08	5	6
Demobilization	Building Construction	2021/04/24	2021/04/30	5	5

PhaseName	WorkerTripNumber	VendorTripNumber	HaulingTripNumber	Days	Worker Trips	Vendor Tri	Hauling Trips
Site Preparation	8	4	72	18	144	72	72
Pipeline Trenching/Grading	8	8	938	173	1,384	1,384	938
Conversion of Lift Station	6	12	0	130	780	1,560	0
Paving	8	10	24	6	48	60	24
Demobilization	8	2	20	5	40	10	20

Appendix B

Biological Resources Attachments

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (San Juan Capistrano (3311756) OR Canada Gobernadora (3311755) OR Laguna Beach (3311757) OR Dana Point (3311746) OR San Clemente (3311745) OR Santiago Peak (3311765) OR El Toro (3311766) OR Tustin (3311767))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Aimophila ruficeps canescens southern California rufous-crowned sparrow	ABPBX91091	None	None	G5T3	S3	WL
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Anaxyrus californicus arroyo toad	AAABB01230	Endangered	None	G2G3	S2S3	SSC
Anniella stebbinsi southern California legless lizard	ARACC01060	None	None	G3	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aphanisma blitoides aphanisma	PDCHE02010	None	None	G3G4	S2	1B.2
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Asio otus long-eared owl	ABNSB13010	None	None	G5	S3?	SSC
Aspidoscelis hyperythra orange-throated whiptail	ARACJ02060	None	None	G5	S2S3	WL
Aspidoscelis tigris stejnegeri coastal whiptail	ARACJ02143	None	None	G5T5	S3	SSC
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex coulteri Coulter's saltbush	PDCHE040E0	None	None	G3	S1S2	1B.2
Atriplex pacifica south coast saltscale	PDCHE041C0	None	None	G4	S2	1B.2
Atriplex parishii Parish's brittlescale	PDCHE041D0	None	None	G1G2	S1	1B.1
Atriplex serenana var. davidsonii Davidson's saltscale	PDCHE041T1	None	None	G5T1	S1	1B.2
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Branchinecta sandiegonensis San Diego fairy shrimp	ICBRA03060	Endangered	None	G2	S2	
Brodiaea filifolia thread-leaved brodiaea	PMLIL0C050	Threatened	Endangered	G2	S2	1B.1
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Calochortus weedii var. intermedius intermediate mariposa-lily	PMLIL0D1J1	None	None	G3G4T2	S2	1B.2
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren	ABPBG02095	None	None	G5T3Q	S3	SSC
Canyon Live Oak Ravine Forest Canyon Live Oak Ravine Forest	CTT61350CA	None	None	G3	S3.3	
Centromadia parryi ssp. australis southern tarplant	PDAST4R0P4	None	None	G3T2	S2	1B.1
Chaenactis glabriuscula var. orcuttiana Orcutt's pincushion	PDAST20095	None	None	G5T1T2	S1	1B.1
Chaetodipus californicus femoralis Dulzura pocket mouse	AMAFD05021	None	None	G5T3	S3	SSC
Chaetodipus fallax fallax northwestern San Diego pocket mouse	AMAFD05031	None	None	G5T3T4	S3S4	SSC
Choeronycteris mexicana Mexican long-tongued bat	AMACB02010	None	None	G4	S1	SSC
Chorizanthe polygonoides var. longispina long-spined spineflower	PDPGN040K1	None	None	G5T3	S3	1B.2
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Clinopodium chandleri San Miguel savory	PDLAM08030	None	None	G3	S2	1B.2
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Coelus globosus globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
Comarostaphylis diversifolia ssp. diversifolia summer holly	PDERI0B011	None	None	G3T2	S2	1B.2
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S1S2	SSC
Crotalus ruber red-diamond rattlesnake	ARADE02090	None	None	G4	S3	SSC
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	None	None	G4T2T3	S2S3	
Dipodomys stephensi Stephens' kangaroo rat	AMAFD03100	Endangered	Threatened	G2	S2	

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Dudleya blochmaniae ssp. blochmaniae Blochman's dudleya	PDCRA04051	None	None	G3T2	S2	1B.1
Dudleya multicaulis many-stemmed dudleya	PDCRA040H0	None	None	G2	S2	1B.2
Dudleya stolonifera Laguna Beach dudleya	PDCRA040P0	Threatened	Threatened	G1	S1	1B.1
Dudleya viscida sticky dudleya	PDCRA040T0	None	None	G2	S2	1B.2
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Empidonax traillii extimus southwestern willow flycatcher	ABPAE33043	Endangered	Endangered	G5T2	S1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
Eryngium pendletonense Pendleton button-celery	PDAPI0Z120	None	None	G1	S1	1B.1
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Euphorbia misera cliff spurge	PDEUP0Q1B0	None	None	G5	S2	2B.2
Gila orcuttii arroyo chub	AFCJB13120	None	None	G2	S2	SSC
Harpagonella palmeri Palmer's grapplinghook	PDBOR0H010	None	None	G4	S3	4.2
Helianthus nuttallii ssp. parishii Los Angeles sunflower	PDAST4N102	None	None	G5TH	SH	1A
Hesperocyparis forbesii Tecate cypress	PGCUP040C0	None	None	G2	S2	1B.1
Horkelia cuneata var. puberula mesa horkelia	PDROS0W045	None	None	G4T1	S1	1B.1
Icteria virens yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
Imperata brevifolia California satintail	PMPOA3D020	None	None	G4	S3	2B.1
Isocoma menziesii var. decumbens decumbent goldenbush	PDAST57091	None	None	G3G5T2T3	S2	1B.2
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lasthenia glabrata ssp. coulteri Coulter's goldfields	PDAST5L0A1	None	None	G4T2	S2	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Lepechinia cardiophylla heart-leaved pitcher sage	PDLAM0V020	None	None	G3	S2S3	1B.2
Lepidium virginicum var. robinsonii Robinson's pepper-grass	PDBRA1M114	None	None	G5T3	S3	4.3
Lycium brevipes var. hassei Santa Catalina Island desert-thorn	PDSOL0G0N0	None	None	G5T1Q	S1	3.1
Monardella hypoleuca ssp. intermedia intermediate monardella	PDLAM180A4	None	None	G4T2?	S2?	1B.3
Monardella macrantha ssp. hallii Hall's monardella	PDLAM180E1	None	None	G5T3	S3	1B.3
Myosurus minimus ssp. apus little mousetail	PDRAN0H031	None	None	G5T2Q	S2	3.1
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Nama stenocarpa mud nama	PDHYD0A0H0	None	None	G4G5	S1S2	2B.2
Nasturtium gambelii Gambel's water cress	PDBRA270V0	Endangered	Threatened	G1	S1	1B.1
Navarretia prostrata prostrate vernal pool navarretia	PDPLM0C0Q0	None	None	G2	S2	1B.2
Neotoma lepida intermedia San Diego desert woodrat	AMAFF08041	None	None	G5T3T4	S3S4	SSC
Nolina cismontana chaparral nolina	PMAGA080E0	None	None	G3	S3	1B.2
Nyctinomops femorosaccus pocketed free-tailed bat	AMACD04010	None	None	G4	S3	SSC
Nyctinomops macrotis big free-tailed bat	AMACD04020	None	None	G5	S3	SSC
Oncorhynchus mykiss irideus pop. 10 steelhead - southern California DPS	AFCHA0209J	Endangered	None	G5T1Q	S1	
Onychomys torridus ramona southern grasshopper mouse	AMAFF06022	None	None	G5T3	S3	SSC
Passerculus sandwichensis beldingi Belding's savannah sparrow	ABPBX99015	None	Endangered	G5T3	S3	
Pentachaeta aurea ssp. allenii Allen's pentachaeta	PDAST6X021	None	None	G4T1	S1	1B.1
Perognathus longimembris pacificus Pacific pocket mouse	AMAFD01042	Endangered	None	G5T1	S1	SSC

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Phacelia keckii Santiago Peak phacelia	PDHYD0C4G1	None	None	G1	S1	1B.3
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Plestiodon skiltonianus interparietalis Coronado skink	ARACH01114	None	None	G5T5	S2S3	WL
Polioptila californica californica coastal California gnatcatcher	ABPBJ08081	Threatened	None	G4G5T2Q	S2	SSC
Pseudognaphalium leucocephalum white rabbit-tobacco	PDAST440C0	None	None	G4	S2	2B.2
Quercus dumosa Nuttall's scrub oak	PDFAG050D0	None	None	G3	S3	1B.1
Rallus obsoletus levipes light-footed Ridgway's rail	ABNME05014	Endangered	Endangered	G5T1T2	S1	FP
Rhinichthys osculus ssp. 3 Santa Ana speckled dace	AFCJB3705K	None	None	G5T1	S1	SSC
Salvadora hexalepis virgultea coast patch-nosed snake	ARADB30033	None	None	G5T4	S2S3	SSC
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Setophaga petechia yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
Sidalcea neomexicana salt spring checkerbloom	PDMAL110J0	None	None	G4	S2	2B.2
Sorex ornatus salicornicus southern California saltmarsh shrew	AMABA01104	None	None	G5T1?	S1	SSC
Southern Coast Live Oak Riparian Forest Southern Coast Live Oak Riparian Forest	CTT61310CA	None	None	G4	S4	
Southern Coastal Salt Marsh Southern Coastal Salt Marsh	CTT52120CA	None	None	G2	S2.1	
Southern Cottonwood Willow Riparian Forest Southern Cottonwood Willow Riparian Forest	CTT61330CA	None	None	G3	S3.2	
Southern Dune Scrub Southern Dune Scrub	CTT21330CA	None	None	G1	S1.1	
Southern Foredunes Southern Foredunes	CTT21230CA	None	None	G2	S2.1	
Southern Mixed Riparian Forest Southern Mixed Riparian Forest	CTT61340CA	None	None	G2	S2.1	
Southern Riparian Scrub Southern Riparian Scrub	CTT63300CA	None	None	G3	S3.2	
Southern Sycamore Alder Riparian Woodland Southern Sycamore Alder Riparian Woodland	CTT62400CA	None	None	G4	S4	

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC
Sternula antillarum browni California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
Streptocephalus woottoni Riverside fairy shrimp	ICBRA07010	Endangered	None	G1G2	S1S2	
Suaeda esteroa estuary seablite	PDCHE0P0D0	None	None	G3	S2	1B.2
Symphyotrichum defoliatum San Bernardino aster	PDASTE80C0	None	None	G2	S2	1B.2
Taricha torosa Coast Range newt	AAAAF02032	None	None	G4	S4	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis hammondii two-striped gartersnake	ARADB36160	None	None	G4	S3S4	SSC
Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Verbesina dissita big-leaved crownbeard	PDAST9R050	Threatened	Threatened	G1G2	S1	1B.1
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	

Record Count: 115

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

70 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3311767, 3311766, 3311765, 3311757, 3311756, 3311755 3311746 and 3311745;

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Aphanisma blitoides	aphanisma	Chenopodiaceae	annual herb	Feb-Jun	1B.2	S2	G3G4
Artemisia palmeri	San Diego sagewort	Asteraceae	perennial deciduous shrub	(Feb)May-Sep	4.2	S3?	G3?
Asplenium vespertinum	western spleenwort	Aspleniaceae	perennial rhizomatous herb	Feb-Jun	4.2	S4	G4
Atriplex coulteri	Coulter's saltbush	Chenopodiaceae	perennial herb	Mar-Oct	1B.2	S1S2	G3
Atriplex pacifica	South Coast saltscale	Chenopodiaceae	annual herb	Mar-Oct	1B.2	S2	G4
Atriplex parishii	Parish's brittlescale	Chenopodiaceae	annual herb	Jun-Oct	1B.1	S1	G1G2
Atriplex serenana var. davidsonii	Davidson's saltscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S1	G5T1
Brodiaea filifolia	thread-leaved brodiaea	Themidaceae	perennial bulbiferous herb	Mar-Jun	1B.1	S2	G2
Calochortus catalinae	Catalina mariposa lily	Liliaceae	perennial bulbiferous herb	(Feb)Mar-Jun	4.2	S3S4	G3G4
Calochortus weedii var. intermedius	intermediate mariposa lily	Liliaceae	perennial bulbiferous herb	May-Jul	1B.2	S2	G3G4T2
Camissoniopsis lewisii	Lewis' evening-primrose	Onagraceae	annual herb	Mar-May(Jun)	3	S4	G4
Caulanthus simulans	Payson's jewelflower	Brassicaceae	annual herb	(Feb)Mar-May(Jun)	4.2	S4	G4
Centromadia parryi ssp. australis	southern tarplant	Asteraceae	annual herb	May-Nov	1B.1	S2	G3T2
Chaenactis glabriuscula var. orcuttiana	Orcutt's pincushion	Asteraceae	annual herb	Jan-Aug	1B.1	S1	G5T1T2

Chorizanthe leptotheca	Peninsular spineflower	Polygonaceae	annual herb	May-Aug	4.2	S3	G3
Chorizanthe polygonoides var. longispina	long-spined spineflower	Polygonaceae	annual herb	Apr-Jul	1B.2	S3	G5T3
Cistanthe maritima	seaside cistanthe	Montiaceae	annual herb	(Feb)Mar-Jun(Aug)	4.2	S3	G3G4
Clinopodium chandleri	San Miguel savory	Lamiaceae	perennial shrub	Mar-Jul	1B.2	S2	G3
Comarostaphylis diversifolia ssp. diversifolia	summer holly	Ericaceae	perennial evergreen shrub	Apr-Jun	1B.2	S2	G3T2
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	4.2	S4	G4
Deinandra paniculata	paniculate tarplant	Asteraceae	annual herb	(Mar)Apr-Nov(Dec)	4.2	S4	G4
Dichondra occidentalis	western dichondra	Convolvulaceae	perennial rhizomatous herb	(Jan)Mar-Jul	4.2	S3S4	G3G4
Diplacus clevelandii	Cleveland's bush monkeyflower	Phrymaceae	perennial rhizomatous herb	Apr-Jul	4.2	S4	G4
Dodecahema leptoceras	slender-horned spineflower	Polygonaceae	annual herb	Apr-Jun	1B.1	S1	G1
Dudleya blochmaniae ssp. blochmaniae	Blochman's dudleya	Crassulaceae	perennial herb	Apr-Jun	1B.1	S2	G3T2
Dudleya cymosa ssp. ovatifolia	Santa Monica dudleya	Crassulaceae	perennial herb	Mar-Jun	1B.1	S1	G5T1
Dudleya multicaulis	many-stemmed dudleya	Crassulaceae	perennial herb	Apr-Jul	1B.2	S2	G2
Dudleya stolonifera	Laguna Beach dudleya	Crassulaceae	perennial stoloniferous herb	May-Jul	1B.1	S1	G1
Dudleya viscida	sticky dudleya	Crassulaceae	perennial herb	May-Jun	1B.2	S2	G2
Eryngium pendletonense	Pendleton button-celery	Apiaceae	perennial herb	Apr-Jun(Jul)	1B.1	S1	G1
Erythranthe diffusa	Palomar monkeyflower	Phrymaceae	annual herb	Apr-Jun	4.3	S3	G4
Euphorbia misera	cliff spurge	Euphorbiaceae	perennial shrub	Dec-Aug(Oct)	2B.2	S2	G5
Harpagonella palmeri	Palmer's grapplinghook	Boraginaceae	annual herb	Mar-May	4.2	S3	G4
Hesperocyparis forbesii	Tecate cypress	Cupressaceae	perennial evergreen tree		1B.1	S2	G2
Hordeum intercedens	vernal barley	Poaceae	annual herb	Mar-Jun	3.2	S3S4	G3G4
Horkelia cuneata var. puberula	mesa horkelia	Rosaceae	perennial herb	Feb-Jul(Sep)	1B.1	S1	G4T1
Imperata brevifolia	California satintail	Poaceae	perennial rhizomatous herb	Sep-May	2B.1	S3	G4
Isocoma menziesii var. decumbens	decumbent goldenbush	Asteraceae	perennial shrub	Apr-Nov	1B.2	S2	G3G5T2T3
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	1B.1	S2	G4T2

Lepechinia cardiophylla	heart-leaved pitcher sage	Lamiaceae	perennial shrub	Apr-Jul	1B.2	S2S3	G3
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Brassicaceae	annual herb	Jan-Jul	4.3	S3	G5T3
Lycium brevipes var. hassei	Santa Catalina Island desert-thorn	Solanaceae	perennial deciduous shrub	Jun(Aug)	3.1	S1	G5T1Q
Lycium californicum	California box-thorn	Solanaceae	perennial shrub	(Dec)Mar,Jun,Jul,Aug	4.2	S4	G4
Malacothrix saxatilis var. saxatilis	cliff malacothrix	Asteraceae	perennial rhizomatous herb	Mar-Sep	4.2	S4	G5T4
Microseris douglasii ssp. platycarpha	small-flowered microseris	Asteraceae	annual herb	Mar-May	4.2	S4	G4T4
Monardella hypoleuca ssp. intermedia	intermediate monardella	Lamiaceae	perennial rhizomatous herb	Apr-Sep	1B.3	S2?	G4T2?
Monardella hypoleuca ssp. lanata	felt-leaved monardella	Lamiaceae	perennial rhizomatous herb	Jun-Aug	1B.2	S3	G4T3
Monardella macrantha ssp. hallii	Hall's monardella	Lamiaceae	perennial rhizomatous herb	Jun-Oct	1B.3	S3	G5T3
Myosurus minimus ssp. apus	little mousetail	Ranunculaceae	annual herb	Mar-Jun	3.1	S2	G5T2Q
Nama stenocarpa	mud nama	Namaceae	annual / perennial herb	Jan-Jul	2B.2	S1S2	G4G5
Nasturtium gambelii	Gambel's water cress	Brassicaceae	perennial rhizomatous herb	Apr-Oct	1B.1	S1	G1
Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G2
Nolina cismontana	chaparral nolina	Ruscaceae	perennial evergreen shrub	(Mar)May-Jul	1B.2	S3	G3
Pentachaeta aurea ssp. allenii	Allen's pentachaeta	Asteraceae	annual herb	Mar-Jun	1B.1	S1	G4T1
Phacelia keckii	Santiago Peak phacelia	Hydrophyllaceae	annual herb	May-Jun	1B.3	S1	G1
Phacelia ramosissima var. austrolitoralis	south coast branching phacelia	Hydrophyllaceae	perennial herb	Mar-Aug	3.2	S3	G5?T3Q
Piperia cooperi	chaparral rein orchid	Orchidaceae	perennial herb	Mar-Jun	4.2	S3S4	G3G4
Piperia leptopetala	narrow-petaled rein orchid	Orchidaceae	perennial herb	May-Jul	4.3	S4	G4
Polygala cornuta var. fishiae	Fish's milkwort	Polygalaceae	perennial deciduous shrub	May-Aug	4.3	S4	G5T4
Pseudognaphalium leucocephalum	white rabbit-tobacco	Asteraceae	perennial herb	(Jul)Aug-Nov(Dec)	2B.2	S2	G4
Quercus dumosa	Nuttall's scrub oak	Fagaceae	perennial evergreen shrub	Feb-Apr(May-Aug)	1B.1	S3	G3
Romneya coulteri	Coulter's matilija poppy	Papaveraceae	perennial rhizomatous	Mar-Jul(Aug)	4.2	S4	G4

herb

Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3
Sidalcea neomexicana	salt spring checkerbloom	Malvaceae	perennial herb	Mar-Jun	2B.2	S2	G4
Suaeda esteroa	estuary seablite	Chenopodiaceae	perennial herb	(May)Jul-Oct(Jan)	1B.2	S2	G3
Suaeda taxifolia	woolly seablite	Chenopodiaceae	perennial evergreen shrub	Jan-Dec	4.2	S4	G4
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	perennial rhizomatous herb	Jul-Nov(Dec)	1B.2	S2	G2
Tetracoccus dioicus	Parry's tetracoccus	Picrodendraceae	perennial deciduous shrub	Apr-May	1B.2	S2	G2G3
Verbesina dissita	big-leaved crownbeard	Asteraceae	perennial herb	(Mar)Apr-Jul	1B.1	S1	G1G2
Viguiera laciniata	San Diego County viguiera	Asteraceae	perennial shrub	Feb-Jun(Aug)	4.3	S4	G4

Suggested Citation

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Appendix C

Cultural Resources Inventory Report

CULTURAL RESOURCES INVENTORY REPORT FOR THE LAS FLORES ENHANCED WATER RELIABILITY PROJECT, ORANGE COUNTY, CALIFORNIA

Prepared for:

Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, California 92688
Contact: Mr. Don Bunts, Chief Engineer

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MAY 2020

NATIONAL ARCHAEOLOGICAL DATABASE (NADB) INFORMATION

Authors: Michael Williams, PhD; Adam Giacinto, MA, RPA; Micah Hale, PhD, RPA

Firm: Dudek

Project Proponent: Santa Margarita Water District

Report Date: May 5, 2020

Report Title: Cultural Resources Inventory Report for the Las Flores Enhanced Water Reliability Project, Orange County, California

Type of Study: Cultural Resources Inventory

New Resources: None

Updated Sites: None

USGS Quads: San Juan Capistrano and Canada Gobernadora, California1:24,000 (1996)

Acreage: Approximately 13,840 linear feet

Permit Numbers: Permitting pending

Key Words: Negative results; pedestrian survey; CA-LAN-899/H; CA-LAN-36/H

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TABLE OF CONTENTS

Section **Page No.**

APPENDICES

FIGURES

TABLES

MANAGEMENT SUMMARY

This report presents the results of Dudek's Phase I resources Inventory for the Santa Margarita Water District (SMWD) Las Flores Water Reliability Project (Project), located in the community of Las Flores, Orange County, California. The Project proposes approximately 13,840 linear feet of 8-inch, 10-inch, and 16-inch recycled water pipeline within existing SMWD easements and within existing road rights-of-way throughout the community. The Project site is situated in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5-minute topographic maps, respectively.

SMWD is the lead agency for compliance with the California Environmental Quality Act (CEQA). As it is anticipated that the Project will be subject to review by the Bureau of Reclamation (USBR), all work has additionally been completed in compliance with Section 106 of the National Historic Preservation Act (NHPA).

The Area of Potential Effects (APE) is anticipated to include the entire 13,840 linear feet of the utility rights-of-way (ROW), although a portion of the work would be completed through trenchless construction. Trenching is anticipated to include 40,200 square feet (0.92 acres) of earth disturbance within previously disturbed utility easements. Trenches would be no more than 3 feet wide and 5.5 feet in depth, this depth representing the vertical APE.

Two cultural resources have been previously identified within the APE (CA-LAN-899/H and CA-LAN-36/H). CA-LAN-899/H consists of a scatter of prehistoric, protohistoric, and historic-era artifacts that was recorded within an area that has since been developed. CA-LAN-36/H, last documented in 1949, is reported to be an ethnohistoric Native American encampment dating between 1862 and 1867 along the historical route to Rancho Trabuco. Nine sites with prehistoric resources, three sites with historic resources, and one site with unknown resources have been recorded within the surrounding one-half mile records search area.

Based on the results of Phase I Survey, there is a low potential for the inadvertent discovery of intact cultural deposits associated with CA-LAN-899/H and a moderate potential for the inadvertent discovery of intact cultural deposits associated with CA-LAN-36/H during construction activities that will be employed to install the proposed pipelines. The NAHC Sacred Lands File search did not indicate that cultural resources are in the project area; however, Native American outreach suggests that the area is of high cultural value to the Juaneno Band of Mission Indians community.

It is evident that the existing easement/ROW) has been subject to an extended history of disturbance. However, in consideration of the high density of significant (culturally and scientifically) archaeological sites and the obscured nature of the area along the Project alignment, there is still a possibility of unanticipated impacts to cultural resources during ground-disturbing construction activities within the unpaved portions of the Project alignment. Impacts may be appropriately addressed, or otherwise reduced to a less-than-significant level, through implementation of an archaeological and Native American construction monitoring program and post-construction reporting.

1 INTRODUCTION

This report presents the results of Dudek's Phase I resources Inventory for the Santa Margarita Water District (SMWD) Las Flores Water Reliability Project (Project). SMWD is the lead agency for compliance with the California Environmental Quality Act (CEQA). As it is anticipated that the Project will be subject to review by the Bureau of Reclamation (USBR), all work has additionally been completed in compliance with Section 106 of the National Historic Preservation Act (NHPA).

1.1 Project Location and Present Use

The Project is located in the unincorporated community of Las Flores, in Orange County, California (Figure 1). The Project site is situated in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5-minute topographic maps, respectively. The Project consists of approximately 13,840 linear feet of 8-inch, 10-inch, and 16-inch recycled water pipeline within existing SMWD easements and within existing road rights-of-way throughout the community (Figure 2). Specifically, the Project would be located within Oso Parkway, Meandering Trail Road, a portion of Antonio Parkway, and in a SMWD access road located behind the residential neighborhood located at the northwest corner of Oso Parkway and Antonio Parkway. The Project also involves the replacement of the existing Las Flores Lift Station, which is located approximately 800 feet west of the intersection of Oso Parkway and Antonio Parkway. Regional access to the Project site is provided via Interstate 5 and State Route 241.

1.2 Project Description

The Project includes installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space. The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650-foot-long 10-inch existing force main in the right-of-way (ROW) within Antonio Parkway. Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing force main for structural reinforcement. Two access points at existing manholes within Antonio Parkway are necessary for proper installation of the liner.

The Area of Potential Effects (APE) is anticipated to include the entire 13,840 linear feet of the utility rights-of-way (ROW), although a portion of the work would be completed through trenchless construction. Trenching is anticipated to include 40,200 square feet (0.92 acres) of earth disturbance within previously disturbed utility easements. Trenches would be no more than 3 feet wide and 5.5 feet in depth, this depth representing the vertical APE.

1.3 Regulatory Context

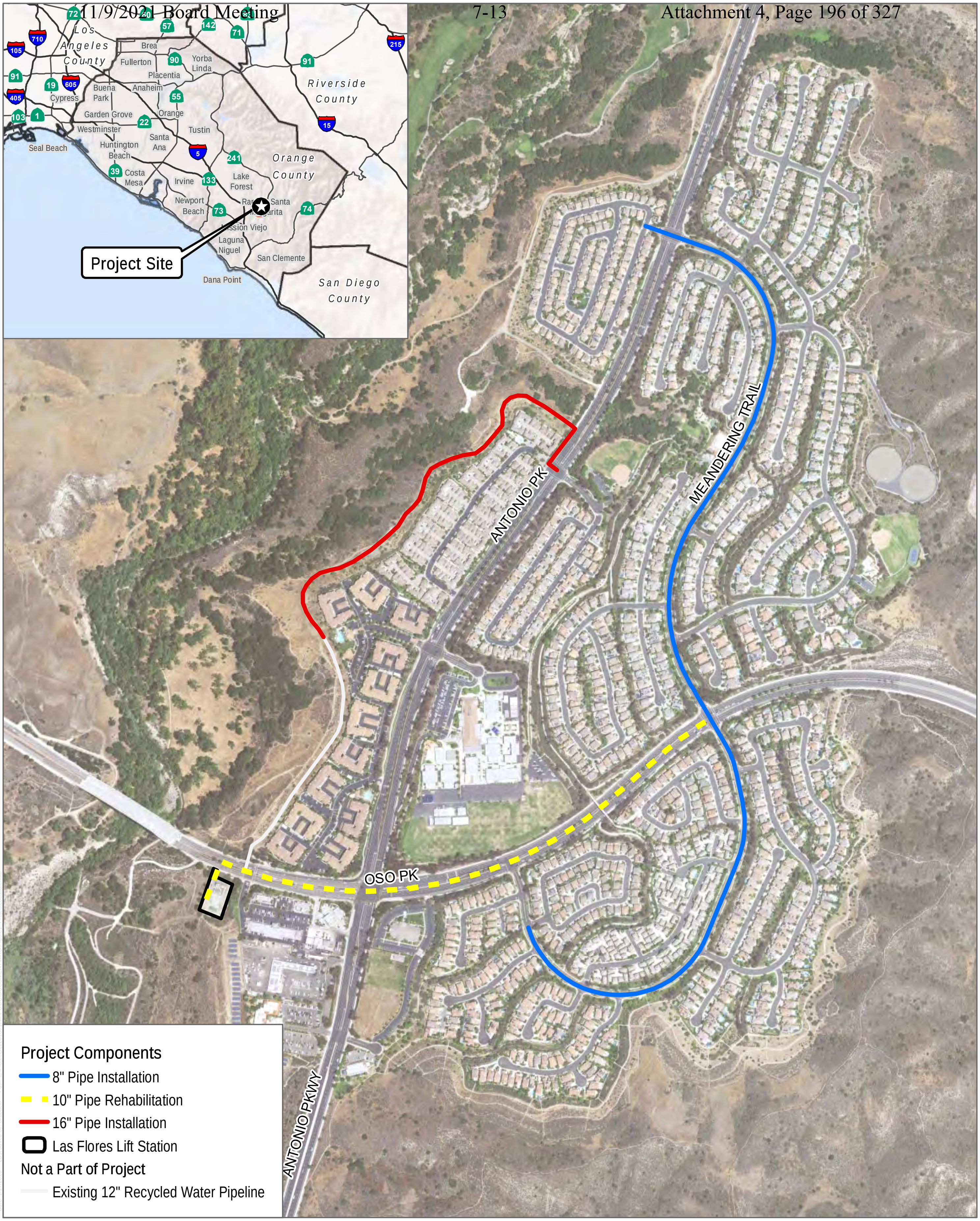
As currently planned, the Project is subject to federal, state, and local regulatory conditions and all work has been conducted in compliance with federal regulations. Applicable regulations are provided below

1.3.1 Federal Cultural Resources Regulations

1.3.1.1 National Historic Preservation Act

The NHPA established the National Register of Historic Places (NRHP) and the President's Advisory Council on Historic Preservation, and provided that states may establish State Historic Preservation Officers to carry out some of the functions of the NHPA. Most significantly for federal agencies responsible for managing cultural resources, Section 106 of the NHPA directs that "[t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP." Section 106 also affords the President's Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking (16 USC 470f).

Part 800 of Title 36 of the Code of Federal Regulations implements Section 106 of the NHPA. It defines the steps necessary to identify historic properties (those cultural resources listed in or eligible for listing in the NRHP), including consultation with federally recognized Native American tribes to identify resources with important cultural values; to determine whether or not they may be adversely affected by a proposed undertaking; and the process for eliminating, reducing, or mitigating the adverse effects.



SOURCE: NAIP 2016; Orange County 2018

DUDEK

FIGURE 1
Project Location
Las Flores Enhanced Water Reliability Project

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SOURCE: BING

DUDEK

0 295 590 Feet
0 70 140 Meters
1:6,952

FIGURE 2
APE Map
Las Flores Enhanced Water Reliability Project

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The content of Section 60.4 of Title 36 of the Code of Federal Regulations defines criteria for determining eligibility for listing in the NRHP. The significance of cultural resources identified during an inventory must be formally evaluated for historic significance in consultation with the California State Historic Preservation Officer to determine if the resources are eligible for inclusion in the NRHP. Cultural resources may be considered eligible for listing if they possess integrity of location, design, setting, materials, workmanship, feeling, and association. The criteria for determining eligibility are essentially the same in content and order as those outlined under CEQA, but the criteria under NHPA are labeled A through D (rather than 1–4 under CEQA).

Regarding criteria A through D of Section 106, the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, cultural resources, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:

A. are associated with events that have made a significant contribution to the broad patterns of our history; or

B. are associated with the lives of persons significant in our past; or

C. embody the distinctive characteristics of a type, period, or method of construction, 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; or

D. have yielded or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

The current cultural resources inventory is not designed to generate enough data to make eligibility recommendations on previously recorded cultural resources that are outside of the Project area, or newly discovered cultural resources; such determinations are typically made during a subsequent evaluation phase (e.g., excavations at prehistoric sites). However, the survey was designed to generate enough information to provide informal assessments of eligibility to help guide management considerations.

1.3.2 State of California

1.3.2.1 The California Register of Historical Resources

In California, the term "historical resource" includes "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (Public Resources Code (PRC) Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). The criteria for listing resources on the CRHR, enumerated in the following text, were developed to be in accordance with previously established criteria developed for listing in the NRHP. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

(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 in 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

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

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

1.3.2.2 California Environmental Quality Act

As described further in the following text, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- California Public Resources Code Section 21083.2(g) defines "unique archaeological resource."

- California Public Resources Code Section 21084.1 and CEQA Guidelines Section 15064.5(a) define "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource." It also defines the circumstances when a project would materially impair the significance of a historical resource.
- California Public Resources Code Section 21074(a) defines "tribal cultural resources."
- California Public Resources Code Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.

The NAHC is to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor, punishable by up to 1 year in jail, to deface or destroy a Native American historic or cultural site that is listed or may be eligible for listing in the CRHR.

1.3.2.3 California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the county coroner has examined the remains (California Health and Safety Code Section 7050.5[b]). California Public Resources Code Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the county coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California NAHC within 24 hours (California Health and Safety Code Section 7050.5[c]). The NAHC will notify the most likely descendant. With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the most likely descendant by the NAHC. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans. California Public Resources Code Sections 21083.2(b)–(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5[b]). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code Section 5024.1[q]), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5[a]). The lead agency is not precluded from determining that a resource is a historical resource, even if it does not fall within this presumption (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5[a]).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5[b][1]; California Public Resources Code Section 5020.1[(q]). In turn, the significance of a historical resource is materially impaired when a project does any of the following:

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

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

(3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA (CEQA Guidelines Section 15064.5[b][2]).

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

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 they cannot be left undisturbed, mitigation measures are required (California Public Resources Code Section 21083.2[a]–[c]).

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

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person

Impacts to nonunique archaeological resources are generally not considered a significant environmental impact (California Public Resources Code Section 21083.2[a]; CEQA Guidelines Section 15064.5[c][4]). However, if a nonunique archaeological resource qualifies as tribal cultural resource (California Public Resources Code 21074[c]; 21083.2[h]), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described in the following text, these procedures are detailed in California Public Resources Code Section 5097.98.

1.3.2.4 California State Assembly Bill 52

AB 52 of 2014 amended California Public Resources Code Section 5097.94 and added California Public Resources Code Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that tribal cultural resources must be considered under CEQA and also provided for additional Native American consultation requirements for the lead agency. Section 21074 describes a tribal cultural resource as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American Tribe. A tribal cultural resource is either:

- On the California Register of Historical Resources or a local historic register; Eligible for the California Register of Historical Resources or a local historic register; or

- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

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

1.3.2.5 Native American Human Remains

State law (California Public Resources Code Section 5097 et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and established the NAHC.

In the event that Native American human remains or related cultural material are encountered, Section 15064.5(e) of the CEQA Guidelines (as incorporated from California Public Resources Code Section 5097.98) and California Health and Safety Code Section 7050.5 define the subsequent protocol. In the event of the accidental discovery or recognition of any human remains, excavation or other disturbances shall be suspended of the site or any nearby area reasonably suspected to overlie adjacent human remains or related material. Protocol requires that a county-approved coroner be contacted in order to determine if the remains are of Native American origin. Should the coroner determine the remains to be Native American, the coroner must contact the NAHC within 24 hours. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation work, for means of treating, with appropriate dignity, the human remains and any associated grave goods as provided in California Public Resources Code Section 5097.98 (14 CCR 15064.5[e]).

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2 PROJECT CONTEXT

2.1 Environmental Context

The Project alignment is separated into three segments as seen in Figure 1: 10-inch pipeline rehabilitation, 8-inch pipe installation, and 16-inch pipe installation. The 10-inch pipeline rehabilitation and 8-inch pipe installation segments are situated within heavily disturbed, existing road rights-of-ways through residential neighborhoods and commercial, and educational developments, surrounded by undeveloped open space. The 16-inch pipeline is situated along a SMWD access road located behind a residential neighborhood. Arroyo Trabuco is located to the west of the study area that contains flowing water, associated riparian habitat. Vegetation communities within the area include coastal sage scrub (*Artemisia californica-Eriogonum fasciculatum* alliance), coast live oak woodland (*Quercus agrifolia* association), non-native grassland (red brome-mixed herbs semi-natural stands), parks and ornamental plantings, disturbed habitat, and urban/developed land. Elevation of the Study Area ranges from approximately 550 to 750 feet above mean sea level (AMSL). Surficial geological mapping of Morton and Miller (2006) indicates the project site is underlain by Middle to early Pleistocene (~126,000–2.58 million years ago [mya]) very old axial channel deposits, Late Miocene (~12 mya–5.33 mya) Monterey Formation, Oligocene (~34 mya–23 mya) San Onofre Breccia, and Late Eocene to Early Miocene (~ 38 mya–23 mya) Sespe Formation.

2.2 Cultural Context

Evidence for continuous human occupation in the region spans the last 10,000 years. Various attempts to parse out variability in archaeological assemblages over this broad time frame have led to the development of several cultural chronologies; some of these are based on geologic time, most are based on temporal trends in archaeological assemblages, and others are interpretive reconstructions. Each of these reconstructions describes essentially similar trends in assemblage composition in more or less detail. This research employs a common set of generalized terms used to describe chronological trends in assemblage composition: Paleoindian (pre-5500 BC), Archaic (8000 BC–AD 500), Late Prehistoric (AD 500–1750), and Ethnohistoric (post-AD 1750).

2.2.1 Paleoindian (pre-5500 BC)

Evidence for Paleoindian occupation in the region is tenuous; the knowledge of associated cultural pattern(s) is informed by a relatively sparse body of data that has been collected from within an area extending from coastal San Diego through the Mojave Desert and beyond. One of the earliest dated archaeological assemblages in this area (excluding the Channel Islands) derives from SDI-4669/W-12, in La Jolla, San Diego County. A human burial from SDI-4669 was radiocarbon dated to 9,590–9,920 years before present (95.4% probability) (Hector 2006). The burial is part of a larger site complex that contained more than 29 human burials associated with an assemblage that fits the Archaic profile (i.e., large amounts of groundstone, battered cobbles, and expedient flake tools). In contrast, typical Paleoindian assemblages include large stemmed projectile points, high proportions of formal lithic tools, bifacial lithic reduction strategies, and relatively small proportions of groundstone tools. Prime examples of this pattern are sites that were studied by Emma Lou Davis (1978) on China Lake Naval Air Weapons Station near Ridgecrest, California. These sites contained fluted and unfluted stemmed points and large numbers of formal flake tools (e.g., shaped scrapers, blades). Other typical Paleoindian sites include the Komodo site (MNO-679), a multicomponent fluted point site, and MNO-680, a single component Great Basined stemmed point site (Basgall et al. 2002). At MNO-679 and MNO-680, groundstone tools were rare, while finely made projectile points were common.

Warren et al. (2004) claimed that a biface manufacturing tradition present at the Harris site complex (SDI-149) is representative of typical Paleoindian occupation in the Southern California region that possibly dates between 10,365 and 8200 BC (Warren et al. 2004, p. 26). Termed San Dieguito (Rogers 1945), assemblages at the Harris site, located in the area now occupied by City of Escondido, are qualitatively distinct from most others in the region because the site has large numbers of finely made bifaces (including projectile points), formal flake tools, a biface reduction trajectory, and relatively small amounts of processing tools (Warren 1964, 1968). Despite the unique assemblage composition, the definition of San Dieguito as a separate cultural tradition is debated. Gallegos (1987) suggested that the San Dieguito pattern is simply an inland manifestation of a broader economic pattern. Gallegos' interpretation of San Dieguito has been widely accepted in recent years, in part because of the difficulty in distinguishing San Dieguito components from other assemblage constituents. In other words, it is easier to ignore San Dieguito as a distinct socioeconomic pattern than it is to draw it out of mixed assemblages.

The large number of finished bifaces (i.e., projectile points and non-projectile blades), along with large numbers of formal flake tools at the Harris site complex, is very different than nearly all other assemblages throughout the region, regardless of age. Warren et al. (2004) made this point, tabulating basic assemblage constituents for key early Holocene sites. Producing finely made bifaces and formal flake tools implies that relatively large amounts of time were spent for tool manufacture. Such a strategy contrasts with the expedient flake-based tools and cobble-core reduction strategy that typifies non-San Dieguito Archaic sites. It can be inferred from the uniquely high degree of San Dieguito assemblage formality that the Harris site complex represents a distinct economic strategy from non-San Dieguito assemblages.

If San Dieguito truly represents a distinct socioeconomic strategy from the non-San Dieguito Archaic processing regime, its rarity implies that it was not only short-lived, but that it was not as economically successful as the Archaic strategy. Such a conclusion would fit with the general trends in Southern California deserts, wherein hunting-related tools are replaced by processing tools during the early Holocene (Basgall and Hall 1990).

2.2.2 Archaic (8000 BC–AD 500)

The more than 1500-year overlap between the presumed age of Paleoindian occupations and the Archaic period highlights the difficulty in defining a cultural chronology in the region. If San Dieguito is the only recognized Paleoindian component in the region, then the dominance of hunting tools implies that it derives from Great Basin adaptive strategies and is not necessarily a local adaptation. Warren et al. (2004) admitted as much, citing strong desert connections with San Dieguito. Thus, the Archaic pattern is the earliest local socioeconomic adaptation in the region (Hale 2001, 2009).

The Archaic pattern is relatively easy to define with assemblages that consist primarily of processing tools: millingstones, handstones, battered cobbles, heavy crude scrapers, incipient flake-based tools, and cobble-core reduction. These assemblages occur in all environments across the region, with little variability in tool composition. Low assemblage variability over time and space among Archaic sites has been equated with cultural conservatism (Byrd and Reddy 2002; Warren 1968; Warren et al. 2004). Despite enormous amounts of archaeological work at Archaic sites, little change in assemblage composition occurs until the bow and arrow is adopted at around AD 500, as well as ceramics at approximately the same time (Griset 1996; Hale 2009). Even then, assemblage formality remains low. After the bow is adopted, small arrow points appear in large quantities, and already low amounts of formal flake tools are replaced by increasing amounts of expedient flake tools. Similarly, shaped millingstones and handstones decrease in proportion relative to expedient, unshaped groundstone tools (Hale 2009). Thus, the terminus of the Archaic period is equally as hard to define as its beginning because basic assemblage constituents and patterns of manufacturing investment remain stable, complimented only by the addition of the bow and ceramics.

2.2.3 Late Prehistoric (AD 500–1750)

The period of time following the Archaic and prior to Ethnohistoric times (AD 1750) is commonly referred to as the Late Prehistoric (Rogers 1945; Wallace 1955; Warren et al. 2004). However, several other subdivisions continue to be used to describe various shifts in assemblage composition, including the addition of ceramics and cremation practices. The post-AD 1450 period is called the San Luis Rey Complex (Meighan and True 1977). Rogers (1929) also subdivided the last 1,000 years into the Yuman II and III cultures, based on the distribution of ceramics. Despite these regional complexes, each is defined by the addition of arrow points and ceramics and the widespread use of bedrock mortars. Vagaries in the appearance of the bow and arrow and ceramics make the temporal resolution of the San Luis Rey complex difficult. For this reason, the term Late Prehistoric is well-suited to describe the last 1,500 years of prehistory in the region.

Temporal trends in socioeconomic adaptations during the Late Prehistoric period are poorly understood. This is partly due to the fact that the fundamental Late Prehistoric assemblage is very similar to the Archaic pattern but includes arrow points and large quantities of fine debitage from producing arrow points, ceramics, and cremations. While steatite was commonly the material of choice for vessel production, it was generally replaced near the time of missionization by locally procured clay to produce ceramic vessels. The appearance of mortars and pestles is difficult to place in time because most mortars are on bedrock. Some argue that the Ethnohistoric intensive acorn economy extends as far back as AD 500 (Bean and Shipek 1978). However, there is no substantial evidence that reliance on acorns, and the accompanying use of mortars and pestles, occurred prior to AD 1400. True (1980) argued that acorn processing and ceramic use in the region did not occur until the San Luis Rey pattern emerged after approximately AD 1450.

2.2.4 Ethnohistoric (post-AD 1750)

The history of the Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of the Native American inhabitants of the region come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The establishment of the missions in the region brought more extensive documentation of Native American communities, though these groups did not become the focus of formal and in-depth ethnographic study until the early twentieth century (Bean and Shipek 1978; Boscana 1846; Fages 1937; Geiger and Meighan 1976; Harrington 1934; Laylander 2000; White 1963). The principal intent of these researchers was to record the precontact, culturally specific practices, ideologies, and languages that had survived the destabilizing effects of missionization and colonialism. This research, often understood as “salvage ethnography,” was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation. Alfred Kroeber applied his “memory culture” approach (Lightfoot 2005, p. 32) by recording languages and oral histories within the region. Ethnographic research by Dubois, Kroeber, Harrington, Spier, and others during the early twentieth century seemed to indicate that traditional cultural practices and beliefs survived among local Native American communities.

It is important to note that even though there were many informants for these early ethnographies who were able to provide information from personal experiences about Native American life before European immigration, a significantly large proportion of these informants were born after 1850; therefore, the documentation of pre-contact, aboriginal culture was being increasingly supplied by individuals born in California after considerable contact with Europeans. This is an important issue to note when examining these ethnographies, since considerable culture change had undoubtedly occurred by 1850 among the Native American survivors of California.

Based on ethnographic information, it is believed that at least 88 different languages were spoken from Baja California Sur to the southern Oregon state border at the time of Spanish contact (Johnson and Lorenz 2006, p. 34). The distribution of recorded Native American languages has been dispersed as a geographic mosaic across California through six primary language families (Golla 2007, p. 71). Victor Golla has contended that one can interpret the amount of variability within specific language groups as being associated with the relative "time depth" of the speaking populations (Golla 2007, p. 80) A large amount of variation within the language of a group represents a greater time depth than a group's language with less internal diversity. One method that he has employed is by drawing comparisons with historically documented changes in Germanic and Romantic language groups. Golla has observed that the "absolute chronology of the internal diversification within a language family" can be correlated with archaeological dates (2007, p. 71). This type of interpretation is modeled on concepts of genetic drift and gene flows that are associated with migration and population isolation in the biological sciences.

The Native American inhabitants of the region would have generally spoken Juaneño (Acjachemen) and Gabrielino (or Tongva) varieties of Takic, which may be assigned to the larger Uto-Aztecan family (Golla 2007, p. 74). Golla has interpreted the amount of internal diversity within these language-speaking communities to reflect a time depth of approximately 2,000 years. Other researchers have contended that Takic may have diverged from Uto-Aztecan ca. 2600 BC–AD 1, which was later followed by the diversification within the Takic speaking tribes, occurring approximately 1500 BC–AD 1000 (Laylander 2010). The Juaneño (Acjachemen) and Gabrielino (or Tongva) represent the descendants of local Late Prehistoric populations. They are generally considered to have migrated into the area from the Mojave Desert, possibly displacing the prehistoric ancestors of the Yuman-speaking Kumeyaay (Ipai-Tipai) that lived to the south during Ethnohistoric times. The Luiseño-Juaneño shared boundaries with the Gabrieleño and Serrano to the west and northwest, the Cahuilla to the east, the Cupeño to the southeast, and the Kumeyaay to the south (Bean and Shipek 1978; Kroeber 1925). Southern Native American tribal groups of the San Diego and southern Imperial region have traditionally spoken Yuman languages, a subgroup of the Hokan Phylum.

The Uto-Aztecan inhabitants of the region were called Juaneño and Gabrielino or Gabrieleño) by Franciscan friars who established the Missions San Juan Capistrano and San Gabriel Arcángel the traditional territory of these two respective tribes. The project area is east of Aliso Creek, which is considered by Kroeber (1925) to be the ethnographic boundary marker between the Gabrieleño (or Tongva) (west of the Aliso Creek) and Juaneño (east of the Aliso Creek). A brief description of both ethnographic groups is provided in the following text.

The Gabrieleño may have numbered as many as 5,000 people during their peak in the pre-contact period; however, population estimates are difficult due to the gradual process of missionization (Kroeber 1925). The Gabrieleño territory included the Los Angeles Basin, the coast of Aliso Creek in Orange County to the south, and Topanga Canyon in the north, the four southern Channel Islands, and watersheds of the Los Angeles, San Gabriel, and Santa Ana Rivers. At the time of European contact, the Gabrieleño were actively involved in trade using shell and beads as currency. The Gabrieleño produced pipes, ornaments, cooking implements, inlay work, and basketry. Dwellings were constructed of tule mats on a framework of poles, but size and shape have not been recorded (Kroeber 1925). Basketry and steatite vessels were used rather than ceramics until near the end of the mission period in the nineteenth century (Garcia et al. 2011).

The Juaneño, or Acjachemen, territory was bounded to the north by Aliso Creek, the east by the crest of the Santa Ana Mountains, the south by San Onofre Creek, and west by the Pacific Ocean (Kroeber 1925:636). Ethnographic, linguistic, and archaeological evidence indicate that Juaneño and Luiseño are one cultural/tribal group. There is no existing record of the Juaneño population during the pre-contact period. Records indicated that approximately 1,300 individuals culturally affiliated with the Juaneño resided at Mission San Juan Capistrano in the year 1800 (Engelhardt 1922). The mission death register shows as many as 4,000 native burials in the mission cemetery (White 1963). It is clear from that arrival of the Spanish decimated Native peoples through disease and changed living conditions (Bean and Shipek 1978).

The tribes of the region were organized into patrilineal clans or bands centered on a chief, composed of 25–30 people (Kroeber 1925), each of which had their own territorial land or range where food and other resources were collected at different locations throughout the year (Sparkman 1908). The title of chief was heritable along family lines. Inter-band conflict was most common over trespassing. Sparkman observed that “when questioned as to when or how the land was divided and subdivided, the Indians say they cannot tell, that their fathers told them that it had always been thus” (1908). Place names were assigned to each territory, often reflecting common animals, plants, physical landmarks, or cosmological elements that were understood as being related to that location. Marriages were generally arranged by parents or guardians. Free and widowed women had the option to choose their partner. Polygamy occurred though was not common, often with a single man marrying a number of sisters and wives. Shamanism was a major component in tribal life. The physical body and its components was thought to be related to the power of an individual, and wastes such as fluids, hair, and nails were discarded with intent. Hair, once cut, was often carefully collected and buried to avoid being affected negatively or controlled by someone who wishes them harm. Some locations and natural resources were of cultural significance. Springs and other water-related features were thought to be related with spirits. These resources, often a component of origin stories, had power that came with a variety of risks and properties to those who became affected. Puberty ceremonies for both boys and girls were complex and rigorous. Mourning ceremonies were similar throughout the region, generally involving cutting of the hair, burning the deceased's clothes a year after death, and redistributing personal items to individuals outside of the immediate tribal group (Sparkman 1908; Kroeber 1925). The center of the Juaneño and Gabrielino religion was *Chinigchinich*, the last of a series of heroic mythological figures. The heroes were originally from the stars and the sagas told of them formed the Juaneño religious beliefs. The most obvious expression of the religion was the *Wankech*, a brush enclosed area where religious observances were performed. The *Wankech* contained an inner enclosure housing a representation of *Chinigchinich*, a coyote skin stuffed with feathers, claws, beaks, and arrows.

The staple food of the Native American inhabitants of this region during the ethnohistoric period was acorns (Sparkman 1908). Of the six or more oak species within this traditional territory, the most desirable of these was the black oak (*Quercus kelloggii*) due to its ease of processing, protein content, and digestibility. Acorns were stored in granaries to be removed and used as needed. The acorns were generally processed into flour using a mortar and pestle. The meal was most commonly leached with hot water and the use of a rush basket; however, there are also accounts of placing meal into excavated sand and gravel pits to allow the water to drain naturally. The acorn was then prepared in a variety of ways, though often with the use of an earthen vessel (Sparkman 1908). Other edible and medicinal plants of common use included wild plums, choke cherries, Christmas berry, gooseberry, elderberry, willow, *Juncus*, buckwheat, lemonade berry, sugar bush, sage scrub, currents, wild grapes, prickly pear, watercress, wild oats and other plants. More arid plants such as *Yucca, Agave*, mesquite, chia, bird-claw fern, *Datura*, yerba santa, *Ephedra*, and cholla were also of common use by some Juaneño and Gabrielino populations. A number of mammals were commonly eaten. Game animals included black-tailed deer, antelope, rabbits, hares, birds, ground squirrels, woodrats, bears, mountain lions, bobcats, coyotes, and others. In lesser numbers, reptiles and amphibians may have been consumed. Fish and marine resources provided some portion of many tribal communities, though most notably those nearest the coast. Shellfish would have been procured and transported inland from three primary environments, including the sandy open coast, bay and lagoon, and rocky open coast. The availability of these marine resources changed with the rising sea levels, siltation of lagoon and bay environments, changing climatic conditions, and intensity of use by humans and animals.

Areas or regions, identified by known physical landmarks, could be recognized as band-specific territories that might be violently defended. Other areas or resources, such as water sources and other locations that were rich in natural resources, were generally understood as communal land to be shared. The coastal Juaneño and Gabrieleño exchanged a number of local goods, such as seafood, coastal plants, and various types of shell, for items including acorns, agave, mesquite beans, gourds, and other more interior plants of use (Luomala 1978). Shellfish would have been procured from three primary environments, including the sandy open coast, bay and lagoon, and rocky open coast. The availability of these marine resources changed with the rising sea levels, siltation of lagoon and bay environments, changing climatic conditions, and intensity of use by humans and animals (Gallegos and Kyle 1988; Pigniolo 2005; Warren 1964). Shellfish from sandy environments included *Donax*, *Saxidomas*, *Tivela*, and others. Rocky coast shellfish dietary contributions consisted of *Pseudochama*, *Megastraea*, *Saxidomus*, *Protothaca*, *Megathura*, *Mytolis*, and others. Lastly, the bay environment would have provided *Argopecten*, *Chione*, *Ostrea*, *Neverita*, *Macoma*, *Tagelus*, and others. While marine resources were obviously consumed, terrestrial animals and other resources likely provided a large portion of sustenance. Game animals consisted of rabbits, hares (*Leporidae*), birds, ground squirrels, woodrats (*Neotoma*), deer, bears, mountain lions (*Puma concolor*), bobcats (*Lynx rufus)*, coyotes (*Canus latrans*), and others. In lesser numbers, reptiles and amphibians may have been consumed.

A number of local plants were used for food and medicine. These were exploited seasonally, and were both traded between regional groups and gathered as a single triblet moved between habitation areas. Some of the more common of these that might have been procured locally, or as higher elevation varieties, would have included buckwheat (*Eriogonum fasciculatum*), *Agave*, *Yucca*, lemonade berry (*Rhus integrifolia*), sugar brush (*Rhus ovata*), sage scrub (*Artemisia californica*), yerba santa (*Eriodictyon*), sage (*Salvia*), *Ephedra*, prickly pear (*Opuntia*), mulefat (*Baccharis salicifolia*), chamise (*Adenostoma fasciculatum*), elderberry (*Sambucus nigra*), oak (*Quercus*), willow (Salix), and *Juncus* grass, among many others (Wilken 2012).

2.2.5 The Historic Period (post-AD 1542)

European activity in the region began as early as AD 1542, when Juan Rodríguez Cabrillo landed in San Diego Bay. Sebastián Vizcaíno returned in 1602, and it is possible that there were subsequent contacts that went unrecorded. These brief encounters made the local native people aware of the existence of other cultures that were technologically more complex than their own. Epidemic diseases may also have been introduced into the region at an early date, either by direct contacts with the infrequent European visitors or through waves of diffusion emanating from native peoples farther to the east or south. Father Juan Crespí, a member of the 1769 Spanish Portolà expedition, authored the first written account of interaction between Europeans and the indigenous population in the region that makes up Orange County today. It is possible, but as yet unproven, that the precipitous demographic decline of native peoples had already begun prior to the arrival of Gaspar de Portolá and Junípero Serra in 1769.

Spanish colonial settlement was initiated in 1769, when multiple expeditions arrived in San Diego by land and sea, and then continued northward through the coastal plain toward Monterey. A military presidio and a mission were soon firmly established at San Diego, despite violent resistance to them from a coalition of native communities in 1776. Mission San Juan Capistrano was established this same year, on November 1st. Private ranchos subsequently established by Spanish and Mexican soldiers, as well as other non-natives, appropriated much of the remaining coastal or near-coastal locations (Pourade 1960–1967).

Mexico's separation from the Spanish empire in 1821 and the secularization of the California missions in the 1830s caused further disruptions to native populations. Some former mission neophytes were absorbed into the work forces on the ranchos, while others drifted toward the urban centers at San Diego and Los Angeles or moved to the eastern portions of the county where they were able to join still largely autonomous native communities. United States conquest and annexation, together with the gold rush in Northern California, brought many additional outsiders into the region. Development during the following decades was fitful, undergoing cycles of boom and bust. With rising populations in the nineteenth century throughout the Southern California region, there were increased demands for important commodities such as salt.

The Project location falls at the western limits of Rancho Trabuco, which was bordered to the west by Rancho Cañada de Los Alisos. This rancho was granted by the Mexican Government to Santiago Argüello in 1841, with additional acreage provided to John Forster in 1846. The area included nearly 22,000 acres east of Trabuco Canyon (Garcia et al. 2011).

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3 METHODS

3.1 Intensive Pedestrian Survey

Dudek cross-trained paleontologist and archaeologist, Michael Williams, Ph.D., under the direction of Adam Giacinto, MA, RPA and Micah Hale, Ph.D., RPA, inspected all areas of the planned alignment on February 18, 2020. Much of the area is covered with roads, although the open space area north of Oso Pkwy consists of open space. This area was subject to intensive-level survey spaced no more than 10 meters apart. Archaeological survey exceeded the applicable Secretary of Interior Professional Qualifications Standards for archaeological survey and evaluation. Survey crew was equipped with a Global Positioning System (GPS) receiver with sub-meter accuracy. Location-specific photographs were taken. Evidence for buried cultural deposits was opportunistically sought through inspection of natural or artificial erosion exposures and the spoils from rodent burrows. No artifacts were identified nor collected during the survey.

3.2 Disturbances

Disturbances to the Project AP have included a number of development-related impacts. Evident surface and subsurface disturbances have been caused through construction of paved and gravel roads, installation of existing water lines, and residential and commercial developments. Dudek reviewed historical aerials (available since 1938) and topographic maps (available since 1949) (NETR 2020a, 2020b). These maps and aerial photographs did not indicate the presence of historical built-environment resources within the APE.

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4 RESULTS

4.1 Previous Cultural Resource Investigations

A records search of the APE and the surrounding one-half mile was completed by SCCIC staff on January 23, 2020 (Confidential Appendix A). This search included their collection of mapped prehistoric, historical and built-environment resources, Department of Parks and Recreation (DPR) Site Records, technical reports, archival resources, and ethnographic references. Additional consulted sources included the NRHP, California Inventory of Historical Resources/CRHR and listed OHP Archaeological Determinations of Eligibility, California Points of Historical Interest, California Historical Landmarks, and California Department of Transportation Bridge Survey information.

4.1.1 Cultural Resources

Two cultural resources have been previously identified within the APE (CA-LAN-899/H and CA-LAN-36/H). CA-LAN-899/H consists of prehistoric, protohistoric, and historic artifacts; and CA-LAN-36H consists of prehistoric and historic artifacts. Nine sites with prehistoric resources, three sites with historic resources, and one site with unknown resources have been recorded within the surrounding one-half mile records search area (Table 1) (Confidential Appendix A).

Table 1.
Cultural Resources in Relation to the APE

Primary	Trinomial	Age	Description	Relation to APE
P-19-000036	CA-LAN-000036/H	Prehistoric, Protohistoric, and Historic	Ceramic Scatter, Caches, Rock Shelter/Cave	Inside
P-19-000470	CA-LAN-000470	Prehistoric	Rock Shelter/Cave and Habitation Debris	Outside
P-19-000784	CA-LAN-000784	Prehistoric	Lithic Scatter, Rock Shelter/Cave, and Habitation Debris	Outside
P-19-000785	CA-LAN-000785	Prehistoric	Bedrock Milling Feature, Petroglyphs, and Pictographs	Outside
P-19-000895	CA-LAN-000895	Prehistoric	Lithic Scatter, Hearth/Pits, and Habitation Debris	Outside
P-19-000896	CA-LAN-000896	Prehistoric	Lithic Scatter and Habitation Debris	Outside
P-19-000897	CA-LAN-000897	Prehistoric	Lithic Scatter	Outside
P-19-000898	CA-LAN-000898	Prehistoric	Lithic Scatter and Quarry	Outside
P-19-000899	CA-LAN-000899/H	Prehistoric and Historic	Foundations/Structure Pads. Lithic Scatter, and Adobe Building/Structure	Inside

Primary	Trinomial	Age	Description	Relation to APE
P-19-000900	CA-LAN-000900H	Historic	Foundations/Structure Pads, Privies/Dumps/Trash Scatters, and Adobe Building/Structure	Outside
P-19-000901	CA-LAN-000901	Unknown	Petroglyphs	Outside
P-19-100318	—	Historic	Privies/Dumps/Trash Scatters	Outside
P-19-100319	—	Historic	Privies/Dumps/Trash Scatters	Outside
P-19-100320	—	Prehistoric	Lithic Scatter	Outside
P-19-100321	—	Prehistoric	Lithic Scatter	Outside

4.1.1.1 P-19-000036 (CA-LAN-36/H)

CA-LAN-36/H, located inside the APE, was recorded in 1949 by the University of California, Los Angeles. Records on file with the SCCIC indicate the resource is documented to include a historic-era ceramic scatter, artifact caches, rock shelter, and habitation debris. No midden or subsurface deposits of cultural material were noted. The site record described CA-LAN-36/H as an encampment along the route to Rancho Trabuco that was occupied until 1867 by Native Americans that had survived the smallpox epidemic of 1862.

4.1.1.2 P-19-000899 (CA-LAN-899/H)

CA-LAN-899/H, located inside the APE, was recorded in 1980 by T. Cooley. The site was observed to include "a thin scatter of milling stone assemblage artifacts over a large area" according to the DPR site record. No specification regarding the age of the artifacts were noted on the site record, and no midden or subsurface deposits of cultural material were noted. The SCCIC records search indicated the site contained foundations/structure pads and adobe building/structures; however, these were not observed in the historical aerial images reviewed. Cooley observed that the site was likely disturbed by previous brush clearing and grading. The portion of the site within the Project APE has been destroyed by housing development. Historical aerial imagery (from 1994 and 1997) indicate the site was developed between those years.

4.1.2 Previous Technical Studies

SCCIC records indicate that 25 previous cultural resources technical investigations have been conducted within a one-half-mile radius of the Project alignment. Of these, 2 studies (Del Chario and Demcak 1989; Julian and Demcak 1993) are known to have directly included portions of the current APE, and 1 is a paleontological resources study (Table 1).

Table 2.
Previous Studies That Have Included the Project Alignment

Author	Year	Company	Title
Bean, Lowell	1979	Cultural Systems Research, Inc.	Cultural Resources and the High Voltage Transmission Line From San Onofre to Santiago and Black Star Canyon
Cottrell, Marie G.	1977	Archaeological Research, Inc.	Report of Archaeological Investigations Conducted at CA-ORA-470 Planning Area 8, Mission Viejo
Cottrell, Marie G.	1980	Archaeological Research, Inc.	Archaeological Resources Assessment Conducted for the Trabuco Land and Cattle Company and the Plano Trabuco Properties in the Trabuco Area of Orange County
Anonymous	1980	Not Listed	Archaeological Resources Assessment Conducted for 7,000 Acres in South Orange County Referred to As the Horno Parcel
Cottrell, Marie G.	1984	Not Listed	Archaeological Investigations of CA-ORA-896, Trabuco Area of Orange County, California
Bissell, Ronald M.	1989	RMW Paleo Associates, Inc.	Cultural Resources Management Plan for O'Neill Regional Park Orange County, California
Del Chario, Kathleen C. and Carol R. Demcak	1989	Archaeological Resource Management Corporation	Preliminary Report of Test-level Investigations Conducted at CA-ORA-899, -36, and -895, Las Flores Village Project, Rancho Santa Margarita, Orange County, California
Demcak, Carol R.	1991	Archaeological Resource Management Corporation	Cultural Resources Assessment for the Santa Margarita Water District (SMWD) Emergency Operational Storage Reservoir Alternative, South Orange County, California
Julien, Melissa R. and Carol R. Demcak	1993	Archaeological Resource Management Corporation	Archaeological Monitoring Report for Contract 1485 and Contract 1485a, South County Pipeline Project, Orange County, California
Padon, Beth and Fran Govean	1993	Petra Resources Inc.	An Archaeological and Paleontological Resource Assessment of the Proposed High School Site, Chiquita Canyon, Orange County
Demcak, Carol R.	1994	Archaeological Resource Management Corporation	Report of Cultural Resources Assessment for Antonio Parkway Alignment From Oso Parkway to La Pata Drive, South Orange County, California
McCoy, Lesley C. and Philips Roxana	1980	Westec Services, Inc.	National register Assessment Program of Cultural Resources for the 230 kV Transmission Line Rights-of-Way from San Onofre Nuclear Generating Station to Black Star Canyon and Santiago Substation and to Encina and Mission Valley Substation
Carleton, Jones S., Sue A. Wade, Kathleen C. Allen, and Carol R. Demcak	1995	Archaeological Resource Management Corporation	Report of Archaeological Test and Salvage Investigations at the Golf Course Village Sites, Plano Trabuco, Orange County, California

Author	Year	Company	Title
Demcak, Carol R. and Milos Velechovsky	1996	Archaeological Resource Management Corporation	Archaeological Investigations for the Antonio Parkway Extension, Oso Parkway to Ortega Highway, South Orange County, California
Lapin, Philippe	2000	LSA Associates, Inc.	Cultural Resource Assessment for Pacific Bell Wireless Facility CM 371-01, County of Orange, California
Demcak, Carol R.	1999	Archaeological Resource Management Corporation	Report of Cultural Resources Records Search for Project 2000, Rancho Mission Viejo, Orange County
Demcak, Carol R.	2000	Archaeological Resource Management Corporation	Report of Archaeological Resources Survey for Rancho Mission Viejo, Project 2000, South Orange County
Evans, Nancy H.	2000	Archaeological Resource Management Corporation	Rancho Mission Viejo: An Ethnohistory
Bonner, Wayne H.	2005	Michael Brandman Associates	Cultural Resources Records Search and Site Visit for Cingular Wireless Oc-024-01 (SMWD Pump Station), 29634 Oso Parkway, Trabuco Canyon, Orange County, California
Demcak, Carol R. and Stephen R. Van Wormer	2003	Archaeological Resource Management Corp.	Report of Archaeological Testing for the Project 2000, Phase II-b, Rancho Mission Viejo, South Orange County, California
Velechovsky, Milos	2000	Archaeological Resource Management Corporation	Report of Paleontological Resources Survey for the Ranch Plan, Rancho Mission Viejo, South Orange County, California
Demcak, Carol R.	2002	Archaeological Resource Management Corporation	Report of Archaeological Testing for the Ranch Plan, Phase II-A, Rancho Mission Viejo, South Orange County, California
Evans, Nancy H.	2000	Archaeological Resource Management Corporation	(duplicate of OR-2394) Rancho Mission Viejo: An Ethnohistory
Demcak, Carol R. and Stephen R. Van Wormer	2003	Archaeological Resource Management Corporation	Report of Archaeological Testing for the Ranch Plan, Phase II-B, Rancho Mission Viejo, South Orange County, California
Deering, Mark and Mason, Roger D.	2011	ECORP Consulting, Inc	Cultural Resources Documentation and Monitoring of Southern California Edison Access Roads During Maintenance by the Orange County Fire Authority, 2010 Orange County, California

4.2 NAHC Search and Tribal Coordination

Dudek requested a NAHC search of the Sacred Lands File for the Project site, and the NAHC provided results on February 20, 2020. This search indicated the presence of Native American resources listed in the Sacred Lands File within the Project site or the surrounding one-half-mile buffer (Confidential Appendix B). The NAHC additionally provided a list of Native American tribes and individuals/organizations that might have knowledge of cultural resources in this area.

4.3 Pedestrian Survey

An intensive pedestrian survey was conducted of the area of potential effects, consisting of the Project alignment, by Dudek cross-trained paleontologist and archaeologist, Michael Williams, on February 18, 2020. No archaeological or historic-era built-environment artifacts or features were identified. The majority of the Project alignment is within paved road rights-of-way through residential neighborhoods. The area of the Project not within residential areas is the 16-inch pipeline on the west side of the Project alignment along the SMWD access road behind a residential area. With the exception of portions of the alignment along the SMWD access road, all areas of the APE appeared to have been previously disturbed through paving for roads and water pump stations (Figures 3 – 5). The SMWD access road is heavily traveled and portions appear to have been overlain with gravel.

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Figure 3. Photograph showing paved street at western beginning of 10-inch pipeline along Oso Parkway. View to the east.

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Figure 4. Photograph at western terminus of 8-inch pipeline showing development within Site 899. View to the west.

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Figure 5. Photograph of southern terminus of 16-inch pipeline within Site 36. View to the northwest.

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4.4 Tribal Coordination

Following the NAHC response, letters were sent on March 3 and 4, 2020, to the listed tribal representatives with the intent of requesting information, opinions or concerns relating to the Project impacts (Confidential Appendix B). These letters contained a brief description of the planned Project, reference maps, and a summary of the NAHC Sacred Lands File search results.

To date, the Agua Caliente Band of Cahuilla Indians, Pala Band of Mission Indians, Juaneño Band of Mission Indians, and Rincon Band of Luiseño Indians have responded to our tribal inquiries. The Agua Caliente Band of Cahuilla Indians, Pala Band of Mission Indians, and Rincon Band of Luiseño Indians indicated the Project is not located within their traditional use area and deferred to tribes that are located closer to the Project. The Juaneño Band of Mission Indians stated they wanted to consult on the Project and requested that Native American and archaeological monitors be present during all ground disturbing activities, (Confidential Appendix B).

The Project is subject to compliance with AB 52 (California Public Resources Code Section 21074), which requires consideration of impacts to "tribal cultural resources" as part of the CEQA process, and requires the CEQA lead agency to notify any groups (who have requested notification) of the proposed project who are traditionally or culturally affiliated with the geographic area of the project. SMWD sent AB 52 notification letters to tribal representatives in early March. Because AB 52 is a government-to-government process, all records of correspondence related to AB 52 notification and any subsequent consultation are on file with SMWD.

4.5 Geomorphology

4.5.1 Archaeological Sensitivity

The potential for yet-identified cultural resources in the vicinity was reviewed against geologic and topographic geographic information system (GIS) data for the area and information from other nearby projects. The "archaeological sensitivity," or potential to support the presence of buried prehistoric archaeological deposits, is generally interpreted based on geologic landform and environmental parameters (i.e., distance to water and landform slope). The Project alignment is underlain by the following geological units from youngest to oldest:

- Middle to early Pleistocene (~ 126,000–2.58 million years ago [mya]) very old axial channel deposits (map unit Qvoaa)
- Late Miocene (~12 mya–5.33 mya) Monterey Formation (map unit Tm)

- Late Eocene to early Miocene (~ 38 mya–23 mya) Sespe Formation (map unit Ts)

These soils predate human occupation of the region and, as such, the formation of cultural deposits is relatively unlikely. However, given that the APE is located along areas of relatively low slope, it should be assumed that there has been some Holocene-era soil accumulation and, as such, there is potential for archaeological resources to persist, if present, in areas where disturbances have been limited. Some areas of the APE run along existing paved roads; subsurface soils in these areas are likely highly disturbed.

Based on the process of soil formation and the level of previous disturbance, the likelihood for significant unanticipated prehistoric archaeological deposits to be present within the APE is considered low to moderate. Given the presence of permanent water (Tijeras Creek) and other previously recorded prehistoric resources within and near the APE, there is potential for prehistoric archaeological resources to be present. The potential for small historic-period sites such as trash scatters and water-related features within the Project site is considered low to moderate, because such sites would likely been observable during archaeological survey.

5 SUMMARY AND MANAGEMENT CONSIDERATIONS

5.1 Impact Analysis

Two previously recorded archaeological resources (CA-LAN-36/H and CA-LAN-899/H) were identified within SCCIC records to fall within the Project APE, and a number of additional sites are recorded in the surrounding vicinity. CA-LAN-36/H, an ethnohistoric Native American encampment dating between 1862 and 1867 along the road to Rancho Trabuco, was last documented in 1949. CA-LAN-899/H, a prehistoric lithic scatter, was last documented in 1980 and was noted to be at risk of destruction. These resources were not identified within the APE during archaeological survey, and have likely been destroyed where they intersect the Project. Based on geomorphological evidence and the level of previous disturbance, areas within existing roads have a low potential to contain unanticipated cultural resources. The portion of the APE that includes the unpaved access road north of Oso Parkway has a moderate potential to contain unanticipated cultural deposits. The NAHC Sacred Lands File search did not indicate that cultural resources are in the project area; however, Native American outreach for the Project suggests that the area is of high cultural value to Juaneño Band of Mission Indians community. Management recommendations to reduce potential impacts to unanticipated archaeological resources and human remains during Project construction activities are provided as follows.

5.2 Recommendations

A qualified archaeologist (project archaeologist), as defined by CEQA, should be retained to manage the implementation of the cultural resources mitigation program as outlined below. Prior to the initiation of ground-disturbing work, construction crews will be made aware of the potential to encounter cultural resources and the requirement for cultural monitors to be present during these activities. Areas observed to have potential to contain yet-identified subsurface cultural material or deposits are located within portions of the APE along the unpaved access road north of Oso Parkway. Other areas within the APE are not recommended to require archaeological monitoring, as any potential resources have likely been destroyed through previous road and utility construction. Archaeological monitoring may be adjusted at the recommendation of the qualified archaeological principal investigator, and in consultation with SMWD, based on inspection of exposed subsurface soils and their observed potential to contain intact cultural deposits or material.

CUL-1:

A. Prior to beginning construction activities, the project archaeologist will attend any pertinent preconstruction meetings with the construction manager and/or pipeline contractor in order to provide recommendations and answer questions relating to the archaeological monitoring program. The Project archaeologist will be familiar with the cultural inventory conducted for the current Project and prepared to introduce any pertinent information concerning expectations and probabilities of discovery during ground disturbing activities.

B. A qualified archaeological monitor will be present full time during the initial disturbances of soil with potential to contain cultural deposits, which includes the unpaved access road north of Oso Parkway. Archaeological monitoring of initial ground disturbance will not exceed a depth of 5.5 feet unless cultural resources are identified. Cultural monitoring will not be required within paved roads or for demolition of existing buildings, nor for subsurface soils currently beneath these structures. With consultation of the SMWD, Cultural resources monitoring may be reduced from initial full-time monitoring to periodic spot checks, or discontinued if appropriate, once the project archaeologist determines that there is little or no risk to encounter cultural material.

C. Daily archaeological monitoring logs will be prepared. Logs will include monitor names and affiliations, a description of general activities observed, and cultural discoveries, as well as comments or concerns as applicable.

D. In the event that archaeological resources (e.g., sites, features, or artifacts) are exposed during construction activities for the Project, all construction work occurring within 100 feet of the find shall immediately stop until the qualified archaeological principal investigator, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. If there is any indication that the find could be of interest of Native Americans, the archaeological principal investigator shall notify a representative from the Juaneño Band of Mission Indians, Acjachemen Nation of the find. Should it be required, temporary flagging may be installed around this resource in order to avoid any disturbances from construction equipment. Depending upon the significance of the find under CEQA (14 CCR 15064.5[f]; California Public Resources Code Section

21082), the archaeological monitor in correspondence with the qualified archaeological principal investigator may simply record the find to appropriate standards (thereby addressing any data potential) and allow work to continue. If the qualified archaeological principal investigator, in consultation with the Native American representative (if applicable), observes the discovery to be potentially significant under CEQA or Section 106 of the NHPA, additional efforts (such as preparation of an archaeological treatment plan, testing, and/or data recovery) may be warranted prior to allowing construction to proceed in this area. The feasibility for avoidance will also be discussed with SMWD, the Native American representative (if applicable), and other appropriate parties prior to any investigation that may result in disturbance to archaeological resources.

E. The project archaeologist will be responsible for ensuring that all cultural materials collected will be cleaned, catalogued, and permanently curated with an appropriate institution; that a letter of acceptance from the curation institution has been submitted to the lead agency; that all artifacts are analyzed to identify function and chronology as they relate to the history of the area; that faunal material will be identified as to species; and specialty studies are completed, as appropriate.

F. All construction crew members should be alerted to the potential to encounter archaeological material. In the event that cultural resources (e.g., sites, features, artifacts, or fossilized material) are exposed during construction activities for the Project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified specialist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. Prehistoric archaeological deposits may be indicated by the presence of discolored or dark soil, fire-affected material, concentrations of fragmented or whole freshwater bivalve shell, burned or complete bone, non-local lithic materials, or the characteristic observed to be atypical of the surrounding area. Common prehistoric artifacts may include modified or battered lithic materials; lithic or bone tools that appear to have been used for chopping, drilling, or grinding; projectile points; fired clay ceramics or non-functional items; and other items. Historic-age deposits are often indicated by the presence of glass bottles and shards, ceramic material, building or domestic refuse, ferrous metal, or old features such as concrete foundations or privies. Depending upon the significance of the find under CEQA (14 CCR 15064.5[f]; California Public Resources Code Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.

G. In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the county coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the county coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the county coroner determines that the remains are, or are believed to be, Native American, the coroner shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall inspect the remains within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

H. Within 3 months following the completion of monitoring, two copies of a monitoring results report (even if negative) and/or evaluation report, if applicable, that describes the results, analysis, and conclusions of the archaeological monitoring program (with appropriate graphics) will be submitted to the lead agency. It is recommended that the lead agency consult directly with the State Historic Preservation Office on the findings of this report.

I. The archaeologist will be responsible for recording (on the appropriate California Department of Parks and Recreation forms—DPR 523 A and B) any significant or potentially significant resources encountered during the archaeological monitoring program in accordance with the California Environmental Quality Act Cultural Resources Guidelines, and submitting such forms to the South Central Coast Information Center at California State University, Fullerton, with the final monitoring results report.

6 REFERENCES

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APPENDIX A (CONFIDENTIAL)

SCCIC Records Search Results

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APPENDIX B

NAHC Sacred Lands Search and Tribal Coordination

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February 20, 2020

Ted Roberts
Dudek

Via Email to: troberts@dudek.com

Re: 12318 Las Flores Enhanced Water Reliability Project, Orange County

Dear Mr. Roberts:

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 positive. Please contact the Juaneno Band of Mission Indians – Acjachemen Nation on the attached list for more information. 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: steven.quinn@nahc.ca.gov

Sincerely,

Steven Quinn
Cultural Resources Analyst

Attachment

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

Native American Heritage Commission
Native American Contact List
Orange County
2/20/2020

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

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

Juaneno Band of Mission Indians
Sonia Johnston, Chairperson
P.O. Box 25628 — Juaneno
Santa Ana, CA, 92799
sonia.johnston@sbcglobal.net

Juaneno Band of Mission Indians Acjachemen Nation - Belardes
Joyce Perry, Tribal Manager
4955 Paseo Segovia — Juaneno
Irvine, CA, 92603
Phone: (949) 293 - 8522
kaamalam@gmail.com

Juaneno Band of Mission Indians Acjachemen Nation - Belardes
Matias Belardes, Chairperson
32161 Avenida Los Amigos — Juaneno
San Juan Capisttrano, CA, 92675
Phone: (949) 293 - 8522
kaamalam@gmail.com

Juaneno Band of Mission Indians Acjachemen Nation - Romero
Teresa Romero, Chairperson
31411-A La Matanza Street — Juaneno
San Juan Capistrano, CA, 92675
Phone: (949) 488 - 3484
Fax: (949) 488-3294
tromero@juaneno.com

La Jolla Band of Luiseno Indians
Fred Nelson, Chairperson
22000 Highway 76 — Luiseno
Pauma Valley, CA, 92061
Phone: (760) 742 - 3771

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

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

Pechanga Band of Luiseno Indians
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

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 12318 Las Flores Enhanced Water Reliability Project, Orange County.

Native American Heritage Commission
Native American Contact List
Orange County
2/20/2020

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

Rincon Band of Luiseno Indians
Cheryl Madrigal, Tribal Historic Preservation Officer
One Government Center Lane — Luiseno
Valley Center, CA, 92082
Phone: (760) 297 - 2635
crd@rincon-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

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

San Luis Rey Band of Mission Indians
1889 Sunset Drive — Luiseno
Vista, CA, 92081
Phone: (760) 724 - 8505
Fax: (760) 724-2172
cjmojado@slrmissionindians.org

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

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

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 12318 Las Flores Enhanced Water Reliability Project, Orange County.

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 03, 2020

Mr. Temet Aguilar, Chairperson
Pauma & Yuima Reservation
P.O. Box 369
Pauma Valley, CA 92061

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Mr. Aguilar,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

The Native American Heritage Commission conducted a Sacred Lands file search, and indicated that Native American cultural resources were identified within a one-half mile distance of the proposed project area. A SCCIC records search indicated previously-identified cultural resources that intersected the project APE. A pedestrian survey did not identify any cultural resources that would be disturbed by the proposed project activities. I am writing as part of the Inventory process in order to find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project. Any consultation relating to AB 52 should be directed to the lead agency:

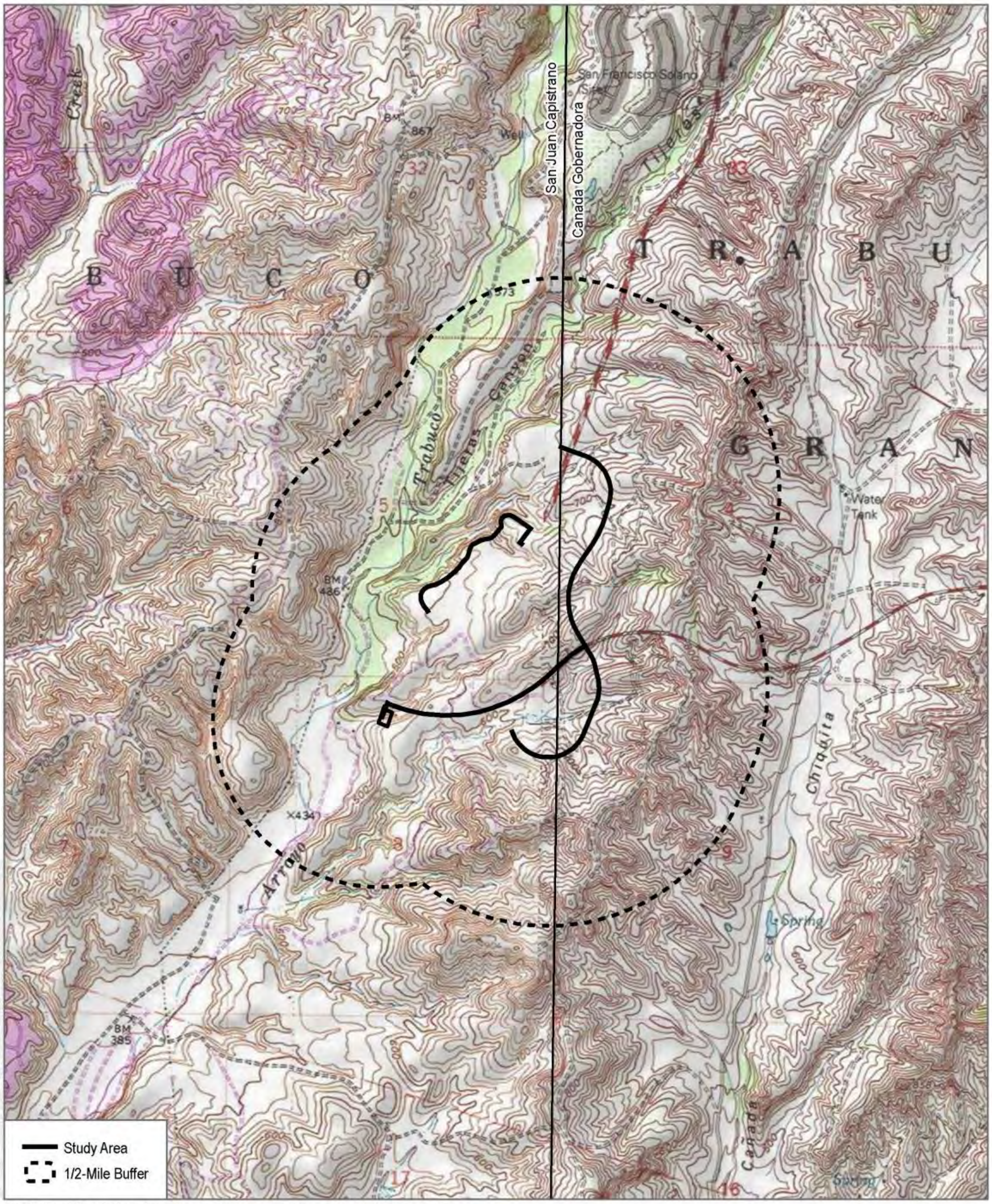
Mrs. Karla Houlihan
Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688

If you have any information or concerns pertaining to such information, please contact me by phone or email.

Respectfully,

Adam Giacinto, M.A., RPA
Archaeologist
DUDEK
Phone: (760) 942-4252
Email: agiacinto@dudek.com

Attachments: *Figure 1. Records Search Map*



SOURCE: USGS 7.5-Minute Series San Juan Capistrano and Canada Gobernadora Quadrangles
Trabuco Land Grant (Township 7 South; Range 7 West, Projected)

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Records Search Map
Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 03, 2020

Mr. Matias Belardes, Chairperson
Juaneno Band of Mission Indians Acjachemen Nation
32161 Avenida Los Amigos
San Juan Capistrano, CA 92675

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Mr. Belardes,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

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Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688

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Respectfully,

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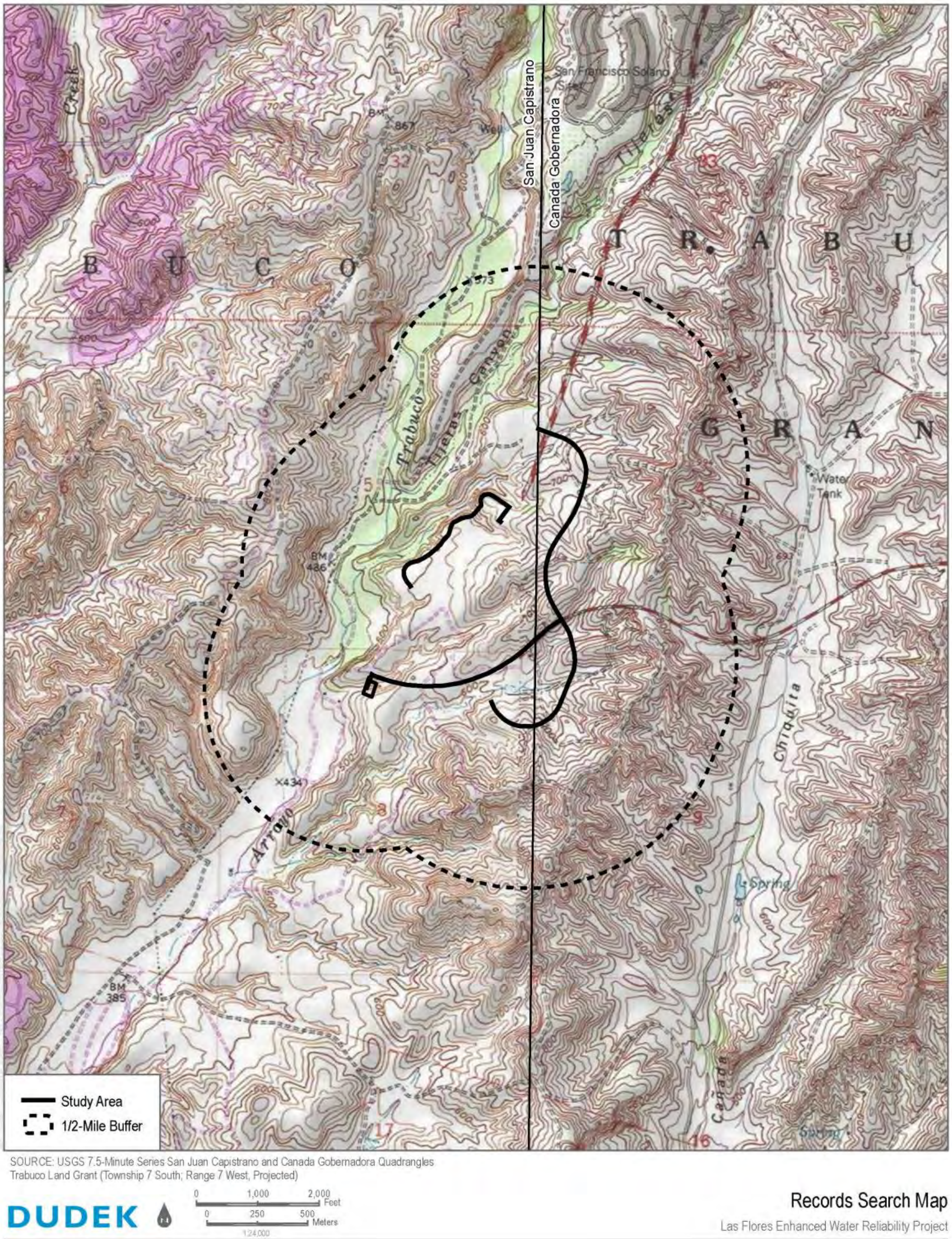

Records Search Map

Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Mr. Scott Cozart, Chairperson
Soboba Band of Luiseno Indians
P.O. Box 487
San Jacinto, CA 92583

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Mr. Cozart,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

The Native American Heritage Commission conducted a Sacred Lands file search, and indicated that Native American cultural resources were identified within a one-half mile distance of the proposed project area. A SCCIC records search indicated previously-identified cultural resources that intersected the project APE. A pedestrian survey did not identify any cultural resources that would be disturbed by the proposed project activities. I am writing as part of the Inventory process in order to find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project. Any consultation relating to AB 52 should be directed to the lead agency:

Mrs. Karla Houlihan
Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688

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Respectfully,

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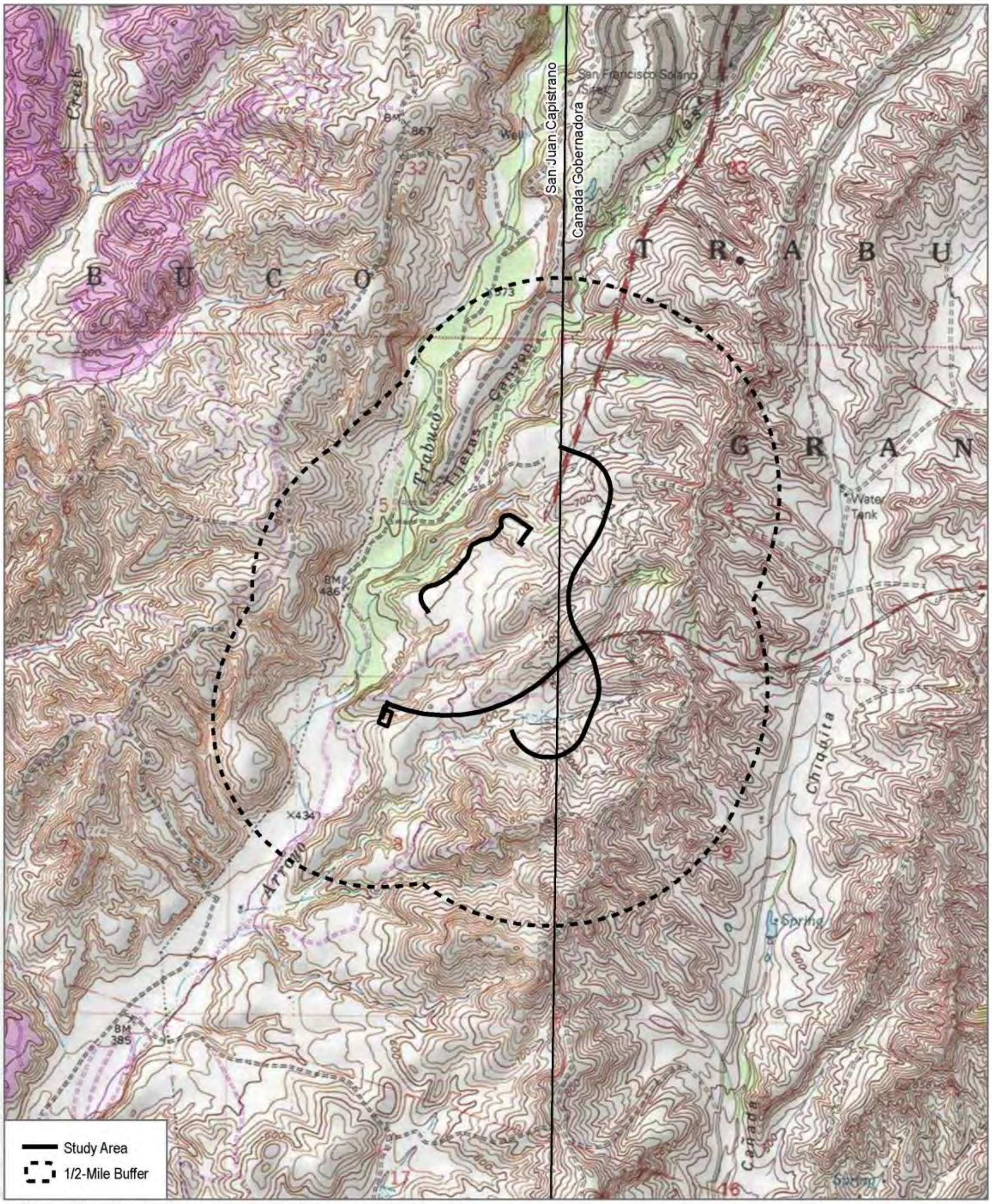

SOURCE: USGS 7.5-Minute Series San Juan Capistrano and Canada Gobernadora Quadrangles
Trabuco Land Grant (Township 7 South; Range 7 West, Projected)

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Records Search Map
Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Ms. Patricia Garcia-Plotkin, Tribal Historic Preservation Officer
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA 92262

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Ms. Garcia-Plotkin,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

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Rancho Santa Margarita, CA 92688

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Archaeologist
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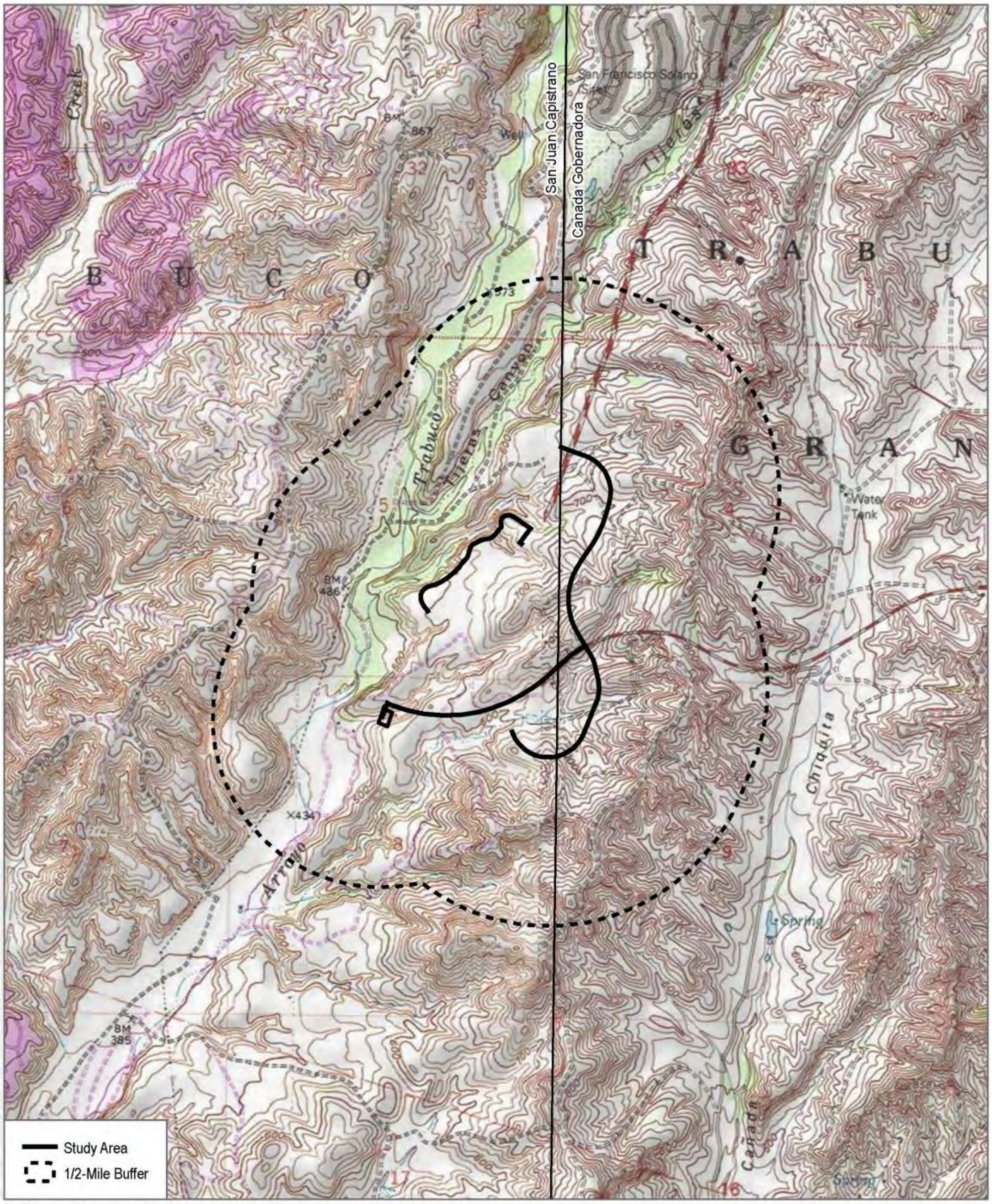

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Records Search Map
Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Ms. Shasta Gaughen, Assistant Director
Kupa Cultural Center
35008 Pala Temecula Rd.
Pala, CA 92059

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Ms. Gaughen,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

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Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688

If you have any information or concerns pertaining to such information, please contact me by phone or email.

Respectfully,

Adam Giacinto, M.A., RPA
Archaeologist
DUDEK
Phone: (760) 942-4252
Email: agiacinto@dudek.com

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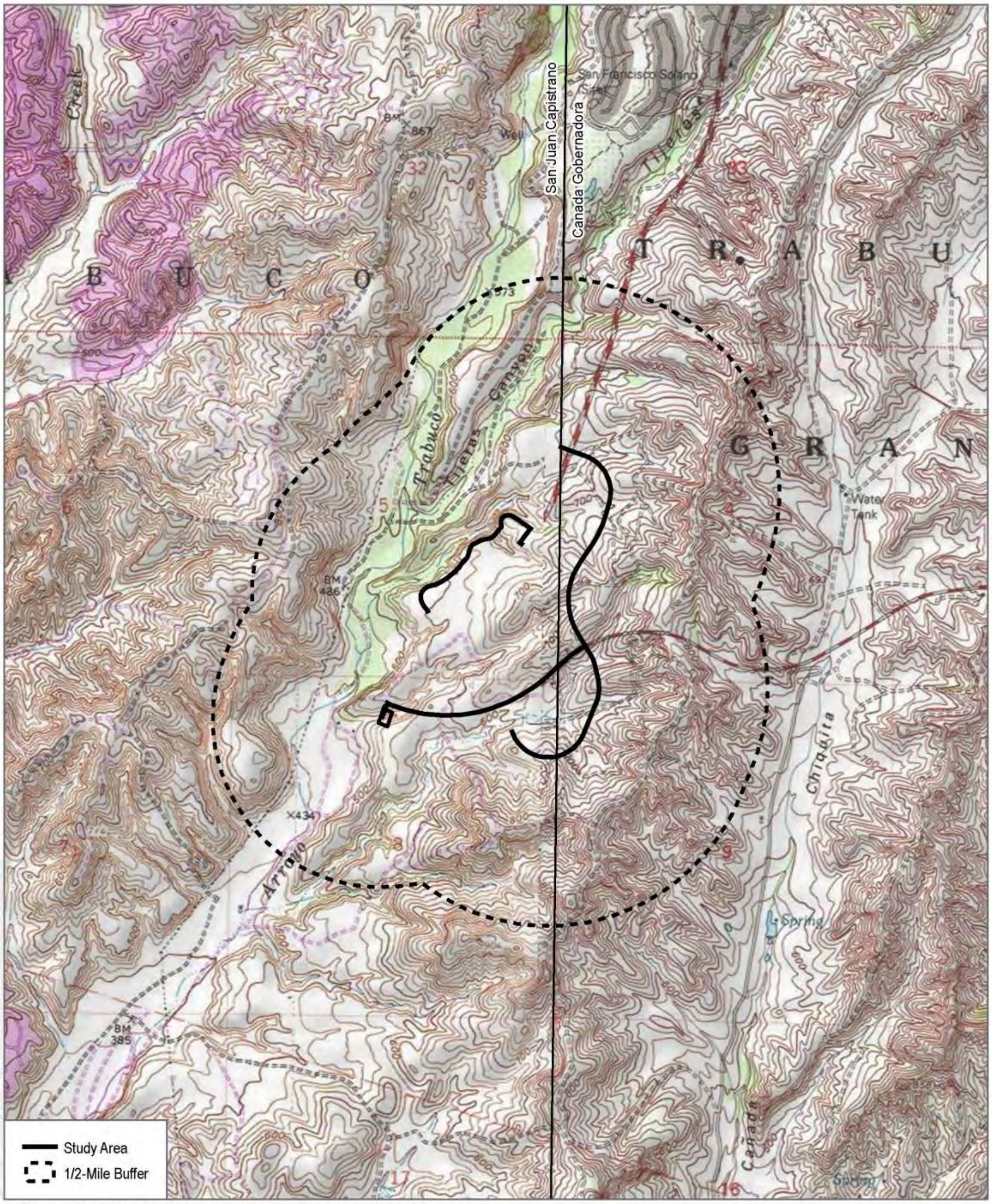

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Trabuco Land Grant (Township 7 South; Range 7 West, Projected)

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Records Search Map

Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Mr. Jeff Grubbe, Chairperson
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA 92262

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Mr. Grubbe,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

The Native American Heritage Commission conducted a Sacred Lands file search, and indicated that Native American cultural resources were identified within a one-half mile distance of the proposed project area. A SCCIC records search indicated previously-identified cultural resources that intersected the project APE. A pedestrian survey did not identify any cultural resources that would be disturbed by the proposed project activities. I am writing as part of the Inventory process in order to find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project. Any consultation relating to AB 52 should be directed to the lead agency:

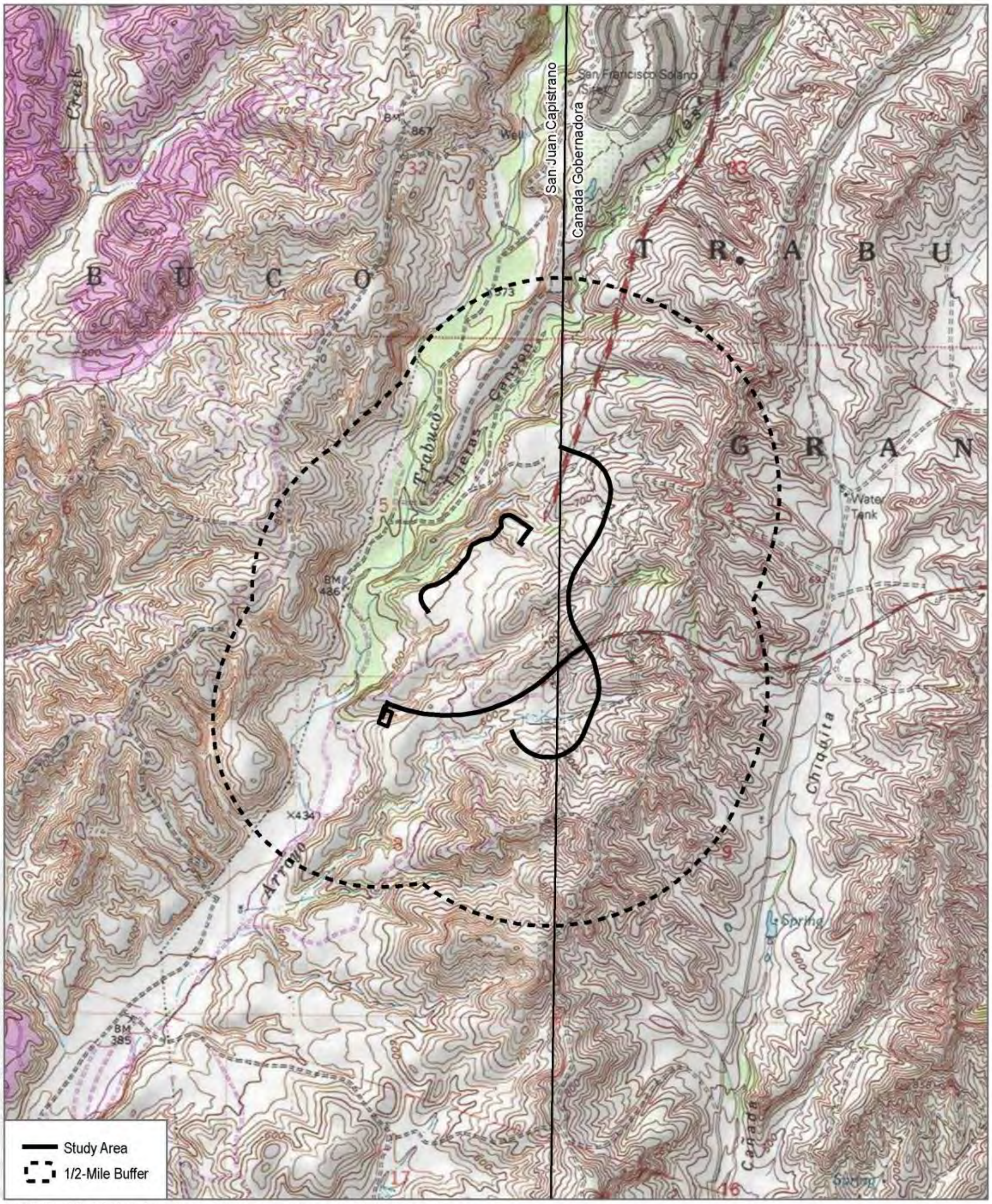
Mrs. Karla Houlihan
Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688

If you have any information or concerns pertaining to such information, please contact me by phone or email.

Respectfully,

Adam Giacinto, M.A., RPA
Archaeologist
DUDEK
Phone: (760) 942-4252
Email: agiacinto@dudek.com

Attachments: *Figure 1. Records Search Map*



SOURCE: USGS 7.5-Minute Series San Juan Capistrano and Canada Gobernadora Quadrangles
Trabuco Land Grant (Township 7 South; Range 7 West, Projected)

DUDEK

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Records Search Map
Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Ms. Sonia Johnston, Tribal Chairperson
Juaneno Band of Mission Indians
P.O. Box 25628
Santa Ana, CA 92799

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Ms. Johnston,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

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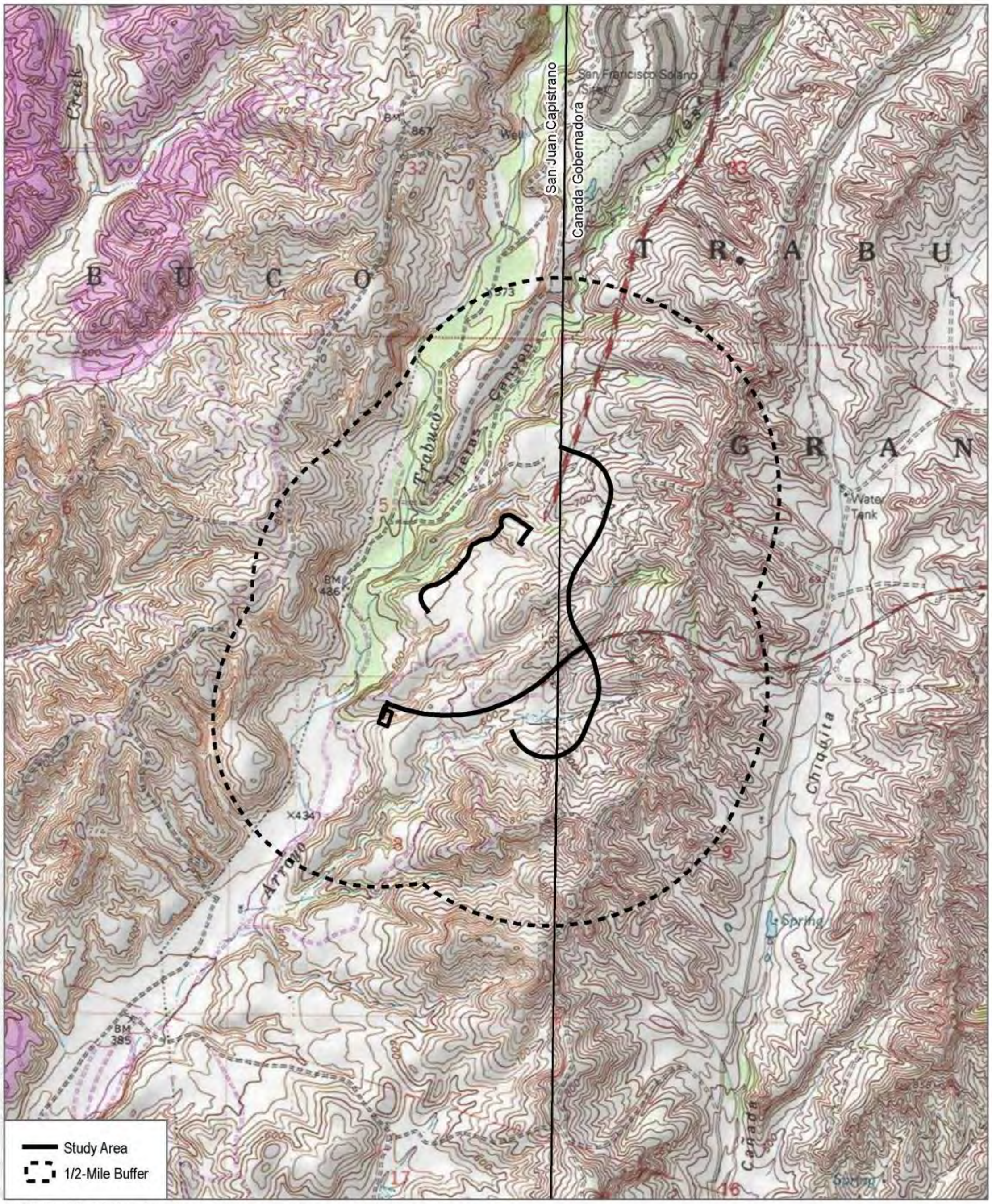

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Records Search Map
Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Mr. Mark Macarro, Chairperson
Pechanga Band of Mission Indians
P.O. Box 1477
Temecula, CA 92593

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Mr. Macarro,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

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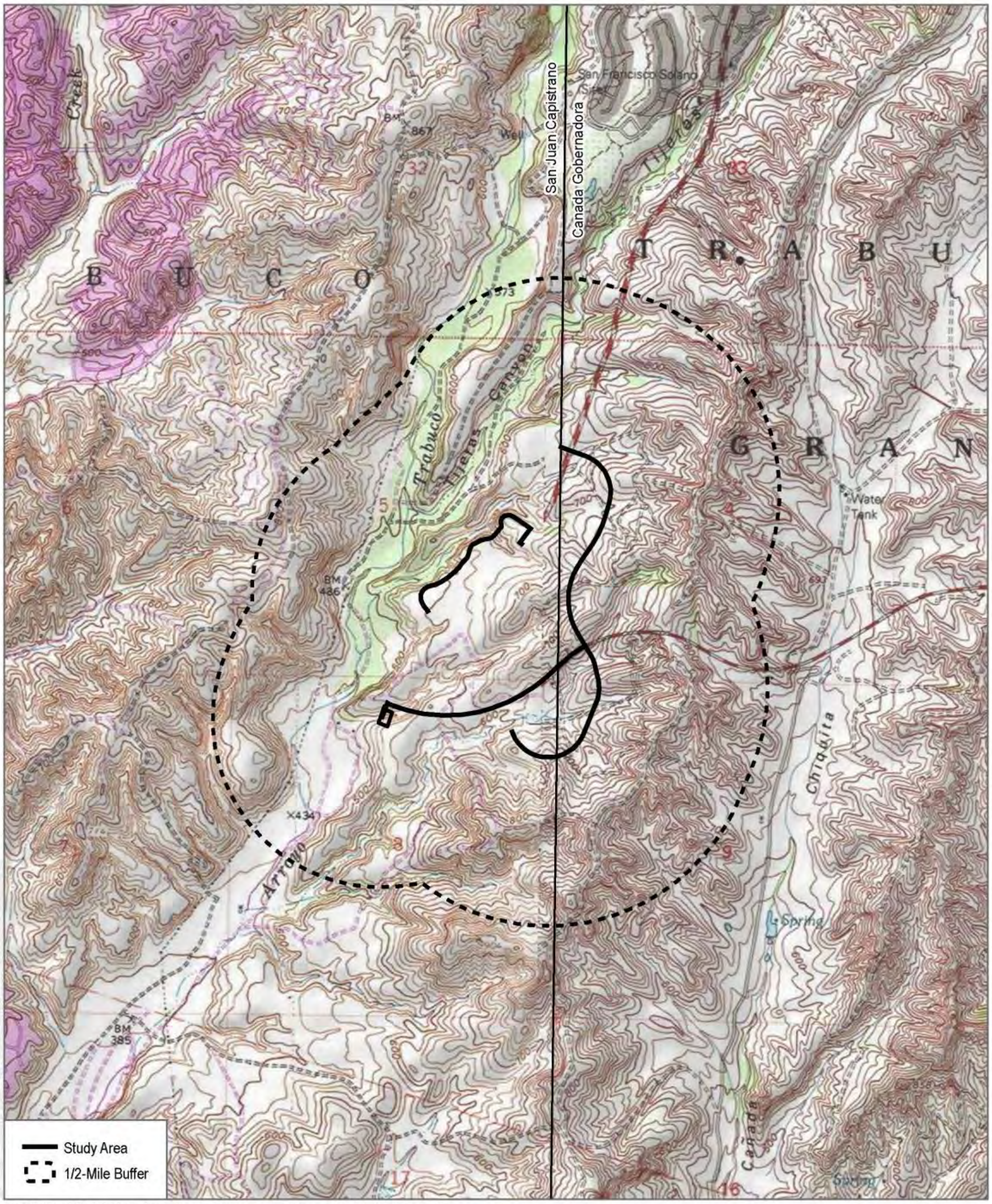

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Records Search Map
Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Ms. Cheryl Madrigal, Tribal Historic Preservation Officer
Rincon Band of Mission Indians
One Governement Center Lane
Valley Center, CA 92082

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Ms. Madrigal,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

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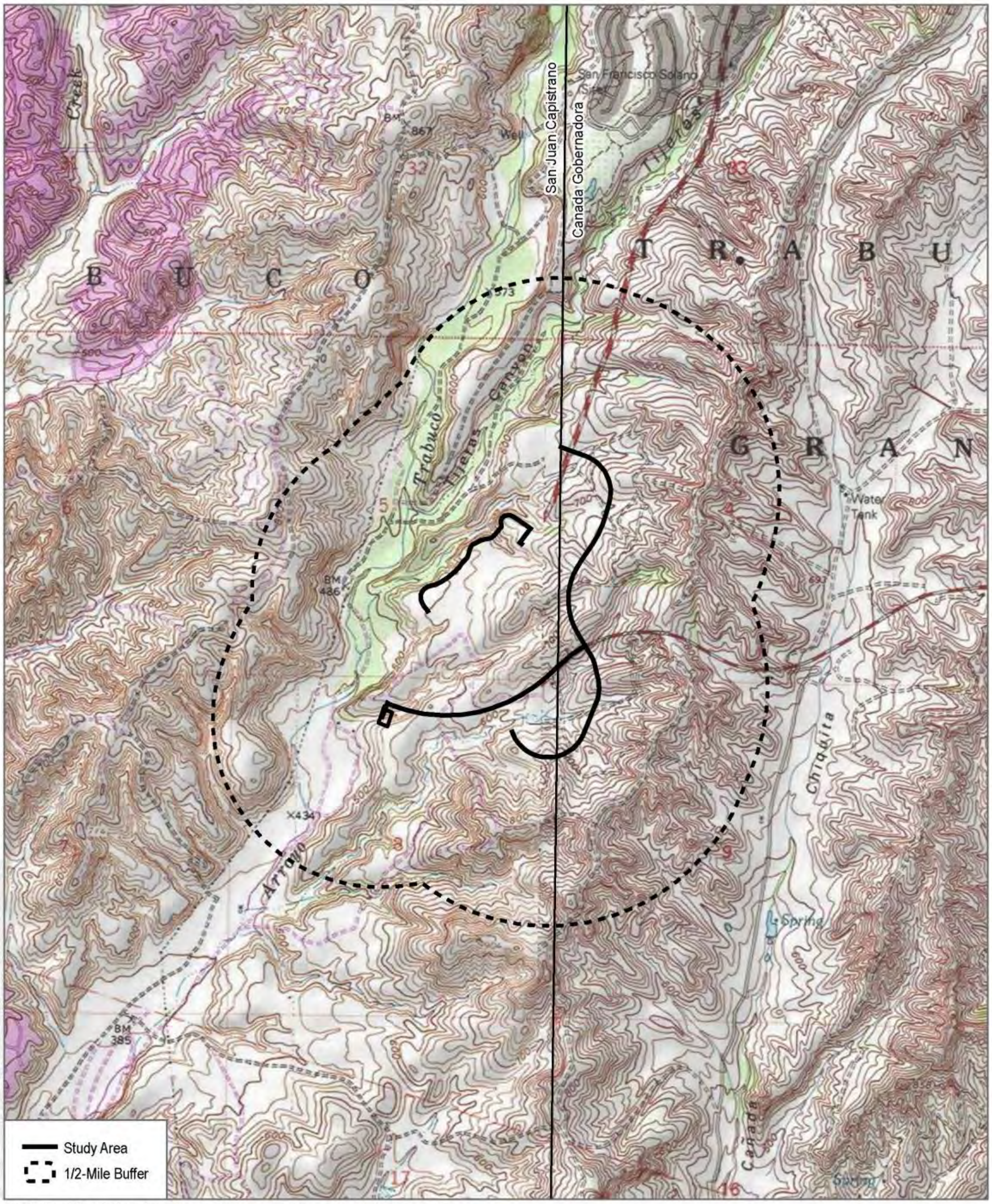

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Records Search Map

Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Mr. Bo Mazzetti, Tribal Chairman
Rincon Band of Mission Indians
1 W. Tribal Road
Valley Center, CA 92082

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Mr. Mazzetti,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

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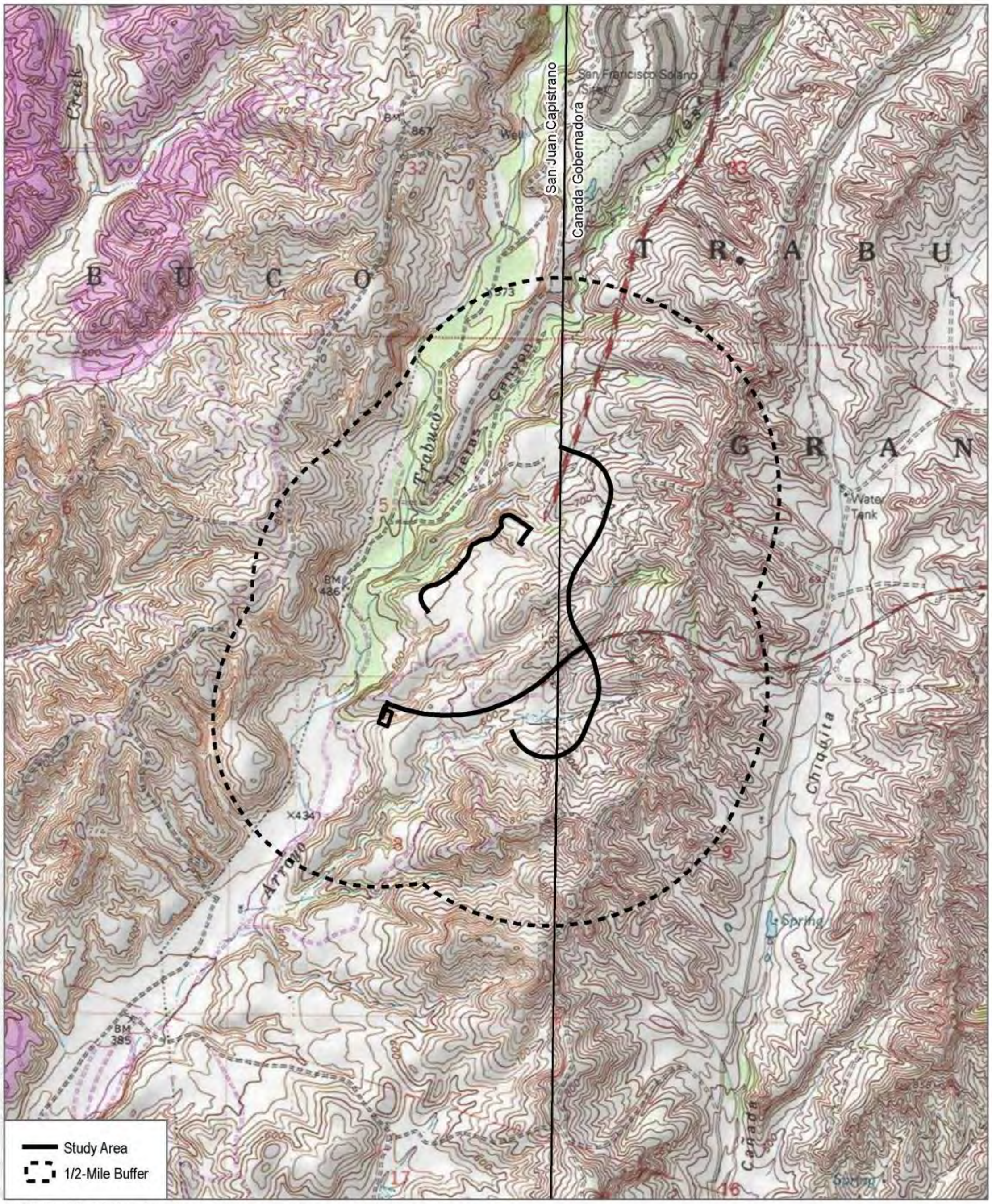

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Records Search Map
Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Mr. Fred Nelson, Chairperson
La Jolla Band of Mission Indians
22000 Highway 76
Pauma Valley, CA 92061

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Mr. Nelson,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

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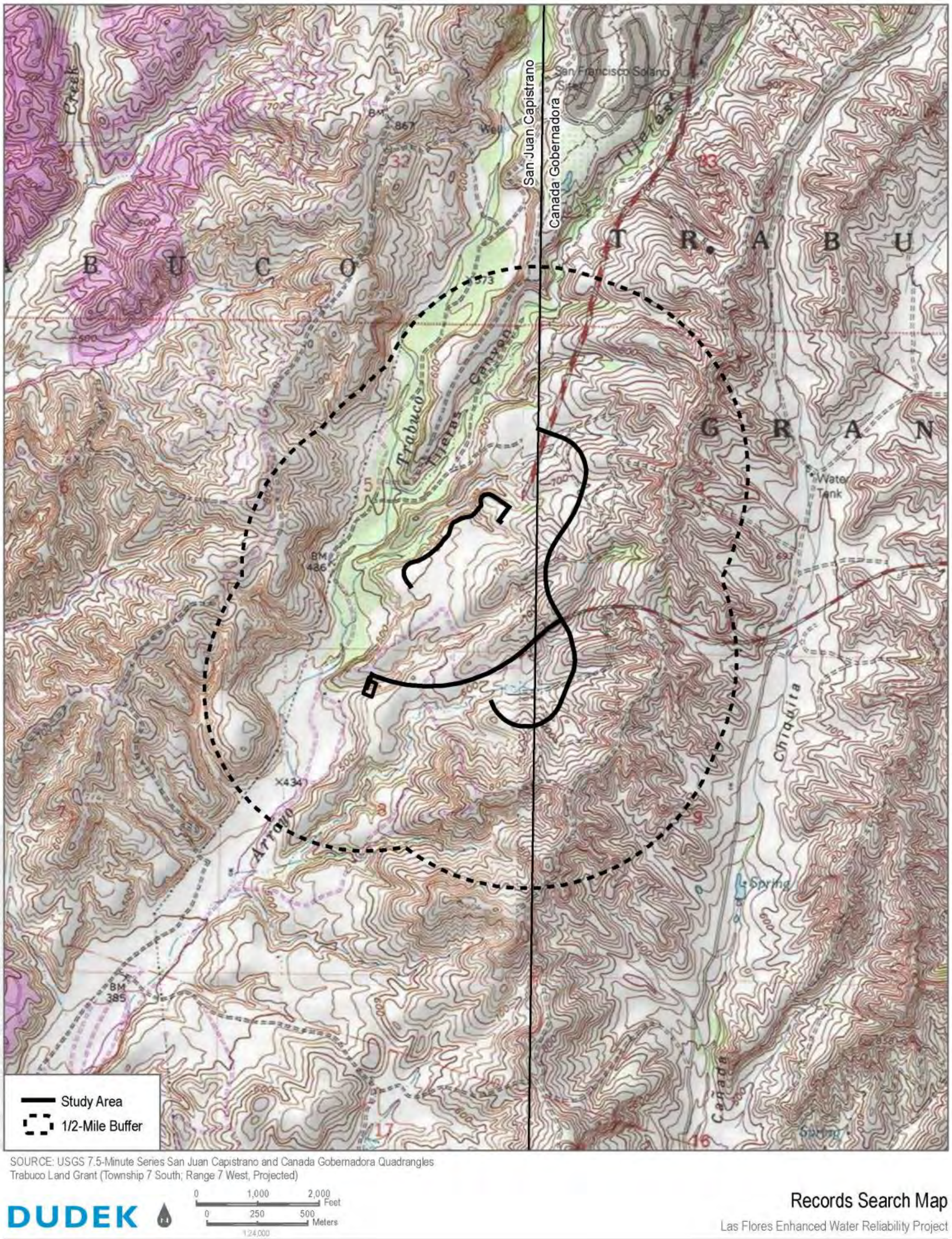
San Juan Capistrano
Canada Gobernadora
San Francisco Solano
T R A B U
B U C O
G R A N
Trabuco
Tijeras
Canyon
Arroyo
Chiquita
Canada
Water Tank
Spring
Study Area
1/2-Mile Buffer
SOURCE: USGS 7.5-Minute Series San Juan Capistrano and Canada Gobernadora Quadrangles
Trabuco Land Grant (Township 7 South; Range 7 West, Projected)
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Records Search Map
Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Mr. Joseph Ontiveros, Cultural Resource Department
Soboba Band of Luiseno Indians
P.O. Box 487
San Jacinto, CA 92581

Subject: ***Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California***

Dear Mr. Ontiveros,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

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Rancho Santa Margarita, CA 92688

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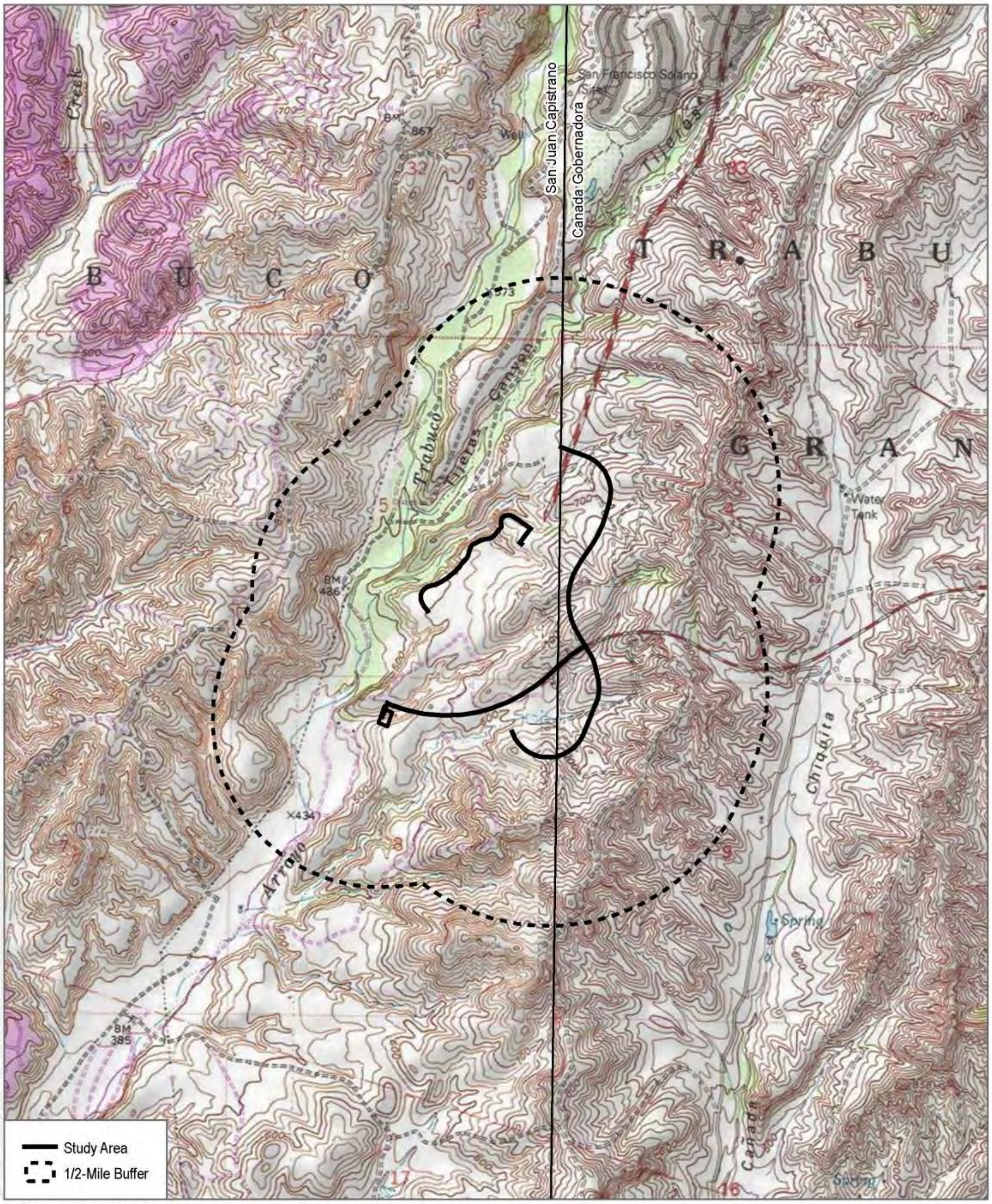

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Trabuco Land Grant (Township 7 South; Range 7 West, Projected)

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Records Search Map

Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Ms. Joyce Perry, Representing Tribal Chairperson
Juaneno Band of Mission Indians Acjachemen Nation
4955 Paseo Segovia
Irvine, CA 92612

Subject: ***Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California***

Dear Ms. Perry,

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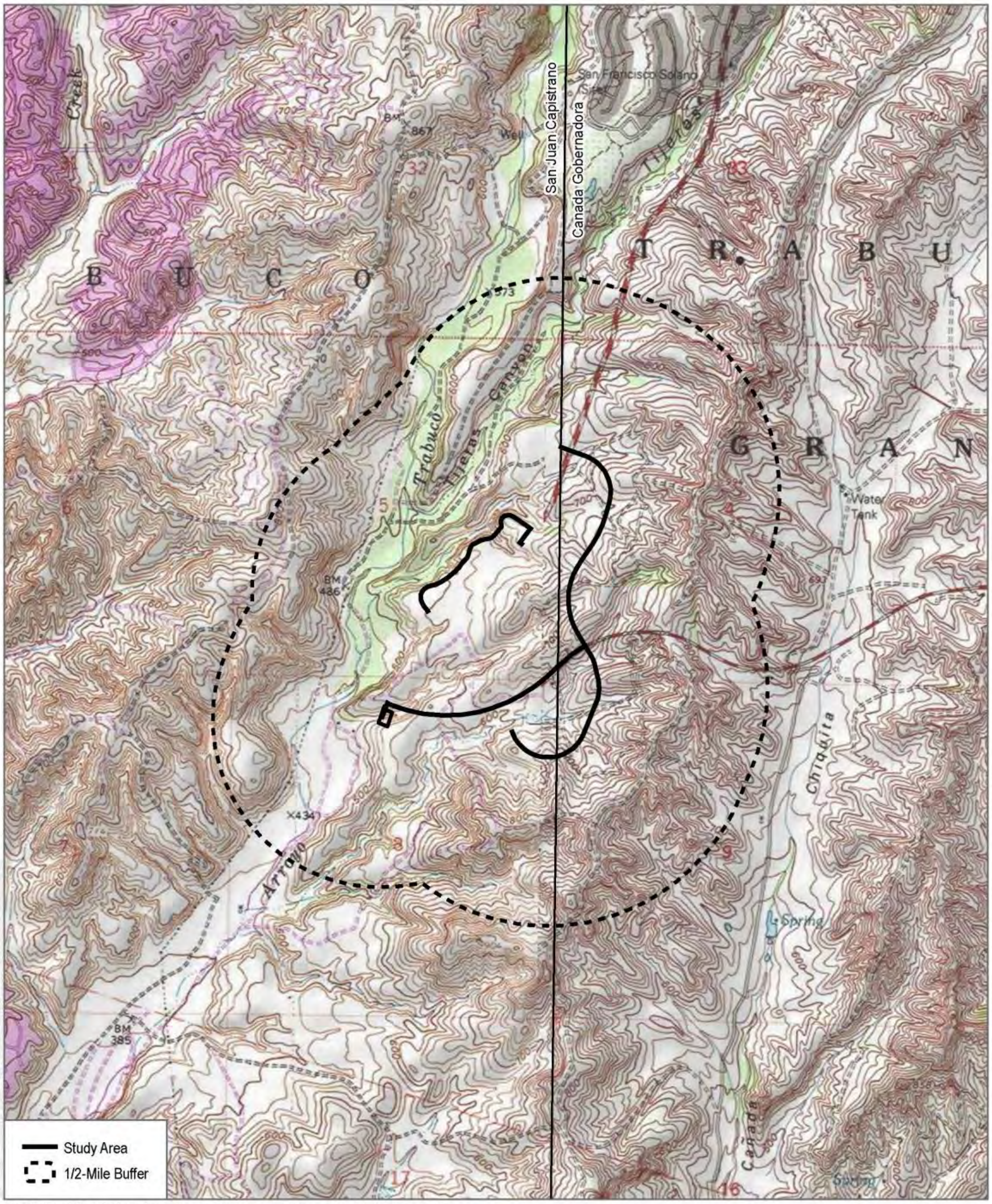

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Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Mr. Paul Macarro, Cultural Resources Coordinator
Pechanga Band of Mission Indians
P.O. Box 1477
Temecula, CA 92593

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Mr. Macarro,

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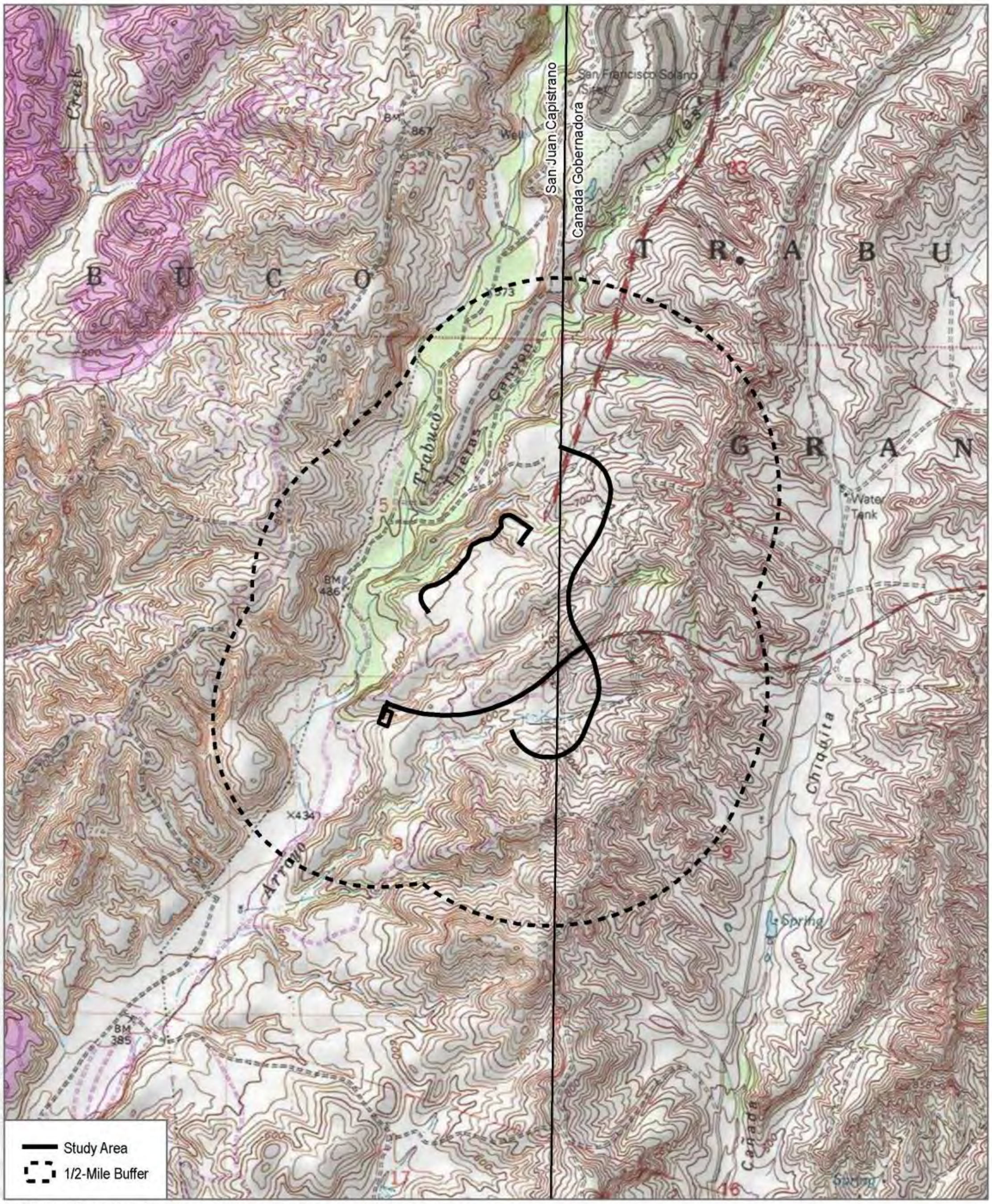

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Las Flores Enhanced Water Reliability Project

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

Ms. Teresa Romero, Chairwoman
Juaneno Band of Mission Indians Acjachemen Nation
31411-A La Matanza Street
San Juan Capistrano, CA 92675

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

Dear Ms. Romero,

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

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Rancho Santa Margarita, CA 92688

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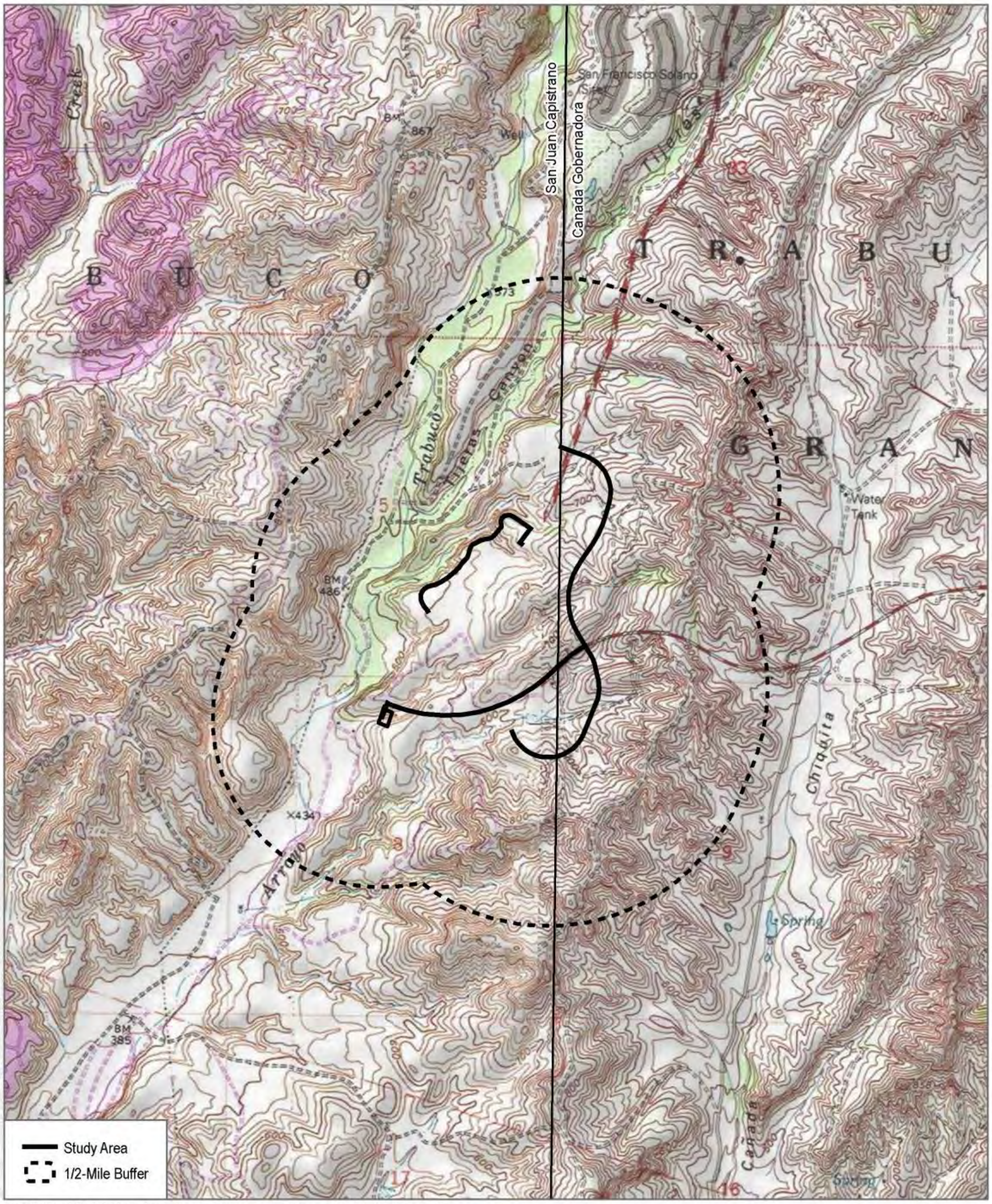

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Las Flores Enhanced Water Reliability Project

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SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

March 04, 2020

San Luis Rey Band of Mission Indians
1889 Sunset Drive
Vista, CA, 92081

Subject: Information Request for the Las Flores Enhanced Water Reliability Project, Orange County, California

To Whom It May Concern:

The Santa Margarita Water District is planning the installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space (Figure 1). The Project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650 foot long 10-inch existing force main in the right-of-way within Antonio Parkway (Figure 1). Rehabilitation of the 10-inch force main would be performed using a trenchless rehabilitation method where a liner would be inserted within the existing forcemain for structural reinforcement. The area is currently comprised of paved roads and a gravel access road on an undeveloped parcel of land. This project is located in Sections 5 and 8, Township 7 South, Range 7 West and Sections 4 and 9, Township 7 South Range 7 West of the San Juan Capistrano and Canada Gobernadora U.S. Geological Survey 7.5′ topographic maps, respectively.

The Native American Heritage Commission conducted a Sacred Lands file search, and indicated that Native American cultural resources were identified within a one-half mile distance of the proposed project area. A SCCIC records search indicated previously-identified cultural resources that intersected the project APE. A pedestrian survey did not identify any cultural resources that would be disturbed by the proposed project activities. I am writing as part of the Inventory process in order to find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project. Any consultation relating to AB 52 should be directed to the lead agency:

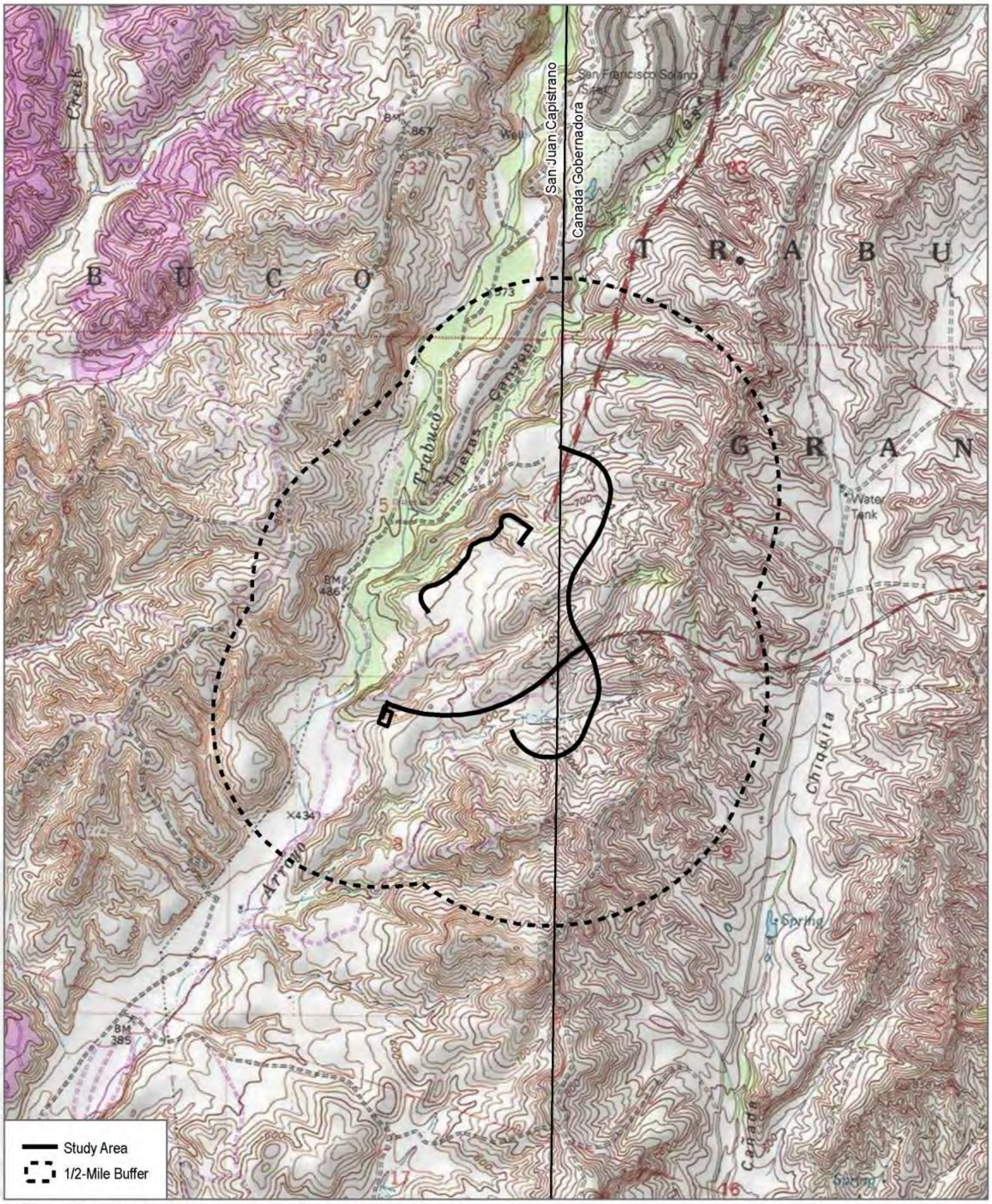
Mrs. Karla Houlihan
Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688

If you have any information or concerns pertaining to such information, please contact me by phone or email.

Respectfully,

Adam Giacinto, M.A., RPA
Archaeologist
DUDEK
Phone: (760) 942-4252
Email: agiacinto@dudek.com

Attachments: *Figure 1. Records Search Map*



SOURCE: USGS 7.5-Minute Series San Juan Capistrano and Canada Gobernadora Quadrangles
Trabuco Land Grant (Township 7 South; Range 7 West, Projected)

DUDEK

Records Search Map

Las Flores Enhanced Water Reliability Project

Appendix D

Noise Data Sheets and Modeling

APPENDIX D-1

Field Noise Data Sheets

DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT SMWD LAS FLORES PROJECT # 12318
SITE ID
SITE ADDRESS OBSERVER(S) PETE VITAR
START DATE 2/13/20 END DATE 2/13/20
START TIME END TIME

METEOROLOGICAL CONDITIONS
TEMP 60 F HUMIDITY 50 % R.H. WIND CALM LIGHT MODERATE
WINDSPD MPH DIR. N NE S SE S SW W NW VARIABLE STEADY GUSTY
SKY SUNNY CLEAR OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT PICCOLO SLM-3 TYPE 1 2 SERIAL # 14031700 4
CALIBRATOR BSWA CA 114 SERIAL # 480151
CALIBRATION CHECK PRE-TEST dBA SPL POST-TEST dBA SPL WINDSCRN YES

SETTINGS A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
ST-1 18-19	10:01	10:16	64.7	71.7	54.1				

COMMENTS
READING TAKEN AT SW CORNER OF APARTMENT BUILDING AT 1201-1275 SABLE; PRIMARY NOISE SOURCE IS TRAFFIC ON OSO PARKWAY TO THE SOUTH;

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE TRAFFIC AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: ASPHALT DIST. TO RDWY C/L OR EOP: APX 170' TO C/L ON OSO PKWY
TRAFFIC COUNT DURATION: — MIN SPEED ___ MIN SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2) NB/EB	SB/WB	NB/EB	SB/WB
AUTOS									
MED TRKS									
HVY TRKS									
BUSES									
MOTRCLS									

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER:

DESCRIPTION / SKETCH
TERRAIN HARD SOFT MIXED FLAT OTHER:
PHOTOS 7228; 7229; 7230; 7231; 7232; 7233; 7234;
OTHER COMMENTS / SKETCH

N

DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT SMWD LAS FLORES PROJECT # 12318
SITE ID
SITE ADDRESS OBSERVER(S) PETE VITAR
START DATE 2/13/20 END DATE 2/13/20
START TIME END TIME

METEOROLOGICAL CONDITIONS
TEMP 63 F HUMIDITY 46 % R.H. WIND CALM LIGHT MODERATE
WINDSPD 3 MPH DIR. N NE S SE S SW W NW VARIABLE STEADY GUSTY
SKY SUNNY CLEAR OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT PICCOLO SLM-3 TYPE 1 2 SERIAL # 140317004
CALIBRATOR BSWA CA 114 SERIAL # 480151
CALIBRATION CHECK PRE-TEST dBA SPL POST-TEST dBA SPL WINDSCRN YES

SETTINGS A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER:

	REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
ST-2	20-21	10:37	10:52	53.7	66.1	48.0				

COMMENTS
READING TAKEN AT SW CORNER OF RESIDENTIAL BUILDING AT 31 SEA COUNTRY LANE; PRIMARY NOISE SOURCE IS TRAFFIC FROM ANTONIO PARKWAY TO THE EAST; LOW HUM OF NEARBY POOL PUMP MOTOR IN BACKGROUND (NOT AUDIBLE OVER TRAFFIC NOISE ON ANTONIO PKWY).

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE TRAFFIC AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: ASPHALT DIST. TO RDWY C/L OR EOP: APX 420' TO C/L ON ANTONIO PARKWAY
TRAFFIC COUNT DURATION: — MIN SPEED ___ MIN SPEED

DIRECTION	COUNT 1 (OR RDWY 1) NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2) NB/EB	SB/WB	NB/EB	SB/WB
AUTOS					—				
MED TRKS									
HVY TRKS									
BUSES									
MOTRCLS									

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER:

DESCRIPTION / SKETCH
TERRAIN HARD SOFT MIXED FLAT OTHER:
PHOTOS 7237; 7238; 7239; 7240; 7241; 7242; 7243; 7244; 7245;
OTHER COMMENTS / SKETCH

N

DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT SMWD LAS FLORES PROJECT # 12318
SITE ID
SITE ADDRESS OBSERVER(S) PETE VITAR
START DATE 2/13/20 END DATE 2/13/20
START TIME END TIME

METEOROLOGICAL CONDITIONS
TEMP 64 F HUMIDITY 43 % R.H. WIND CALM **LIGHT** MODERATE
WINDSPD 5 MPH DIR. N NE S SE S SW W NW VARIABLE STEADY GUSTY
SKY **SUNNY** **CLEAR** OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT PICCOLO SLM-3 TYPE 1 2 SERIAL # 14031706
CALIBRATOR BSWA CA 114 SERIAL # 480151
CALIBRATION CHECK PRE-TEST dBA SPL POST-TEST dBA SPL WINDSCRN YES

SETTINGS A-WTD **SLOW** FAST FRONTAL RANDOM ANSI OTHER:

	REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
ST-3	22-23	11:11	11:26	64.1	73.0	50.0				

COMMENTS
READING TAKEN AT SOUTH PROPERTY BOUNDARY OF HOME AT 9 SUMMIT COURT;
PRIMARY NOISE SOURCE IS TRAFFIC ON OSO PKWY TO THE SOUTH;

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE **TRAFFIC** AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: ASPHALT DIST. TO RDWY **C/L** OR EOP: APX. 200' TO C/L ON OSO PKWY
TRAFFIC COUNT DURATION: — MIN SPEED ___ MIN SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2) NB/EB	SB/WB	NB/EB	SB/WB
AUTOS									
MED TRKS									
HVY TRKS									
BUSES									
MOTRCLS									

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS **BIRDS** DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER:

DESCRIPTION / SKETCH
TERRAIN HARD SOFT **MIXED** FLAT OTHER:
PHOTOS 7247; 7248; 7249; 7250; 7251; 7252; 7253; 7254;
OTHER COMMENTS / SKETCH

N

DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT SMWD LAS FLORES PROJECT # 12318
SITE ID
SITE ADDRESS OBSERVER(S) PETE VITAR
START DATE 2/18/20 END DATE 2/18/20
START TIME END TIME

METEOROLOGICAL CONDITIONS
TEMP 64 F HUMIDITY 44 % R.H. WIND CALM **LIGHT** MODERATE
WINDSPD 5 MPH DIR. N NE S SE S SW W NW VARIABLE STEADY GUSTY
SKY **SUNNY** **CLEAR** OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT PICCOLO SLM-3 TYPE 1 2 SERIAL # 140317064
CALIBRATOR BCWA CA 114 SERIAL # 480151
CALIBRATION CHECK PRE-TEST dBA SPL POST-TEST dBA SPL WINDSCRN YES

SETTINGS A-WTD **SLOW** FAST FRONTAL RANDOM ANSI OTHER:

	REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
ST-4	24-25	11:43	11:58	60.3	75.9	51.3				

COMMENTS
READING TAKEN AT SW CORNER OF PROJECT AT 164 BLOOMFIELD LANE (RESIDENTIAL), AT THE NE CORNER OF BLOOMFIELD LANE & MORNING TRAIL; PRIMARY NOISE SOURCE IS TRAFFIC ON MORNING TRAIL; SECONDARY IS ~~DIN~~ DISTANT TRAFFIC NOISE ON OSO PKWY; SOME TRAFFIC ON BLOOMFIELD LN.

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE **TRAFFIC** AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: ASPHALT DIST. TO RDWY **C/L** OR EOP: APX 30' TO BLOOMFIELD LN C/L
TRAFFIC COUNT DURATION: — MIN SPEED ___ MIN SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2) NB/EB	SB/WB	NB/EB	SB/WB
AUTOS									
MED TRKS									
HVY TRKS									
BUSES									
MOTRCLS									

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS **BIRDS** DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING **DIST. TRAFFIC (LIST RDWYS BELOW)** DISTD GARDENERS/LANDSCAPING NOISE
OTHER: DISTANT TRAFFIC NOISE FROM OSO PKWY;

DESCRIPTION / SKETCH
TERRAIN HARD SOFT **MIXED** FLAT OTHER:
PHOTOS 7256; 7257; 7258; 7259; 7260; 7261; 7262; 7263; 7264; 7265
OTHER COMMENTS / SKETCH

N

APPENDIX D-2

Construction Noise Modeling Input and Output

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/26/2020
Case Description: SMWD Las Flores - Site Preparation

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Resi - Nearest	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	45	0
Man Lift	No	20		74.7	50	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Excavator		81.6	77.6	N/A	N/A	N/A	N/A
Man Lift		74.7	67.7	N/A	N/A	N/A	N/A
	Total	81.6	78.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Resi - Typical	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	200	0
Man Lift	No	20		74.7	200	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Excavator		68.7	64.7	N/A	N/A	N/A	N/A
Man Lift		62.7	55.7	N/A	N/A	N/A	N/A
	Total	68.7	65.2	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/26/2020
Case Description: SMWD Las Flores - Pipeline Trenching/ Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Resi - Nearest	Residential	65	60	55

Description		Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator		No	40		80.7	45	0
Man Lift		No	20		74.7	50	0
Vacuum Street Sweeper		No	10		81.6	55	0
Slurry Trenching Machine		No	50		80.4	60	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Excavator		81.6	77.6	N/A	N/A	N/A	N/A
Man Lift		74.7	67.7	N/A	N/A	N/A	N/A
Vacuum Street Sweeper		80.8	70.8	N/A	N/A	N/A	N/A
Slurry Trenching Machine		78.8	75.8	N/A	N/A	N/A	N/A
	Total	81.6	80.6	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Resi - Typical	Residential	65	60	55

Description		Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator		No	40		80.7	200	0
Man Lift		No	20		74.7	200	0
Vacuum Street Sweeper		No	10		81.6	200	0
Slurry Trenching Machine		No	50		80.4	200	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Excavator		68.7	64.7	N/A	N/A	N/A	N/A
Man Lift		62.7	55.7	N/A	N/A	N/A	N/A
Vacuum Street Sweeper		69.5	59.5	N/A	N/A	N/A	N/A
Slurry Trenching Machine		68.3	65.3	N/A	N/A	N/A	N/A
	Total	69.5	68.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/26/2020
Case Description: SMWD Las Flores - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Resi - Nearest	Residential	65	60	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	45	0
Roller	No	20		80	50	0
Roller	No	20		80	55	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Paver		78.1	75.1	N/A	N/A	N/A	N/A
Roller		80	73	N/A	N/A	N/A	N/A
Roller		79.2	72.2	N/A	N/A	N/A	N/A
	Total	80	78.4	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Resi - Typical	Residential	65	60	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	200	0
Roller	No	20		80	200	0
Roller	No	20		80	200	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Paver		65.2	62.2	N/A	N/A	N/A	N/A
Roller		68	61	N/A	N/A	N/A	N/A
Roller		68	61	N/A	N/A	N/A	N/A
	Total	68	66.2	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/26/2020
Case Description: SMWD Las Flores - Demobilization

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Resi - Nearest	Residential	65	60	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	45	0
Man Lift	No	20		74.7	50	0

Results

		Calculated (dBA)			Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		81.6	77.6	N/A	N/A	N/A	N/A
Man Lift		74.7	67.7	N/A	N/A	N/A	N/A
	Total	81.6	78.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Resi - Typical	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	200	0
Man Lift	No	20		74.7	200	0

Results

		Calculated (dBA)			Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		68.7	64.7	N/A	N/A	N/A	N/A
Man Lift		62.7	55.7	N/A	N/A	N/A	N/A
	Total	68.7	65.2	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/27/2020

Case Description: SMWD Las Flores - Conversion of Lift Station

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Resi - Nearest	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Backhoe	No	40		77.6	360	0
Slurry Trenching Machine	No	50		80.4	370	0

Results

		Calculated (dBA)			Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe		60.4	56.4	N/A	N/A	N/A	N/A
Slurry Trenching Machine		63	60	N/A	N/A	N/A	N/A
	Total	63	61.6	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night

Nearest Resi - Typical	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	500	0
Slurry Trenching Machine	No	50		80.4	500	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Backhoe		57.6	53.6	N/A	N/A	N/A	N/A
Slurry Trenching Machine		60.4	57.3	N/A	N/A	N/A	N/A
	Total	60.4	58.9	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

ADDENDUM TO INITIAL STUDY/MITIGATED NEGATIVE DECLARATION FOR THE LAS FLORES ENHANCED WATER RELIABILITY PROJECT

Prepared by
SANTA MARGARITA WATER DISTRICT

1. Introduction:

In an effort to continue to reduce its dependence on imported water, Santa Margarita Water District (SMWD) is proposing the Las Flores Enhanced Water Reliability Project to install recycled water lines and a booster pump station to serve the Las Flores community within the SMWD's service area. Implementation of the project will allow for the delivery of up to 209 acre-feet per year of tertiary treated recycled water to dedicated irrigation customers that currently use potable water within the unincorporated community of Las Flores.

2. Project Modification Description:

Since the approval of the original project (as described in Section 1 of this addendum), a minor project modification has occurred that needs to be addressed within the context of CEQA and the State CEQA Guidelines. SMWD is proposing to obtain financial assistance for the approved project through the Local Resources Program (LRP) that is administered by The Metropolitan Water District of Southern California (Metropolitan). The LRP provides financial incentives to public and private water agencies to encourage local development of water recycling, groundwater recovery and seawater desalination.

Metropolitan offers three different LRP incentive payment structure alternatives to choose from:

Alternative 1: Sliding scale incentives, recalculated annually based on eligible project costs incurred each year and Metropolitan's applicable water rates, up to $340/AF over 25 years;

Alternative 2: Sliding scale incentives up to $475/AF over 15 years; and

Alternative 3: Fixed incentive up to $305/AF over 25 years.

SMWD has chosen the Alternative 2.

As the Lead Agency, SMWD has prepared this addendum to the previously adopted Initial Study/Mitigated Negative Declaration in support of its discretionary action to comply with CEQA and the State CEQA Guidelines. For this proposed project modification, Metropolitan will act as a Responsible Agency.

3. Minor Technical Additions

This addendum has been prepared since partnering in the original project would require a discretionary action by the Lead Agency's decision-making body.

On January 26, 2021, the SMWD submitted the proposal on the Las Flores Enhanced Water Reliability Project to Metropolitan. As a Responsible Agency, Metropolitan's Board of Directors will review and consider the proposal and environmental documentation prepared by SMWD in determining whether or not to approve financial assistance for the project within the LRP administrative process.

The proposed project modification (i.e., a partnership with Metropolitan in the LRP for the Las Flores Enhanced Water Reliability Project) would be consistent with Metropolitan's commitment to develop LRP activities that would increase water supply reliability and avoid or defer Metropolitan capital expenditures.

Therefore, this minor technical change and further clarification to the original project has no impact on water supplies or water quality within the Lead Agency's service area. Instead, the proposed project modification is an administrative and fiscal action.

4. Basis for Preparation of Addendum:

Section 15164(b) of the State CEQA Guidelines states "An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred."

The proposed modification to the original project would not result in a tangible change in the physical environment. As the Lead Agency for the proposed project modification, SMWD is issuing this addendum in accordance with the State CEQA Guidelines (Section 15164). The minor textual additions provided herein are not considered to 1) constitute a substantial change in the project as originally proposed by the SMWD, 2) lead to substantial changes in the circumstances under which the project is undertaken, or 3) constitute new information of substantial importance. Accordingly, an addendum was prepared as opposed to a negative declaration or a subsequent environmental impact report.

Signature	March 19, 2021 Date
Donald H. Bunts Printed Name	Deputy General Manager Title

Recorded in Official Records, Orange County
Hugh Nguyen, Clerk-Recorder
2406.7
$R0011770125$
202085000449 10:59 am 06/19/20
390 SC3A Z03
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Notice of Determination

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: Orange
Address: 24031 El Toro Road, Suite 150
Laguna Hills, CA 92653

From:
Public Agency: Santa Margarita Water District
Address: 26111 Antonio Parkway
Rancho Santa Margarita, California 92688
Contact: Karla Houlihan
Phone: karlah@smwd.com

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.

FILED
JUN 19 2020
HUGH NGUYEN, CLERK-RECORDER
BY: [signature] DEPUTY

State Clearinghouse Number (if submitted to State Clearinghouse): 2020050267

Project Title: Las Flores Enhanced Water Reliability Project

Project Applicant: Santa Margarita Water District

Project Location (include county): Las Flores, Orange County

Project Description:

The project includes installation of approximately 3,800 linear feet of 16-inch pipe and 6,390 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space. project also involves the conversion of the Las Flores Lift Station, currently out of service, to a recycled water booster pump station, and the rehabilitation of an approximately 3,650-foot-long 10-inch existing force main in the ROW within Antonio Parkway.

This is to advise that the Santa Margarita Water District (■ Lead Agency or ☐ Responsible Agency) has approved the above described project on June 19, 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.

POSTED
JUN 19 2020
ORANGE COUNTY CLERK-RECORDER DEPARTMENT
BY: [signature] DEPUTY

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:
www.smwd.com.

Signature (Public Agency): [signature] Title: Deputy General Manager

Date: June 19, 2020 Date Received for filing at OPR:

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

Revised 2011

Orange County
Clerk-Recorder's Office
Hugh Nguyen

601 N. Ross Street
92701

County

Finalization: 20200000236723
6/19/20 10:59 am
390 SC3A

Item	Title	Count
1	Z03	1

EIR: Negative Declaration

Document ID	Amount
DOC# 202085000449	2406.75

Time Recorded 10:59 am

Total	2406.75

Payment Type		Amount
Check # 16777	tendered	2406.75

Amount Due 0.00

THANK YOU
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Mitigation Monitoring and Reporting Program
Las Flores Enhanced Water Reliability Project

Prepared for:

Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, California 92688
Contact: Karla Houlihan

Prepared by:

DUDEK
27372 Calle Arroyo
San Juan Capistrano, California 92675
Contact: Rachel Struglia, PhD, AICP

JUNE 2020

Table of Contents

TABLES

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1 Introduction

The California Environmental Quality Act (CEQA) requires that a public agency adopting a Mitigated Negative Declaration (MND) take affirmative steps to determine that approved mitigation measures are implemented after project approval. The lead or responsible agency must adopt a reporting and monitoring program for the mitigation measures incorporated into a project or included as conditions of approval. The program must be designed to ensure compliance with the MND during project implementation (California Public Resources Code, Section 21081.6(a)(1)).

This Mitigation Monitoring and Reporting Program (MMRP) will be used by the Santa Margarita Water District (SMWD) to ensure compliance with adopted mitigation measures identified in the MND for the proposed Las Flores Enhanced Water Reliability Project (project) when construction begins. SMWD, as the lead agency, will be responsible for ensuring that all mitigation measures are carried out. Implementation of the mitigation measures would reduce impacts to below a level of significance for biological resources, cultural and tribal cultural resources, geology and soils, and noise.

The remainder of this MMRP consists of a table that identifies the mitigation measures by resource for each project component. Table 1 identifies the mitigation monitoring and reporting requirements, list of mitigation measures, party responsible for implementing mitigation measures, timing for implementation of mitigation measures, agency responsible for monitoring of implementation, and date of completion. With the MND and related documents, this MMRP will be kept on file at the following location:

Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, California 92688

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2 Mitigation Monitoring and Reporting Program

Table 1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Timing	Party Responsible For Implementation	Party Responsible For Monitoring	Date of Completion/Notes
Biological Resources				
MM-BIO-1: Coastal California Gnatcatcher. In order to reduce any potential indirect impact to nesting coastal California gnatcatchers, a pre-construction survey shall be conducted by a permitted biologist to determine the presence/absence of gnatcatchers at any time of the year. The one-day survey will be conducted within 3 days prior to the start of construction and will focus on all suitable habitat areas within 300-feet of the project site. If a gnatcatcher or nest is found, additional avoidance measures will be required such as limiting construction to outside of the species' breeding season of March through June. If project activities must commence during the breeding season and a gnatcatcher has been previously found, a biological monitor must be on site during construction activities adjacent to suitable/occupied habitat to ensure no incidental indirect take of the species occurs. If the monitor determines that an indirect take may occur by the project, coordination with USFWS will be required to establish appropriate avoidance measures for a Covered Species that will be impacted by a non-Covered Activity.	Prior to construction	SMWD	SMWD	
MM-BIO-2: Nesting Birds. In order to reduce any potential indirect impact to nesting birds, project construction should commence outside of the general avian nesting season from February through August. If construction activities cannot avoid the nesting season, then a pre-construction survey shall be	Prior to construction	SMWD	SMWD	

conducted by a trained biologist to determine the presence/absence of any nesting birds within the project site and 500-foot buffer around the site. If an active nest is found, a suitable buffer based on the species sensitivity and proximity to the project site shall be placed around the nest for the duration of the nesting period. Construction may continue within this buffer only at the discretion of a monitoring biologist. The buffer can be removed when the nest is no longer active, as determined by a trained biologist.				
Cultural Resources				
MM-CUL-1: Archeological Monitoring. Prior to the initiation of ground-disturbing work, construction crews shall be made aware of the potential to encounter cultural resources and the requirement for cultural archaeological and Native American monitors to be present during ground-disturbing activities in the portion of the area of potential effect along the unpaved access road north of Oso Parkway. Archaeological monitoring may be adjusted at the recommendation of the qualified archaeological principal investigator, meeting the Secretary of the Interior's Professional Qualification Standards, and in consultation with Santa Margarita Water District (SMWD), based on inspection of exposed subsurface soils and their observed potential to contain intact cultural deposits or material. The archaeological and Native American monitor shall be provided a copy of the Cultural Resources Inventory Report for the Las Flores Enhanced Water Reliability Project, Orange County, California prepared by Dudek in May 2020 and included as Appendix C of the Draft Initial Study/Mitigated Negative Declaration to inform their monitoring efforts. The archaeological and Native American monitor shall have the authority to temporarily halt work in the immediate discovery area to inspect areas as needed for potential cultural material or deposits. Work may continue elsewhere outside of the area of discovery. In the event that archaeological resources (e.g., sites, features, or artifacts) are exposed during construction activities for the project, all construction work occurring within 100 feet of the find shall immediately stop until the qualified archaeological principal investigator can evaluate the significance of the find	Prior to, during, and post construction	SMWD and their construction contractor	SMWD	

and determine whether additional study is warranted. Prehistoric archaeological deposits may be indicated by the presence of discolored or dark soil, fire-affected material, concentrations of fragmented or whole freshwater bivalve shell, burned or complete bone, non-local lithic materials, or the characteristic observed to be atypical of the surrounding area. Common prehistoric artifacts may include modified or battered lithic materials; lithic or bone tools that appear to have been used for chopping, drilling, or grinding; projectile points; fired clay ceramics or non-functional items; and other items. Historic-age deposits are often indicated by the presence of glass bottles and shards, ceramic material, building or domestic refuse, ferrous metal, or old features such as concrete foundations or privies. If there is any indication that the find could be of interest of Native Americans, the archaeological principal investigator shall notify a representative from the Juaneño Band of Mission Indians, Acjachemen Nation of the find. Should it be required, temporary flagging may be installed around this resource in order to avoid any disturbances from construction equipment. Depending upon the significance of the find under the California Environmental Quality Act (CEQA) (14 CCR 15064.5[f]; California Public Resources Code Section 21082), the archaeological/Native American monitor, in correspondence with the qualified archaeological principal investigator and Native American representative (if applicable), may simply record the find to appropriate standards (thereby addressing any data potential) and allow work to continue. If the qualified archaeological principal investigator observes the discovery to be potentially significant under CEQA or Section 106 of the National Historic Preservation Act, additional efforts (such as preparation of an archaeological treatment plan, testing, and/or data recovery) may be warranted prior to allowing construction to proceed in this area. The feasibility for avoidance will also be discussed with SMWD, the Native American representative (if applicable), and other appropriate parties prior to any investigation that may result in disturbance to archaeological resources.				

The project archaeologist will be responsible for ensuring that all cultural materials collected will be cleaned, catalogued, and permanently curated with an appropriate institution; that a letter of acceptance from the curation institution has been submitted to the lead agency; that all artifacts are analyzed to identify function and chronology as they relate to the history of the area; that faunal material will be identified as to species; and specialty studies are completed, as appropriate. Within 3 months following the completion of monitoring, two copies of a monitoring results report (even if negative) and/or evaluation report, if applicable, that describes the results, analysis, and conclusions of the archaeological monitoring program (with appropriate graphics) will be submitted to the lead agency. It is recommended that SMWD consult directly with the State Historic Preservation Office on the findings of this report. The archaeologist will be responsible for recording (on the appropriate California Department of Parks and Recreation forms—DPR 523 A and B) any significant or potentially significant resources encountered during the archaeological monitoring program in accordance with the California Environmental Quality Act Cultural Resources Guidelines, and submitting such forms to the South Central Coast Information Center at California State University, Fullerton, with the final monitoring results report.				
Geology and Soils				
MM-GEO-1: Paleontological Resources Impact Mitigation Program and Paleontological Monitoring. Prior to commencement of any ground-disturbing activity on site, Santa Margarita Water District shall retain a certified Orange County paleontologist. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed project. The PRIMP shall be consistent with the guidelines of the Society of Vertebrate Paleontology (SVP) (2010) and should outline requirements for preconstruction meeting attendance and worker environmental awareness training, where monitoring is required within the proposed project site based on construction plans and/or geotechnical reports, procedures for adequate paleontological monitoring	Prior to and during construction	SMWD and their construction contractor	SMWD	

and discoveries treatment, paleontological methods (including sediment sampling for microvertebrate fossils), reporting, and collections management. The certified paleontologist shall attend the preconstruction meeting and be on-site (or a qualified paleontological monitor) during all significant ground-disturbing activities in Pleistocene deposits, Monterey Formation, Topanga Formation (if present), and Sespe Formation, if encountered. These deposits may be present directly below ground surface or directly under any artificial fill. In the event that paleontological resources (e.g., fossils) are unearthed during ground-disturbing activities, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow grading to recommence in the area of the find.				
Noise				
MM-NOI-1: Construction Noise Reduction. The Santa Margarita Water District and/or its construction contractor shall comply with the following measures during construction: 1. Construction activities shall not occur between the hours of 8:00 p.m. and 7:00 a.m. Monday through Saturday, or on Sundays or national holidays. In the event that construction is required to extend beyond these times, extended hours permits shall be required. 2. Pumps and associated equipment (e.g., portable generators) shall be situated and configured to minimize noise at nearby noise-sensitive receivers. 3. Where possible, staging of construction equipment shall be situated at least 45 feet from noise- or vibration-sensitive land uses. 4. All noise-producing equipment and vehicles using internal combustion engines shall be equipped with mufflers; air-inlet silencers where appropriate; and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air	During construction	SMWD and their construction contractor	SMWD	

compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment. 5. All mobile or fixed noise-producing equipment used for the project that are regulated for noise output by a local, state, or federal agency shall be in compliance with regulations. 6. Idling equipment shall be kept to a minimum and moved as far as practicable from noise-sensitive land uses. 7. Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where feasible. 8. Mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors. 9. The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be used for safety warning purposes only.				
MM-NOI-2: Notification. Effective communication with local residents shall be maintained prior to and during construction. Specifically, Santa Margarita Water District or its designee shall inform local residents of the schedule, duration, and progress of the construction. Additionally, residents shall be provided contact information for noise- or vibration-related complaints.	Prior to and during construction	SMWD	SMWD	