Draft
Initial Study/Mitigated Negative Declaration for the Wine Country Sewer Project Temecula and Unincorporated Riverside County, California

Prepared for
Eastern Municipal Water District
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1.0 Introduction

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared in accordance with relevant provisions of the California Environmental Quality Act (CEQA) of 1970, as amended, and the CEQA Guidelines, as revised. This IS/MND evaluates the environmental effects of the proposed Wine Country Sewer Project (proposed project).

The IS/MND includes the following components:

- A Draft IS/MND and the formal findings made by the Eastern Municipal Water District (District or EMWD) that the proposed project would not result in any significant effects on the environment, as identified in the CEQA IS Checklist.
- A detailed project description.
- The CEQA IS Checklist, which provides standards to evaluate the potential for significant environmental impacts from the proposed project and is adapted from Appendix G of the CEQA Guidelines. The proposed project is evaluated in 21 environmental issue categories to determine whether the proposed project's environmental impacts may be significant in any category. Brief discussions are provided that further substantiate the proposed project's anticipated environmental impacts in each category.

Because the proposed project fits into the definition of a "project" under Public Resources Code Section 21065 requiring discretionary approvals by the District and because it could result in a significant effect on the environment, the proposed project is subject to CEQA review. The IS Checklist was prepared to determine the appropriate environmental document to satisfy CEQA requirements: an Environmental Impact Report (EIR), a Mitigated Negative Declaration (MND), or a Negative Declaration (ND). The analysis in this IS Checklist supports the conclusion that the proposed project may result in significant environmental impacts, but (1) revisions in the project plans or proposals made by or agreed to by the applicant before a proposed MND and IS are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and (2) there is no substantial evidence, in light of the whole record before the District, that the proposed project as revised may have a significant effect on the environment. Therefore, an MND has been prepared.

This IS/MND will be circulated for 30 days for public and agency review, during which time individuals and agencies may submit comments on the adequacy of the environmental review. Following the public review period, the District's Board will consider any comments received on the IS/MND when deciding whether to adopt the MND.

2.0 Project Description

1. Project Name:

Wine Country Sewer Project

2. Lead Agency:

Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92570

3. Contact Person and Phone Number:

Joseph Broadhead
Principal Water Resource Specialist – CEQA/NEPA
Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92570
(951) 928-3777
broadhej@emwd.org

4. Project Location:

The project consists of the construction of two separate sewer segments identified as the Northern Alignment and the Southern Alignment. The locations of the Northern Alignment and the Southern Alignment are described below.

Northern Alignment

The Northern Alignment is located within a portion of unincorporated Riverside County (Figures 1-3). Regional access to the Northern Alignment is provided via Interstate 15 (I-15), located approximately 7.5 miles to the west, and local access is provided via Rancho California Road. The Northern Alignment is located within the Pauba Land Grant on U.S. Geological Survey (USGS) Bachelor Mountain quadrangle, Township 07 South, Range 02 West (USGS 1978; Figure 2). The Northern Alignment would consist of approximately 2.74 miles (14,467 linear feet) of sewer transmission lines located within the rights-of-way (ROW) of the following roadway segments, which are presented in Figure 3:

- Rancho California Road, Lomo Ventoso Lane to Buck Road
- Glenoaks Road, Rancho California Road to Camino del Vino
- Buck Road, Rancho California Road to Otis Street
- Warren Road, Otis Street to East Benton Road
- East Benton Road, Warren Road to Bella Vista Road

The Northern Alignment sewer transmission lines would be constructed within the ROW of paved roadways. Potential construction staging areas would be located within disturbed land within ROW adjacent to existing roadways.

Southern Alignment

The Southern Alignment is located within portions of the city of Temecula and unincorporated Riverside County (see Figure 1). Regional access to the Southern Alignment is provided via I-15, located approximately 3.6 miles to the west, and local access is provided via State Route 79. The Southern Alignment is located within the Pauba Land Grant on USGS Pechenga quadrangle, Township 08 South, Range 01 West (USGS 1997; see Figure 2). The Southern Alignment would consist of approximately 4.34 miles (22,915 linear feet) of sewer transmission lines within a segment of De Portola Road, beginning at the intersection with Butterfield Stage Road and extending eastward to the intersection with Pulgas Creek Road (see Figure 3). The Southern Alignment sewer transmission line would be constructed primarily within paved ROW, with the exception of an approximately 1.15-mile segment of De Portola Road that is unpaved.

5. Project Applicant/Sponsor:

Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92570

6. General Plan Designation:

The Northern and Southern alignments are both located within the existing ROW of numerous roadways that do not have General Plan designations.

7. Zoning:

The Northern and Southern alignments are both located within the existing ROW of numerous roadways that do not have zoning designations.

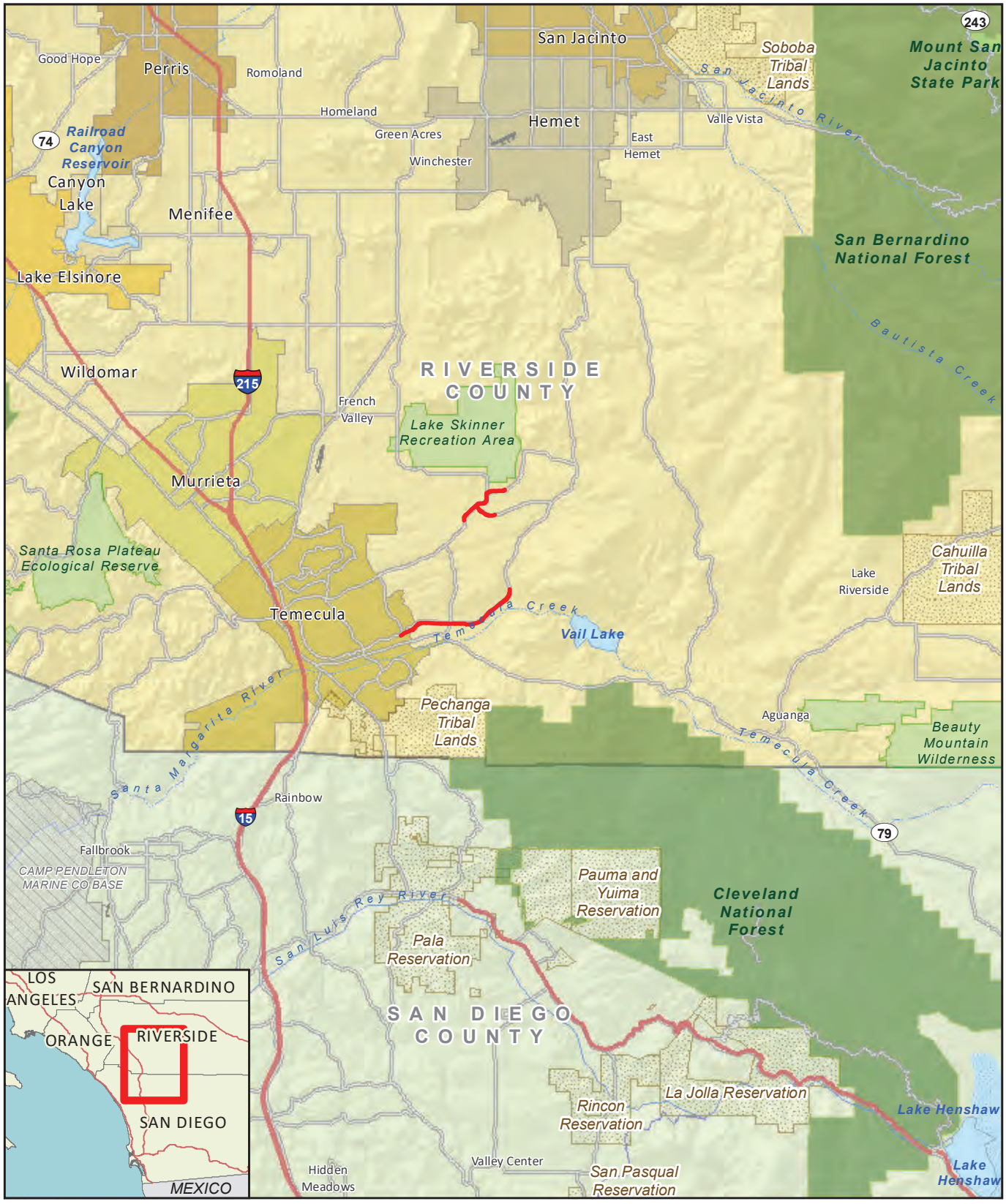

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FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, Bachelor Mtn. (1978) and Pechanga (1997) quadrangles, Pauba Land Grant / T07S R02W

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FIGURE 2
Project Location on USGS Map

Image Source: NearMap (flown September 2023)

0 Feet 2,000

Project Location

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FIGURE 3
Project Location on Aerial Photograph

8. Project Overview:

The District is looking to advance sewer infrastructure in the northern and southern Temecula Wine Country areas in collaboration with the County of Riverside (County) and other external stakeholders. In February 2022, the Riverside County Board of Supervisors approved an allocation of $82 million in American Rescue Plan Act (ARPA) funds to support necessary infrastructure improvements in the County. District staff has coordinated with the County to identify eligible capital projects in each of the County Supervisorial Districts for ARPA funding. In May 2022, the Riverside County District 3 Board of Supervisors allocated $9.13 million in ARPA funds to the Northern and Southern alignments to provide sanitary sewer service in the Temecula Wine Country area to reduce the number of septic systems leaching into the region's groundwater, improving water quality, and to provide for economic growth in Temecula Wine Country. Additionally, the Southern Alignment has been allocated $2 million in funds from the State and Tribal Assistance Grants (STAG) account of the U.S. Environmental Protection Agency's (U.S. EPA's) section of the of the Consolidated Appropriations Act, 2023.

9. Project Purpose:

The proposed project is seeking to make sanitary sewer available in the Temecula Wine Country Region, which is primarily located in the unincorporated Riverside County, and borders the city of Temecula. Providing sanitary sewer service would improve water quality by reducing the number of septic tanks currently leaching into the Rancho California Water District's well head protection area and the region's ground water basin, while also allowing for economic growth in the region.

10. Surrounding Land Use(s) and Project Setting:

The Northern and Southern alignments are both generally bounded by residential development, agricultural land, and disturbed land, with sparce native habitats occurring along the project alignment.

11. Proposed Project Description:

Northern Alignment

The Northern Alignment sewer transmission lines would be constructed primarily with open trench construction. Culvert crossings would be protected in place with supports that allow for undercrossing without impact to the culverts. Laterals for future connections would be constructed to adjacent property lines. Potential construction staging areas would be located within disturbed land within ROW adjacent to the roadway, subject to access agreements with private property owners.

Pipeline installation would occur at approximately 80 feet/day for pipe with standard cover (7.5-foot depth), and at approximately 50 feet per day for pipe deeper than standard cover (greater than 7.5-foot depth). Figure 4 presents the pipeline cross-section, which shows the anticipated average depth of pipeline and width of work area on the surface. Pavement restoration would be confirmed during final design.

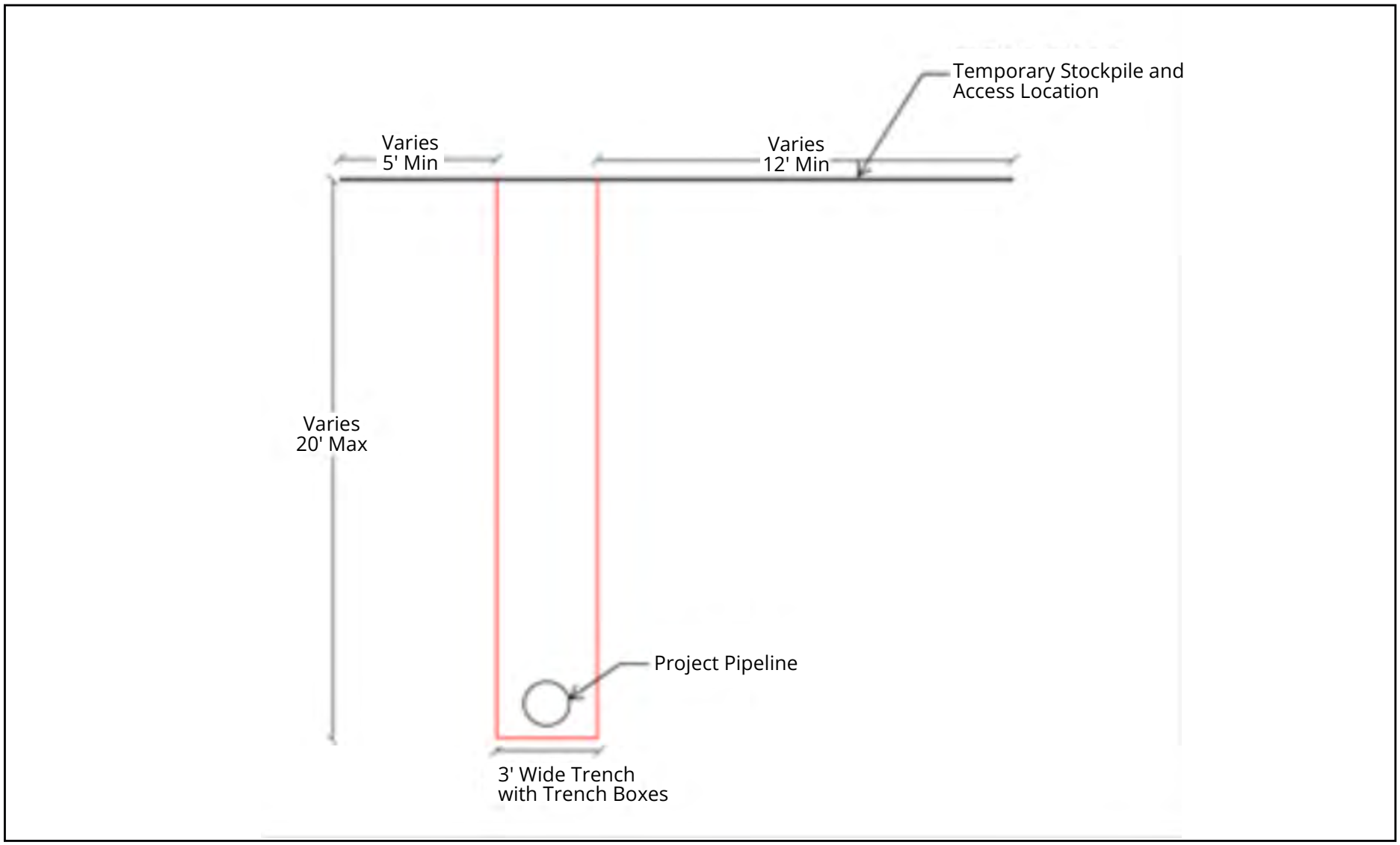

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FIGURE 4
Pipeline Cross-Section

Roadways impacted during construction would be returned to original grade, and adjacent natural soils impacted during construction would be revegetated with hydroseeding as necessary to satisfy the requirements of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. No night work would occur, nor would temporary/permanent lighting be used. The project would not construct any aboveground structures.

Construction of the Northern Alignment would occur over a 13-month period. Table 1 presents the type of equipment and number that would be utilized to construct the Northern Alignment. Operation would involve routine sewer video inspections approximately every three years. Operational cleaning using a vactor truck (sewage vacuum truck) would occur every three to five years.

Table 1
Northern Alignment Construction Equipment

Equipment	Number
Backhoe/loader	1
Hydraulic excavator	1
Pile driving machine, hammer or vibration pile driving	0
Crane	0
Utility truck	2
Auger boring machine	0
Water truck	1
Welder	0
Compressor	1
Pump	1
Pick-up trucks	1
Dump trucks	0
Concrete saw	1
Pavement breaker	1
Sweeper	1
Paver	1
Generator	1

Southern Alignment

Construction methods that would be utilized for the Southern Alignment would be similar to those described above for the Northern Alignment. Dewatering is not anticipated to be necessary during construction. Construction of the Southern Alignment would occur over an 18-month period. Table 2 presents the type of equipment and number that would be utilized to construct the Southern Alignment. The Southern Alignment would introduce three permanent graded pads to maintain access to manholes introduced in the unpaved segment of De Portola Road. All three of these permanent graded pads would be located within disturbed land within the ROW of De Portola Road.

Table 2 Southern Alignment Construction Equipment	
Equipment	Number
Backhoe/loader	1
Hydraulic excavator	1
Pile driving machine, hammer or vibration pile driving	0
Crane	0
Utility truck	1
Auger boring machine	0
Water truck	1
Welder	0
Compressor	1
Pump	0
Pick-up trucks	1
Dump trucks	0
Concrete saw	1
Pavement breaker	1
Sweeper	1
Paver	1
Generator	1

12. Environmental Commitments:

The proposed project would include the following environmental commitments that would be followed during construction/operation:

- A traffic control plan (TCP) would be approved by County of Riverside and the City of Temecula based on jurisdictional authority for construction work within public roadways. The TCP would be prepared in accordance with U.S. Department of Transportation Manual of Uniform Traffic Control Devices, the California Department of Transportation Manual of Uniform Traffic Control Devices, and permit requirements by the authority having jurisdiction. Conventional traffic control measures would include typical traffic control devices such as the following: traffic cones, K-rails, signs, message boards, flaggers (as needed), and related devices. When work is not being performed, trenches would be covered with an appropriate cover to restore normal traffic flow.
- All construction work would require implementation of fire hazard reduction measures, such as having fire extinguishers located on-site, use of spark arrestors on equipment and using a spotter during welding activities.
- Construction would comply with South Coast Air Quality Management District (SCAQMD) Rules 402 (Nuisance), 403 (Fugitive Dust Control), 1108 (Cutback Asphalt), and 1113 (Architectural Coatings) requirements.
- Specifications would require the contractor to prepare a Stormwater Pollution Prevention Plan (SWPPP). Construction would implement best management practices (BMPs) to control water quality of stormwater discharges offsite, according to the SWPPP, such as site management "housekeeping," erosion control, sediment control, tracking control and wind erosion control.

- The contractor would adhere to the following requirements to reduce construction noise to the extent feasible:
  - For construction activities that occur within the unincorporated portion of Riverside County, the District shall require its contractor to implement the following actions relative to construction noise: the District shall conduct construction activities between 6:00 a.m. to 6:00 p.m. during the months of June through September, and between the hours of 7:00 a.m. and 6:00 p.m. during the months of October through May in accordance with the County of Riverside Municipal Code Section 9.52.020[I].
  - For construction activities that occur within the city of Temecula, the District shall require its contractor to implement the following actions relative to construction noise: the District shall conduct construction activities between 7:00 a.m. to 6:30 p.m. in accordance with the City of Temecula Municipal Code Section 9.20.060(D).
  - Prior to construction, the District in coordination with the construction contractor, shall provide written notification to all properties within 50 feet of the project facilities informing occupants of the type and duration of construction activities. Notification materials shall identify a method to contact the District's program manager with noise concerns. Prior to construction commencement, the District program manager shall establish a noise complaint process to allow for resolution of noise problems. This process shall be clearly described in the notifications.
  - Stationary noise-generating equipment shall be located as far from sensitive receptors as possible. Such equipment shall also be oriented to minimize noise that would be directed toward sensitive receptors. Whenever possible, other non-noise generating equipment (e.g., roll-off dumpsters) shall be positioned between the noise source and sensitive receptors.
  - Equipment and staging areas shall be located as far from sensitive receptors as possible. At the staging location, equipment and materials shall be kept as far from adjacent sensitive receptors as possible.
  - Construction vehicles and equipment shall be maintained in the best possible working order; operated by an experienced, trained operator; and shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds).
  - Unnecessary idling of internal combustion engines shall be prohibited. In practice, this would require turning off equipment if it would idle for five or more minutes.
  - Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where feasible.
  - The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.

13. Required Approvals:

The proposed project would be required to obtain the permits and approvals presented in Table 3.

Table 3 Required Permits and Approvals		
Permit/Approval	Permitting/Approving Agency	Permit/Approval Trigger
Northern Alignment		
National Pollutant Discharge Elimination System (NPDES) Construction General Permit[1]	California Regional Water Quality Control Board, Region 8	Required prior to construction activity, upon completion of Notice of Intent and Storm Water Pollution Prevention Program (SWPPP)
Encroachment Permit	County of Riverside	Required for any proposed sewer in the public street
Stormwater Pollution Prevention Plan	State of California	
Encroachment Permit	Riverside County Flood Control	Required for locations where proposed sewer crosses their infrastructure
Southern Alignment		
Encroachment Permit	City of Temecula	Required for any proposed sewer in the public street
Encroachment Permit	County of Riverside	Required for any proposed sewer in the public street
Stormwater Pollution Prevention Plan	State of California	
Encroachment Permit	Riverside County Flood Control	Required for locations where proposed sewer crosses their infrastructure
[1]The District currently operates under a district wide NPDES Permit. This permit would be followed if needed for groundwater discharges.		

14. 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.?

On October 6, 2023, the District sent consultation notification letters to Native American tribes on the District's Master List pursuant to the requirements of Assembly Bill 52 (AB 52) pertaining to government-to-government consultation regarding the project. Six Native American tribes were contacted, and the District received responses from two tribes, the Pechanga Band of Indians and Rincon Band of Luiseño Indians.

15. Summary of 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/Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☒ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☒ Mandatory Findings of Significance

3.0 Draft Mitigated Negative Declaration

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 shall be prepared.

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

☐ I find that the proposed project might have a significant effect on the environment and/or deficiencies exist relative to the City's General Plan Quality of Life Standards, and the extent of the deficiency exceeds the levels identified in the City's Environmental Quality Regulations pursuant to Zoning Code Article 47, Section 33-924 (b), and an ENVIRONMENTAL IMPACT REPORT shall be required.

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

☐ I find that, although the proposed project might have a significant effect on the environment, no further documentation is necessary because all potentially significant effects: (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project.

Joe Broadhead
Signature

March 4, 2024
Date

Joe Broadhead
Printed Name

Principal
Title

4.0 Initial Study Checklist

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. A "No Impact answer should be explained where it is based on project specific factors as well as general standards.
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 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.
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 (mitigated) negative declaration. Section 15063(c)(3)(D).
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 significant.

4.1 Aesthetics

Would the proposed project:

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

EXPLANATIONS:

a. Less Than Significant Impact

Northern and Southern Alignments

The Northern and Southern alignments consist of existing roadway ROW within a generally flat area. Construction activities associated with the proposed project (e.g., presence of construction vehicles, excavated materials, laydown areas) would create short-term visual effects for the surrounding residential areas. All proposed improvements would be located underground and would not include any permanent aboveground components. Once construction is complete, the visual character of the footprints of both alignments would be restored to the pre-project condition. Therefore, the proposed project would not substantially alter views from any designated view corridors and would not have a substantial adverse effect on a scenic vista. Impacts would be less than significant.

b. No Impact

Northern and Southern Alignments

There are no designated state scenic highways within proximity of the project. The closest eligible state scenic highway is a segment of I-15 located 7.5 miles west of the Northern Alignment and 3.6 miles west of the Southern Alignment. Neither alignment is visible from this segment of I-15. Furthermore, an official designation is required for potential impacts to be considered significant. As described in Section 4.5a below, no historic buildings are currently located on the project site. Furthermore, there are no mature trees or rock outcroppings that would be affected by the proposed project. Therefore, the project would not substantially damage any scenic resources within a state scenic highway. No impact would occur.

c. Less Than Significant Impact

Northern and Southern Alignments

The Northern and Southern alignments are both generally bounded by residential development, agricultural land, and disturbed land. Construction activities associated with the proposed project (e.g., presence of construction vehicles, excavated materials, laydown areas) would create short-term visual effects for the surrounding residential areas. All proposed improvements would be located underground and would not include any permanent aboveground components. Once construction is complete, the visual character of the footprints of both alignments would be restored to the pre-project condition. Therefore, the project would not adversely affect the quality of public views of the project site and its surroundings, and impacts would be less than significant.

d. Less Than Significant Impact

Northern and Southern Alignments

Project construction would be limited to daytime hours and would not require any lighting. Furthermore, the sewer transmission lines would be located underground and would not include any permanent aboveground components. Therefore, the proposed project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area, and impacts would be less than significant.

4.2 Agriculture and Forestry Resources

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 1220[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?	☐	☐	☐	☒

EXPLANATIONS:

a. No Impact

Northern and Southern Alignments

The Northern and Southern alignments would be constructed within ROW of existing roadways, the majority of which consists of paved roadways. Potential construction staging areas would be located within disturbed land within ROW adjacent to existing roadways. Although small segments of the

project construction footprints are designated as farmland by the Department of Conservation "California Important Farmland Finder", none of these areas are used for active agricultural cultivation. Once construction is complete, the footprints of both alignments would be restored to the pre-project condition. Therefore, the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses. No impact would occur.

b. No Impact

Northern and Southern Alignments

The Northern and Southern alignments would be constructed within ROW of existing roadways, which are not zoned for agricultural use. Potential construction staging areas would be located within disturbed land within ROW adjacent to existing roadways, none of which are used for active agricultural cultivation. Once construction is complete, the footprints of both alignments would be restored to the pre-project condition. None of the properties within the Northern or Southern alignments are subject to a Williamson Act contract . No impact would occur.

c. No Impact

Northern and Southern Alignments

None of the properties within the Northern or Southern alignments are zoned as forestland, timberland, or timberland production zones. The project site does not contain any forest or timberland as defined by Public Resources Code Section 12220[g], Public Resources Code Section 4526, or Government Code Section 51104(g). No impact would occur.

d. No Impact

Northern and Southern Alignments

The properties within the Northern or Southern alignments do not contain any forestlands or timberland as defined by Public Resources Code Section 12220[g], Public Resources Code Section 4526, or Government Code Section 51104(g). No impact would occur.

e. No Impact

Northern and Southern Alignments

The Northern and Southern alignments would be constructed within ROW of existing roadways, the majority of which consists of paved roadways. Potential construction staging areas would be located within disturbed land within ROW adjacent to existing roadways, none of which used for active agricultural cultivation. Once construction is complete, the footprints of both alignments would be restored to the pre-project condition. Therefore, the proposed project would not result in conversion of farmland or forestland. No impact would occur.

4.3 Air Quality

Would the proposed project:

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

EXPLANATIONS:

The following section is based on the Air Quality Analyses prepared by RECON Environmental, Inc. (RECON) for the Northern Alignment (Appendix A-1) and Southern Alignment (Appendix A-2).

a. Less Than Significant Impact

Northern and Southern Alignments

The Northern and Southern alignments are both located within the South Coast Air Basin (SoCAB) under the jurisdiction of the SCAQMD. The SoCAB is designated as in attainment or unclassifiable attainment (expected to be meeting the standard despite a lack of monitoring data) for all federal air quality standards except for the 8-hour ozone and 2.5-micron particulate matter ($PM_{2.5}$) standards. The SoCAB is also designated as in nonattainment for state air quality standards for 8-hour ozone and $PM_{2.5}$, and additionally is in nonattainment of state 10-micron particulate matter (PM_{10}) standards. The regional air quality plan, the 2022 Air Quality Management Plan (AQMP), outlines measures to reduce emissions of ozone and $PM_{2.5}$. Whereas reducing PM concentrations is achieved by reducing emissions of $PM_{2.5}$ to the atmosphere, reducing ozone concentrations is achieved by reducing the precursors of photochemical formation of ozone, VOC, and NO_X.

The growth forecast for the 2022 AQMP is based in part on the land uses established by local general plans. Thus, if a project is consistent with land use as designated in the local general plan, it can

normally be considered consistent with the 2022 AQMP. Projects that propose a different land use than is identified in the local general plan may also be considered consistent with the 2022 AQMP if the proposed land use is less intensive than buildout under the current designation. For projects that propose a land use that is more intensive than the current designation, analysis that is more detailed is required to assess conformance with the 2022 AQMP.

The proposed project does not include growth-generating components, but rather would provide sewer service to existing development that is currently utilizing septic systems. As such, the proposed project would be consistent with growth projections contained in the County's General Plan and AQMP forecasts. Based on these considerations and pursuant to SCAQMD guidelines, project-related emissions are accounted for in the AQMP.

Another factor used to determine if a project would conflict with implementation of the 2022 AQMP is evaluating whether it would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards (National Ambient Air Quality Standards [NAAQS] and California Ambient Air Quality Standards [CAAQS]) or interim emissions reductions specified in the 2022 AQMP. NAAQS and CAAQS violations could occur if project emissions exceed regional significance thresholds or localized significance thresholds (LSTs).

The SCAQMD has established significance thresholds to assess the regional and localized impacts of project-related air pollutant emissions. These significance thresholds are updated as needed to appropriately represent the most current technical information and attainment status in the SoCAB. The County uses the current SCAQMD thresholds to determine whether a project would have a significant impact. SCAQMD's significance thresholds for impacts to regional air quality are shown in Table 4.

Table 4
SCAQMD Air Quality Significance Thresholds – Mass Daily Thresholds

Pollutant	Emissions (pounds)	
	Construction	Operational
Oxides of Nitrogen (NO_X)	100	55
Volatile Organic Compounds (VOC)	75	55
Coarse Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Oxides of Sulfur (SO_X)	150	150
Carbon Monoxide (CO)	550	550
Lead (Pb)	3	3
SOURCE: SCAQMD CEQA Air Quality Handbook (SCAQMD 1993); SCAQMD Air Quality Significance Thresholds (SCAQMD 2023)		

The SCAQMD's Final Localized Significance Threshold Methodology was developed as a tool to assist lead agencies to analyze localized air quality impacts to sensitive receptors in the vicinity of the project (SCAQMD 2008). The LST Methodology outlines how to analyze localized impacts from common pollutants of concern including nitrogen dioxide (NO_2), carbon monoxide (CO), PM_{10}, and $PM_{2.5}$. Localized air quality impacts would occur if pollutant concentrations at sensitive receptors exceeded applicable NAAQS or CAAQS.

LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest residence or sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its air quality impact analyses. The significance of localized emissions impacts depends on whether ambient levels in the vicinity of any given project are above or below state standards. In the case of CO and NO_2, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM_{10} and $PM_{2.5}$, both of which are non-attainment pollutants.

As shown in Tables 5 and 6 below, construction emissions associated with each alignment would not individually exceed the regional significance thresholds. Furthermore, Table 7 presents the combined construction emissions of both alignments, which would not collectively exceed the regional significance thresholds.

Table 5
Maximum Daily Construction Emissions for the Northern Alignment
(pounds per day)

	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Grubbing/Land Clearing	3.21	25.18	33.99	0.08	2.13	1.25
Grading/Excavation	3.31	26.12	35.38	0.09	2.22	1.29
Drainage/Utilities/Sub-Grade	3.25	24.82	34.62	0.08	2.15	1.26
Paving	3.15	23.68	34.22	0.08	1.06	0.97
Maximum Daily Emissions	**3.31**	**26.12**	**35.38**	**0.09**	**2.22**	**1.29**
SCAQMD Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No

ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns

Table 6
Maximum Daily Construction Emissions for the Southern Alignment
(pounds per day)

	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Grubbing/Land Clearing	2.43	19.09	27.25	0.06	1.90	1.03
Grading/Excavation	2.52	20.24	28.67	0.07	2.00	1.07
Drainage/Utilities/Sub-Grade	2.39	18.01	27.84	0.06	1.86	0.97
Paving	2.32	17.41	27.43	0.06	0.80	0.72
Maximum Daily Emissions	**2.52**	**20.24**	**28.67**	**0.07**	**2.00**	**1.07**
SCAQMD Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No

ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns

Table 7 Maximum Daily Construction Emissions for the Both Alignments (pounds per day)						
	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Grubbing/Land Clearing	5.46	44.27	61.24	0.14	4.03	2.28
Grading/Excavation	5.83	46.36	64.05	0.16	4.22	2.36
Drainage/Utilities/Sub-Grade	5.64	42.83	62.46	0.14	4.01	2.23
Paving	5.47	41.09	61.65	0.14	1.86	1.69
Maximum Daily Emissions	**5.83**	**46.36**	**64.05**	**0.16**	**4.22**	**2.36**
SCAQMD Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No
ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns						

As shown in Tables 8 and 9 below, construction emissions associated with the Southern Alignment would not exceed the LSTs. It should be noted that the LSTs evaluate potential impacts on the nearest sensitive receptors, which is based on the distance of the construction footprint to the sensitive receptor. Therefore, a comparison of combined emissions to the LST thresholds is not necessary, due the distance separating both alignments.

After installation of the underground transmission lines, there would be occasional inspection and maintenance trips associated with both alignments. Routine sewer video inspection would occur approximately every three years, and cleaning would occur every five to ten years. These operational activities would be conducted by existing District employees. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible. Therefore, implementation of the Northern and Southern alignments would not conflict with or obstruct implementation of the 2022 AQMP or applicable portions of the State Implementation Plan (SIP), and impacts would be less than significant.

Table 8 Localized Construction Emissions for the Northern Alignment				
	Pollutant			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Maximum On-Site Daily Emission	26.12	35.38	2.22	1.29
LST Threshold	162	750	4	3
Exceeds Threshold?	No	No	No	No
NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns				

Table 9 Localized Construction Emissions for the Southern Alignment				
	Pollutant			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Maximum On-Site Daily Emission	20.24	28.67	2.00	1.07
LST Threshold	162	750	4	3
Exceeds Threshold?	No	No	No	No
NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns				

b. Less Than Significant Impact

Northern and Southern Alignments

The SoCAB is designated as a nonattainment area for federal Ambient Air Quality Standards (AAQS) for the 8-hour ozone and $PM_{2.5}$ standards, and is in nonattainment area under state 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards. Ozone is not emitted directly but is a result of atmospheric activity on precursors. Nitrogen oxides (NO_X) and reactive organic gases (ROG) are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone.

Based on SCAQMD cumulative significance methodologies, the emissions-based thresholds shown in Table 4 above are used to determine if a project's contribution to regional cumulative emissions is cumulatively considerable. These thresholds were used to assess the significance of the project-specific and cumulative air quality impacts. Air quality impacts are basin-wide, and air quality is affected by all pollutant sources in the SoCAB. As the individual project thresholds are designed to help achieve attainment with cumulative basin-wide standards, they are also appropriate for assessing the project's contribution to cumulative impacts.

As shown in Table 7 above, the combined construction emissions of both alignments of ozone precursors (ROG and NO_X), PM_{10}, and $PM_{2.5}$ would not exceed the SCAQMD's thresholds of significance. These thresholds are designed to provide limits below which project emissions from an individual project would not significantly affect regional air quality or the timely attainment of the NAAQS and CAAQS. Therefore, construction of the Northern and Southern alignments would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

After installation of the underground transmission lines, there would be occasional inspection and maintenance trips for both alignments. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible. Therefore, operation of the Northern and Southern alignments would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

c. Less Than Significant Impact

Northern and Southern Alignments

A sensitive receptor is a person in the population who is more susceptible to health effects due to exposure to an air contaminant than is the population at large. Examples of sensitive receptor locations in the community include residences, schools, playgrounds, childcare centers, churches, athletic facilities, retirement homes, and long-term health care facilities. The nearest sensitive

receptors are the residential uses located as close as 50 feet from the proposed Northern Alignment and residential uses located as close as 60 feet from the proposed Southern Alignment.

The two primary emissions of concern regarding health effects for land development projects are diesel particulate matter (DPM) and CO. Projects that would site sensitive receptors near potential CO hotspots or would contribute vehicle traffic to local intersections where a CO hotspot could occur would be considered as having a potentially significant impact.

Diesel Particulate Matter

Construction of the sewer transmission lines would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. Construction of the sewer transmission lines would result in the generation of diesel exhaust DPM emissions from the use of off-road diesel equipment required for construction activities and on-road diesel equipment used to bring materials to and from the project sites.

Generation of DPM from construction projects typically occurs in a single area for a short period. Construction of the Northern Alignment is anticipated to last for approximately 13 months, and construction of the Southern Alignment is anticipated to last for approximately 18 months. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Although both alignments are located adjacent to residential uses, construction equipment would only be located adjacent to a particular sensitive receptor for a matter of days or weeks since work would move along the alignment at an average rate of 50 to 80 feet per day. Thus, the duration of proposed construction activities near any specific sensitive receptor would be minimal, and would be significantly less than the 30-year exposure period used in health risk assessments.

Additionally, with ongoing implementation of U.S. EPA and California Air Resources Board (CARB) requirements for cleaner fuels; off-road diesel engine retrofits; and new, low-emission diesel engine types, the DPM emissions of individual equipment would be reduced over time. All construction equipment is subject to the CARB In-Use Off-Road Diesel-Fueled Fleets Regulation, which limits unnecessary idling to 5 minutes, requires all construction fleets to be labeled and reported to CARB, bans Tier 0 equipment and phases out Tier 1 and 2 equipment (thereby replacing fleets with cleaner equipment), and requires that fleets comply with Best Available Control Technology requirements. Therefore, due to the limited duration of construction activities, the limited amount of time equipment would be located adjacent to any specific sensitive receptor, and implementation of the In-Use Off-Road Diesel-Fueled Fleets Regulation, DPM generated by project construction is not expected to create conditions where the probability is greater than 10 in 1 million of contracting cancer for the Maximally Exposed Individual, or to generate ground-level concentrations of non-carcinogenic TACs that exceed a Hazard Index greater than 1 for the Maximally Exposed Individual.

Therefore, construction of the Northern and Southern Alignments would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant.

Carbon Monoxide Hot Spots

A CO hot spot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. CO hot spots have the potential to violate state and federal CO standards at intersections, even if the broader basin is in attainment for federal and state levels. CO hot spots occur nearly exclusively at signalized intersections operating at level of service (LOS) E or F. Due to increased requirements for cleaner vehicles, equipment, and fuels, CO levels in the state have dropped substantially. All air basins are attainment or maintenance areas for CO. Therefore, more recent screening procedures based on more current methodologies have been developed. The SMAQMD developed a screening threshold in 2011, which states that any project involving an intersection experiencing 31,600 vehicles per hour or more will require detailed analysis. In addition, the Bay Area Air Quality Management District developed a screening threshold in 2010 which states that any project involving an intersection experiencing 44,000 vehicles per hour would require detailed analysis.

Project construction would generate vehicle trips in the form of trucks and worker commute vehicles. Based on the RCEM emission calculations prepared for project construction, up to 27 daily worker trips would occur for the Northern Alignment and 30 daily worker trips would occur for the Southern Alignment during peak construction activities. As discussed above, CO hot spots occur nearly exclusively at signalized intersections operating at LOS E or F. However, there are no signalized intersections in the vicinity of the Northern Alignment. The addition of 27 worker trips to other intersections used to access the Northern Alignment would not cause an intersection to operate at a failing LOS and would not significantly increase peak hourly volumes. Similarly, the only signalized intersection in the vicinity of the Southern Alignment is the intersection of De Portola Road and Butterfield Stage Road. However, construction activities would occur just east of the intersection, and volumes at this intersection are well less than 31,600 vehicle per hour. The addition of 30 worker trips to other intersections used to access the Southern Alignment would not cause an intersection to operate at a failing LOS and would not significantly increase peak hourly volumes. Construction vehicle generation would also be temporary. Therefore, construction of the Northern and Southern alignments would not generate CO hot spots, and impacts would be less than significant.

d. Less Than Significant Impact

Northern and Southern Alignments

The potential for an odor impact is dependent on a number of variables, including the nature of the odor source, distance between the receptor and odor source, and local meteorological conditions. During construction, diesel equipment may generate some nuisance odors from equipment exhaust. Additionally, paving activities have the potential to generate odors while laying asphalt. Sensitive receptors near the proposed sewer transmission lines include residential uses. However, exposure to odors associated with project construction would be short-term and temporary in nature. In addition, construction activities would be required to comply with SCAQMD Rule 402, which prohibits the discharge of odorous emissions that would create a public nuisance. Furthermore, per CARB's Airborne Toxic Control Measures 13 (California Code of Regulations Chapter 10 Section 2485), the applicant shall not allow idling time to exceed five minutes unless more time is required per engine

manufacturers' specifications or for safety reasons. Compliance with this regulation would reduce odors from equipment exhaust. Given the short-term nature of construction, compliance with SCAQMD Rule 402, and the distance to the nearest sensitive receptors, construction of the Northern and Southern alignments would not generate odors that would affect a substantial number of people, and impacts would be less than significant.

The following list provides some common types of facilities that are known producers of objectionable odors (Bay Area Air Quality Management District 2017). This list of facilities is not meant to be all-inclusive.

- Wastewater Treatment Plant
- Wastewater Pumping Facilities
- Sanitary Landfill
- Transfer Station
- Composting Facility
- Petroleum Refinery
- Asphalt Batch Plant
- Chemical Manufacturing
- Fiberglass Manufacturing
- Painting/Coating Operations
- Rendering Plant
- Coffee Roaster
- Food Processing Facility
- Confined Animal Facility/Feed Lot/Dairy
- Green Waste and Recycling Operations
- Metal Smelting Plants

The project does not include any of these uses that are typically associated with odor complaints. There would be no operational source of odors associated with the project, as both sewer transmission lines would be completely enclosed and underground. Therefore, operation of the Northern and Southern alignments would not generate substantial amounts of odors adversely affecting a substantial number of people, and impacts would be less than significant.

4.4 Biological Resources

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have substantial adverse effects, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or	☐	☒	☐	☐

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS)?				
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS?	☐	☐	☐	☒
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 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?	☐	☐	☒	☐

EXPLANATIONS:

The following section is based on the Biological Technical Report prepared by RECON for the Northern Alignment (Appendix B-1) and Southern Alignment (Appendix B-2).

a. Potentially Significant Unless Mitigation Incorporated

Northern Alignment

Vegetation Communities/Land Cover Types

A general biological resources survey was conducted for the Northern Alignment and surrounding 50-foot buffer. The survey area supports eight vegetation communities and land cover types: Riversidean sage scrub, disturbed Riversidean sage scrub, southern cottonwood/willow riparian, disturbed southern cottonwood/willow riparian, ornamental, tamarisk scrub, disturbed land, and urban/developed (Table 10; Figure 5).

Table 10
Vegetation Communities within the Northern Alignment Survey Area (acres)

Vegetation Community	Total Survey Area	Impacts
Riversidean sage scrub	0.15	0
Disturbed Riversidean sage scrub	0.27	0
Southern cottonwood/willow riparian	1.22	0
Disturbed Southern cottonwood/willow riparian	0.17	0
Tamarisk scrub	0.08	0
Ornamental	1.97	0
Disturbed land	23.77	9.21*
Urban/developed	12.67	10.78
TOTAL	**40.3**	**19.99**
*Includes acreage of potential staging areas outside of ROW.		

Riversidean Sage Scrub. Riversidean sage scrub occurs in one small, isolated patch within the survey area, adjacent to the southwestern portion of Rancho California Road. The Riversidean sage scrub is dominated by native California buckwheat (*Eriogonum fasciculatum*) and contains additional native sage scrub species such as California sagebrush (*Artemisia californica*) and deerweed (*Acmispon glaber*).

Disturbed Riversidean Sage Scrub. Disturbed Riversidean sage scrub occurs in two small, isolated patches adjacent to Rancho California Road. These patches generally appear to have been mowed, grazed, or subject to some other form of disturbance, as they have low, sparse native sage scrub species, interspersed with non-native grasses and forbs. The disturbed Riversidean sage scrub has low to moderate vegetation cover and is dominated by native California buckwheat and non-native species such as tumbleweed (*Salsola* sp.) and shortpod mustard (*Hirschfeldia incana*).

Southern Cottonwood/Willow Riparian. Southern cottonwood/willow riparian habitat is found in isolated segments within the survey area, adjacent to Rancho California Road and East Benton Road. This vegetation community is dominated by narrow-leaved willow (*Salix exigua*), red willow (*Salix laevigata*), and Fremont cottonwood (*Populus fremontii*), and contains a moderately vegetated understory comprised of mule fat (*Baccharis salicifolia*).

Image Source: NearMap (flown September 2023)

RECON

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- Project Alignment
- Survey Area
- Project Impact Area
- Potential Burrowing Owl Burrow
- Downy Woodpecker (*Dryobates pubescens*) Detected Visually and Audibly

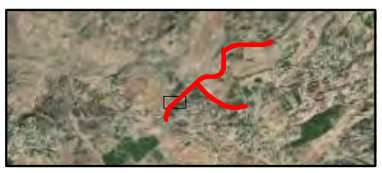
Vegetation Community

- Southern Cottonwood/Willow Riparian
- Disturbed Riversidean Sage Scrub
- Ornamental
- Disturbed Land
- Urban/Developed

0 Feet 100

FIGURE 5.1
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)



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Project Alignment
Survey Area
Project Impact Area
Least Bell's Vireo (*Vireo bellii pusillis*) Detected Audibly

Vegetation Community
- Southern Cottonwood/Willow Riparian
- Disturbed Southern Cottonwood/Willow Riparian
- Riversidean Sage Scrub
- Disturbed Riversidean Sage Scrub
- Ornamental
- Disturbed Land
- Urban/Developed

0 Feet 100

FIGURE 5.2
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

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FIGURE 5.3
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Potential Staging Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 5.4
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 5.5
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Potential Staging Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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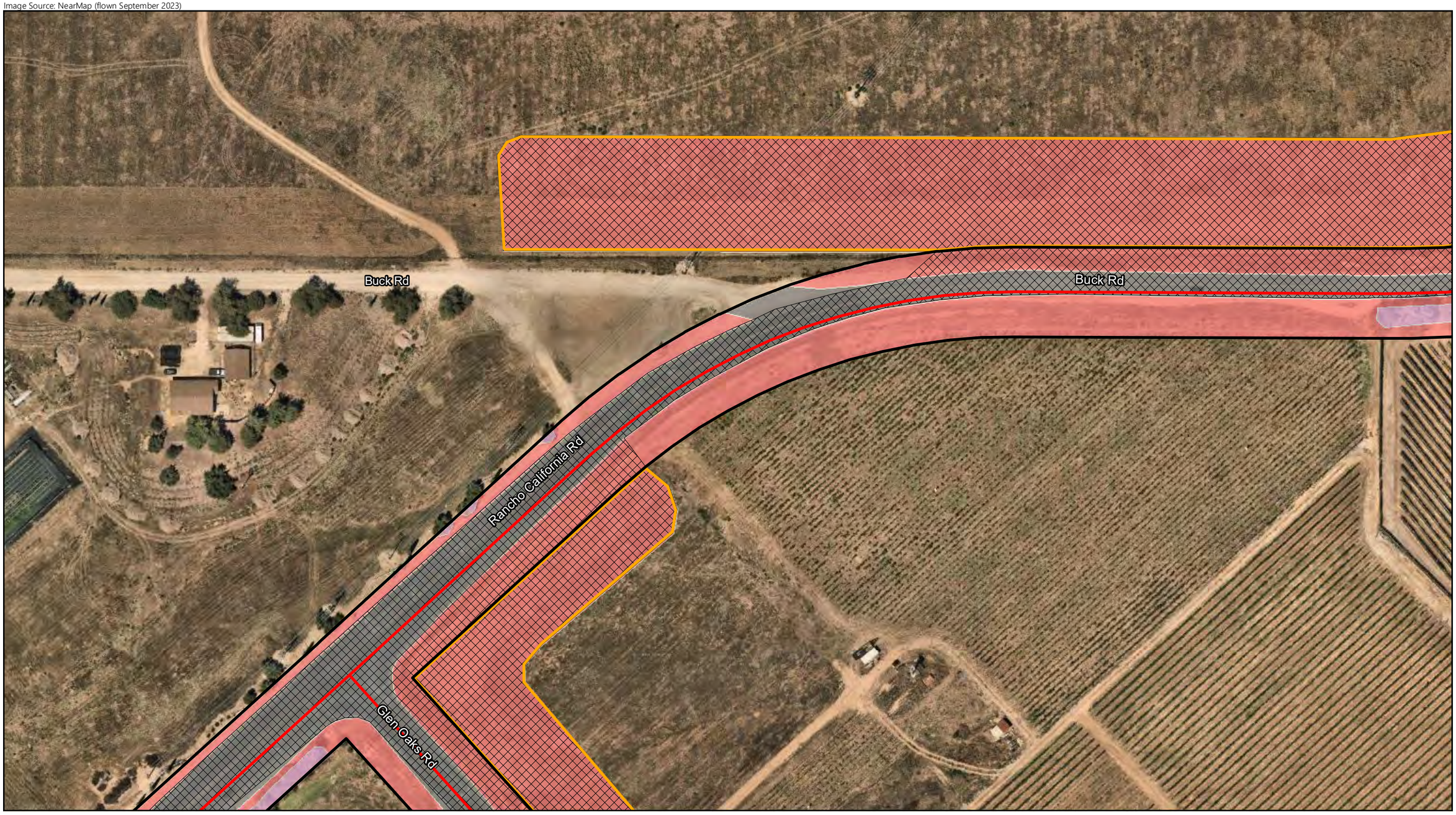
FIGURE 5.6
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Survey Area
Potential Staging Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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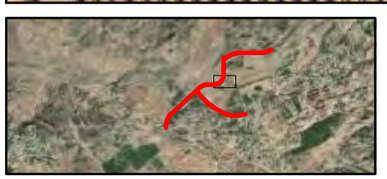
FIGURE 5.7
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Survey Area
Potential Staging Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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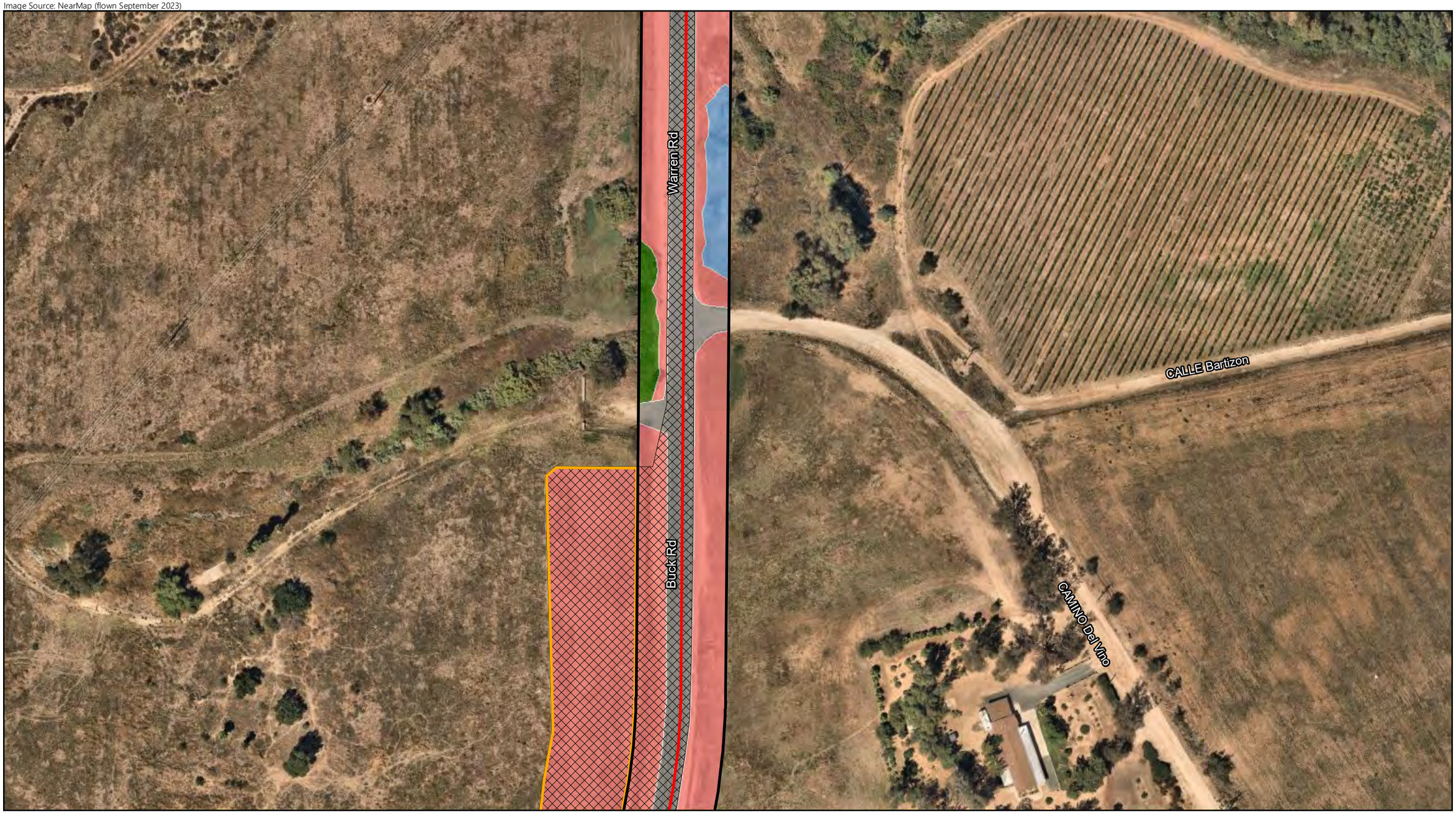
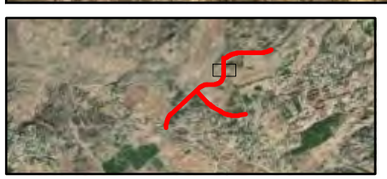
FIGURE 5.8
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)





Project Alignment
Survey Area
Potential Staging Area
Project Impact Area

Vegetation Community
Tamarisk Scrub
Disturbed Southern Cottonwood/Willow Riparian
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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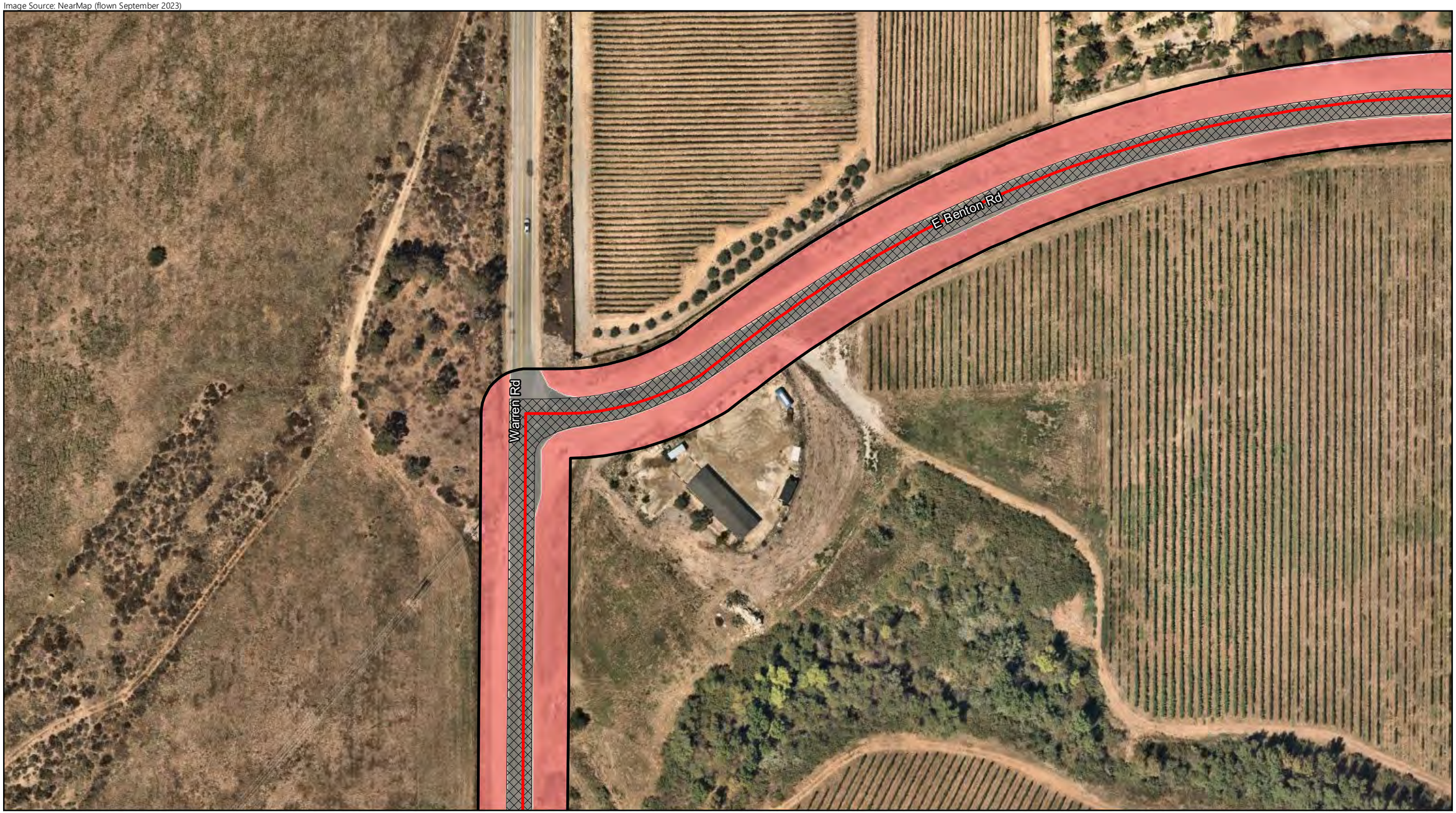
FIGURE 5.9
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Survey Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 5.10
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 5.11
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area

Vegetation Community
Southern Cottonwood/Willow Riparian
Disturbed Land
Urban/Developed

0 Feet 100

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FIGURE 5.12
Existing Biological Resources within Northern Alignment

Disturbed Southern Cottonwood/Willow Riparian. Disturbed southern cottonwood/willow riparian habitat is found in isolated segments within the survey area, adjacent to Rancho California Road and Warren Road. Disturbed southern cottonwood/willow riparian habitat within the survey area occurs adjacent to the central portion of the roadway. This vegetation community contains native riparian tree species, such as narrow-leaved willow, red willow, and Fremont cottonwood, but also contains non-native and ornamental species, such as Brazilian pepper tree (*Schinus terebinthifolius*) and Peruvian pepper tree (*Schinus molle*).

Tamarisk Scrub. Tamarisk scrub is found in a small, isolated patch within the survey area, adjacent to Warren Road. Tamarisk scrub within the survey area occurs adjacent to the central portion of the roadway. This vegetation community is dominated by salt cedar (*Tamarix ramosissima*).

Ornamental. Ornamental trees and shrubs are found throughout the survey area, adjacent to roadways and developments. This vegetation community contains non-native tree and shrub species, including non-native rose (*Rosa* sp.), French lavender (*Lavandula stoechas*), gum tree (*Eucalyptus* sp.), Brazilian pepper tree, and Peruvian pepper tree.

Disturbed Land. Disturbed land is found throughout the survey area, adjacent to paved roadways and residential developments. Disturbed land within the survey area occurs as bare ground or previously disturbed soils dominated by non-native species, such as tumbleweed, redstem filaree (*Erodium cicutarium*), and big heron bill (*Erodium botrys*). Some areas within this habitat type appear to be associated with fallow agricultural fields or former agricultural use.

Urban/Developed. Urban/developed accounts for the majority of the survey area and occurs primarily as paved roadways with occasional unpaved roadways and driveways interspersed throughout the survey area. This land cover type contains no vegetative cover.

As shown in Table 10 above, direct impacts would be limited to urban/developed land within existing roadways and disturbed land adjacent to roadways. Urban/developed land and disturbed land are not considered sensitive, and impacts would be considered less than significant.

Wildlife Species

One sensitive wildlife species, least Bell's vireo, was detected during a focused survey. One other sensitive wildlife species, downy woodpecker (*Dryobates [=Picoides] pubescens*), was detected during the general biological survey. Six other sensitive wildlife species were determined to have a moderate potential to occur in the survey area: burrowing owl, ferruginous hawk (*Buteo regalis*), northern harrier (*Circus hudsonius*), Stephens' kangaroo rat (*Dipodomys stephensi*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and California glossy snake (*Arizona elegans occidentalis*). In addition, focused surveys were conducted for coastal California gnatcatcher to determine species presence/absence.

Coastal California Gnatcatcher. The coastal California gnatcatcher is federally listed as threatened, a CDFW species of special concern, and an Multiple Species Habitat Conservation Program (MSHCP) covered species (CDFW 2023; Western Riverside County Regional Conservation Authority [WRCRCA] 2003). This species is not expected to occur within the project site and was not observed within the Riversidean sage scrub adjacent to the project site during protocol surveys in 2023. The scrub habitat

adjacent to the project site is limited to small, isolated patches bounded by urban/developed land and lacks connectivity to open space areas with suitable habitats. Therefore, the project would not impact coastal California gnatcatcher.

Ferruginous Hawk. The ferruginous hawk is a CDFW watch list species and an MSHCP covered species (CDFW 2023; WRCRCA 2003). This species was not observed during surveys and it is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to forage in the disturbed land within the potential staging areas of the project site due to the presence of suitable habitat. This species is a winter migrant and is not known to nest in southern California. Therefore, the project would not impact ferruginous hawk.

California Glossy Snake. The California glossy snake is a CDFW species of special concern (CDFW 2023). This species was not observed during surveys and it is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to occur within the potential staging areas for the project site due to the presence of suitable disturbed habitat with loose soils, and therefore may be impacted through incidental mortality from vegetation removal and construction activities. However, this species if present likely occurs on-site in low numbers, and the project would be expected to result in the loss of very few individuals, if any. The potential loss of these individuals would not reduce the population to less than self-sustaining. Therefore, impacts would be considered less than significant.

San Diego Black-tailed Jackrabbit. The San Diego black-tailed jackrabbit is an MSHCP covered species (WRCRCA 2003). This species was not observed during surveys and it is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to occur in the disturbed land within the potential staging areas. The project has potential to result in direct impacts to San Diego black-tailed jackrabbit through incidental mortality from vegetation removal and construction activities in the disturbed land within the potential staging areas. However, this species if present likely occurs on-site in low numbers, and the project would be expected to result in the loss of very few individuals, if any. The potential loss of these individuals would not reduce the population to less than self-sustaining. Therefore, impacts would be considered less than significant.

Least Bell's Vireo. The least Bell's vireo is federally and state listed as endangered, and an MSHCP covered species (CDFW 2023; WRCRCA 2003). One least Bell's vireo was detected within southern cottonwood/willow riparian habitat adjacent to Rancho California Road (see Figure 5). Based on the survey results, least Bell's vireo is assumed to be present in all southern cottonwood/willow riparian and disturbed southern cottonwood/willow riparian adjacent to the project site, outside of the project impact area. As such, direct impacts to least Bell's vireo are not anticipated as the project would be limited to the developed roadway and the project would avoid removal of suitable riparian habitat. However, due to the proximity of potentially suitable riparian habitat to work areas, indirect impacts as a result of construction noise during the breeding season (March 15 through September 15) could result if this species were to nest adjacent to the project site. This would be considered a significant impact. Implementation of mitigation measure BIO-1 would reduce this impact to a level less than significant.

Burrowing Owl. The burrowing owl is a CDFW species of special concern and an MSHCP covered species (CDFW 2023; WRCRCA 2003). No burrowing owl, burrows or sign were noted within the project site; however, the disturbed land in the potential staging areas contains suitable foraging

habitat. In addition, one suitable burrow was noted adjacent to Rancho California Road, outside the project impact area. Therefore, vegetation removal during construction would have the potential to impact burrowing owl, which would be considered significant. Implementation of mitigation measure BIO-2 would reduce this impact to a level less than significant.

Stephens' Kangaroo Rat. The Stephens' kangaroo rat is a federally listed endangered, a state listed threatened species, and an MSHCP and Stephens' Kangaroo Rat Habitat Conservation Program covered species (CDFW 2023; WRCRCA 2003). No Stephens' kangaroo rat or signs of the species were observed during surveys and this species is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to occur within the disturbed land in the potential staging areas. These areas are typified by dense non-native grasses and forbs that lack suitable open areas for this species; however, they appear to be subject to periodic mowing and/or tilling and may contain suitable open, low-lying vegetation for portions of the year. Therefore, vegetation removal and construction activities would have the potential to impact Stephens' kangaroo rat, which would be considered significant. Implementation of mitigation measure BIO-3 would reduce this impact to a level less than significant.

Downy Woodpecker. The downy woodpecker is a MSHCP covered species (WRCRCA 2003). This species was detected visually and audibly during the general biological survey within the cottonwood/willow riparian habitat adjacent to Rancho California Road (see Figure 5). As such, downy woodpecker is assumed to be present in all southern cottonwood/willow riparian and disturbed southern cottonwood/willow riparian adjacent to the project site, outside of the project impact area. Therefore. potential direct and indirect impacts could result to downy woodpecker should construction activities occur during the general avian and raptor breeding season (January 1 through August 31), which would be considered significant. Implementation of mitigation measure BIO-4 would reduce this impact to a level less than significant.

Northern Harrier. The northern harrier is a CDFW species of special concern and an MSHCP covered species (CDFW 2023; WRCRCA 2003). This species was not observed during surveys and it is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to occur in the disturbed land within the potential staging areas of the project site due to the presence of suitable foraging habitat. Therefore, potential direct and indirect impacts could result to northern harrier should construction activities occur during the general avian and raptor breeding season (January 1 through August 31), which would be considered significant. Implementation of mitigation measure BIO-4 would reduce this impact to a level less than significant.

Migratory and Nesting Birds. The majority of the project site and adjacent vegetation communities and land cover types have potential to support migratory and nesting bird species. Urban-adapted species have been known to nest within ornamental vegetation or the eaves of houses or openings in structures. Ground nesting species have the potential to nest within the disturbed land and open areas found within the urban/developed land within and adjacent to the project site. Potential direct and indirect impacts could result to nesting and migratory birds should construction activities occur during the general avian and raptor breeding season (January 1 through August 31). Potential direct impacts could result from vegetation removal and construction activities in the disturbed land within the proposed staging areas. Indirect noise impacts may also occur to migratory and nesting birds if they are nesting in the adjacent habitat. These species are protected by the CFGC Section 3503.5

and impacts to nesting individuals would be considered significant. Implementation of mitigation measure BIO-4 would reduce this impact to a level less than significant.

Plant Species

One sensitive plant species, ashy spike-moss (*Selaginella cinerascens*), was observed in the Riversidean sage scrub habitat within the survey area. This species is given a CRPR 4.1 by CNPS (CNPS 2023. It occurs in scrub and chaparral habitats on a wide range of soil types (Baldwin et al. 2012, Reiser 2001). No other sensitive plants were observed within or adjacent to the survey during the biological survey and none have a moderate or high potential to occur. Furthermore, construction activities will mainly occur within existing roads and road rights-of-way, the majority of the project area constitutes urban/developed land or disturbed land and is not suitable to support sensitive plant species such as ashy spike-moss. Therefore, the project would not impact any sensitive plant species.

Southern Alignment

A general biological survey was conducted for the Southern Alignment and surrounding 50-foot buffer. The survey area supports four vegetation communities and land cover types: agriculture, ornamental, disturbed land, and urban/developed (Table 11; Figure 6).

Table 11
Vegetation Communities/Land Cover Types within the Southern Alignment Survey Area (acres)

Vegetation Community/Land Cover Type	Total Survey Area	Impacts
Agriculture	0.46	0
Ornamental	18.39	2.91
Disturbed land	30.05	23.87*
Urban/developed	22.78	17.85
TOTAL	**71.68**	**44.63**

*Includes potential staging areas located outside of right-of-way. Actual area used for staging will be determined and refined based on access agreements negotiated at the time of construction.

Descriptions of ornamental, disturbed land, and urban/developed are provided above.

Agriculture

Agricultural lands are found south of the central portion of De Portola Road. The majority of the agricultural lands appeared to have been recently cleared of vegetation and contain mostly bare ground with sparse non-native weedy species throughout.

As shown in Table 11 above, direct impacts would be limited to urban/developed land within existing roadways and ornamental and disturbed land adjacent to roadways. Ornamental, urban/developed land, and disturbed land are not considered sensitive, and impacts would be considered less than significant.

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Disturbed Land
Urban/Developed

0 Feet 100

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FIGURE 6.1
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Disturbed Land
Urban/Developed

0 Feet 100

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FIGURE 6.2
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

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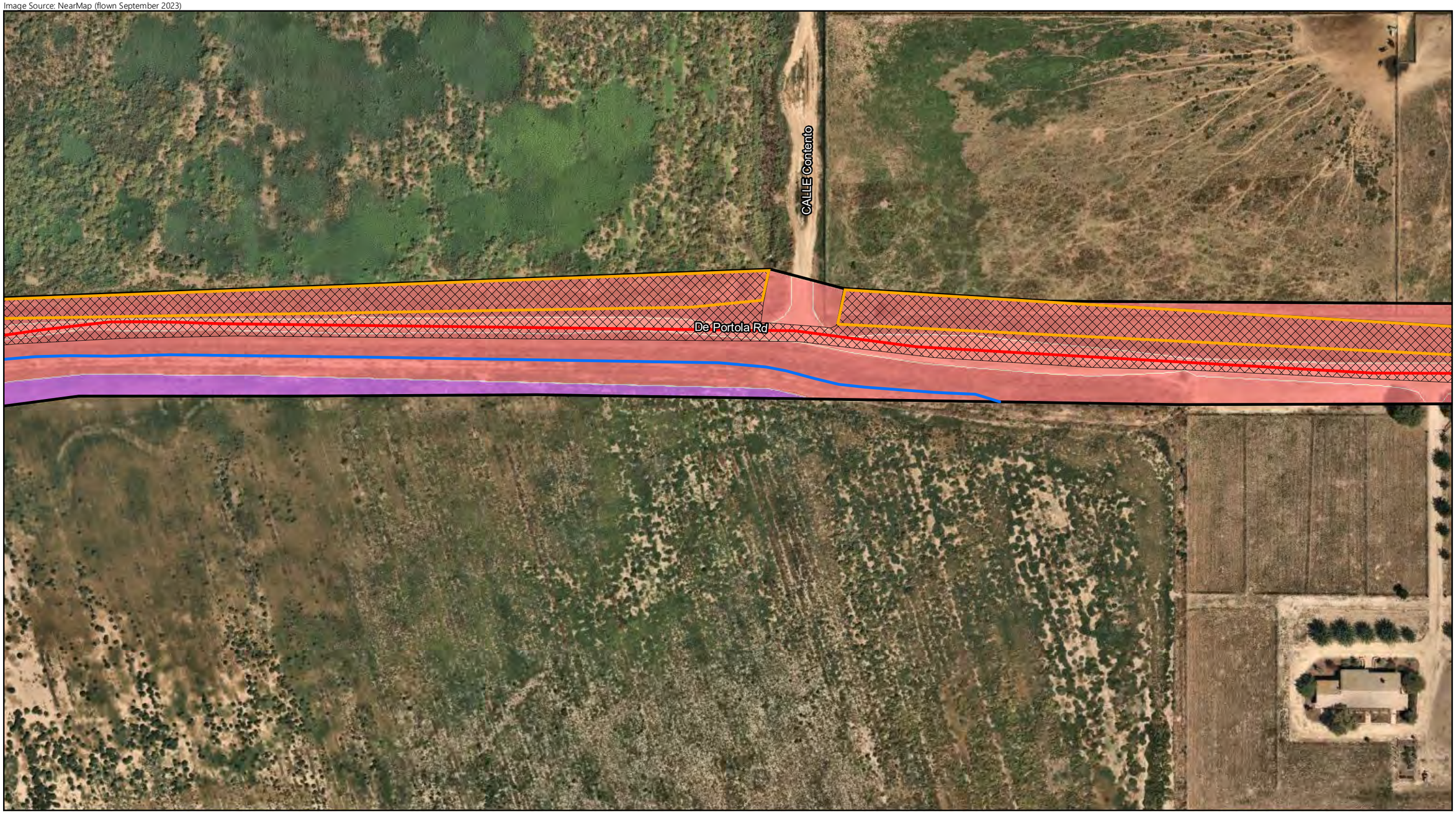
Project Alignment
Potential Staging Area
Project Impact Area
Survey Area
Agricultural Ditch

Vegetation Community
Agriculture
Disturbed Land
Urban/Developed

0 Feet 100

FIGURE 6.3
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area
Agricultural Ditch

Vegetation Community
Agriculture
Disturbed Land

0 Feet 100

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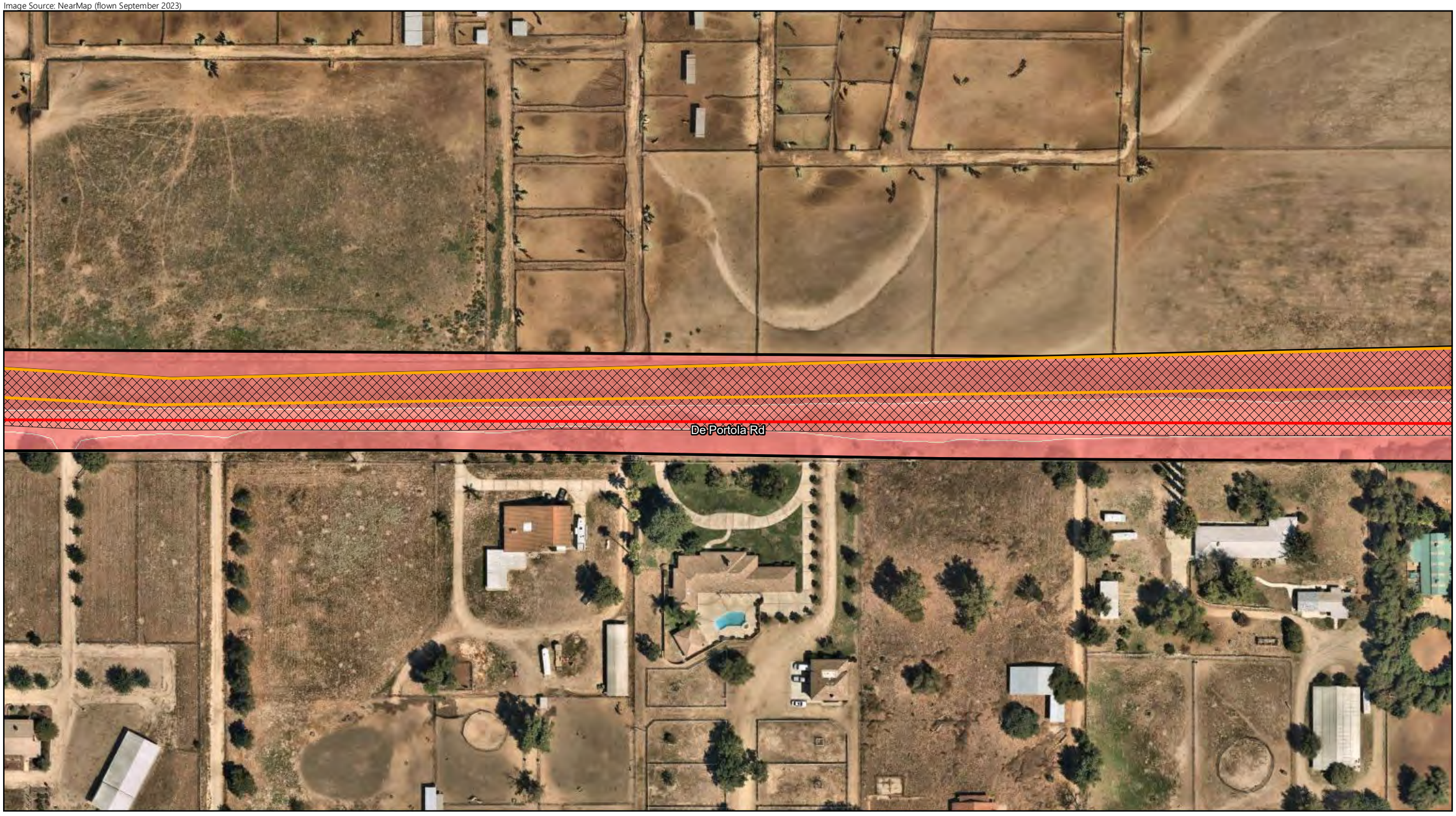
FIGURE 6.4
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Disturbed Land

0 Feet 100

RECON

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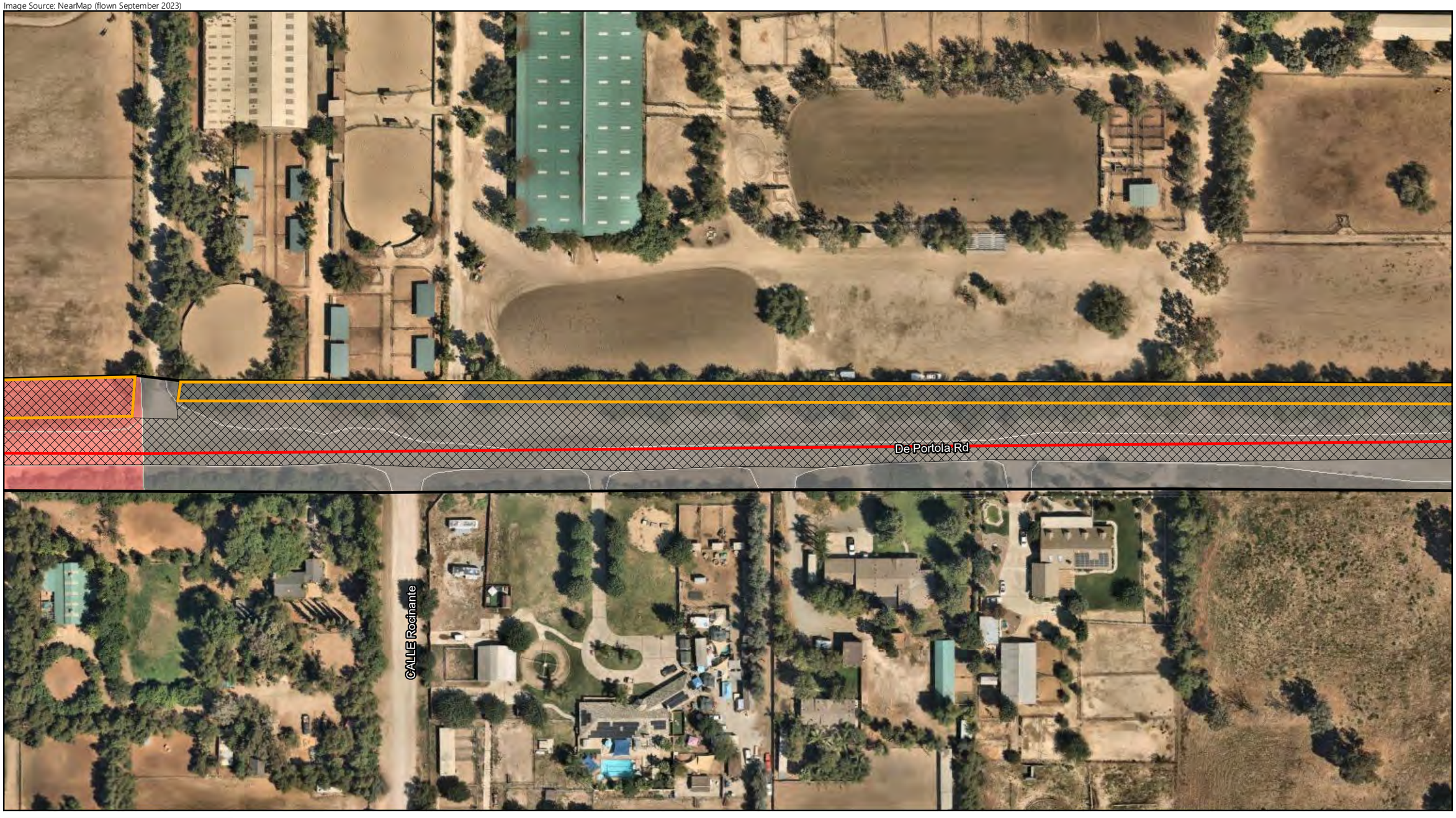
FIGURE 6.5
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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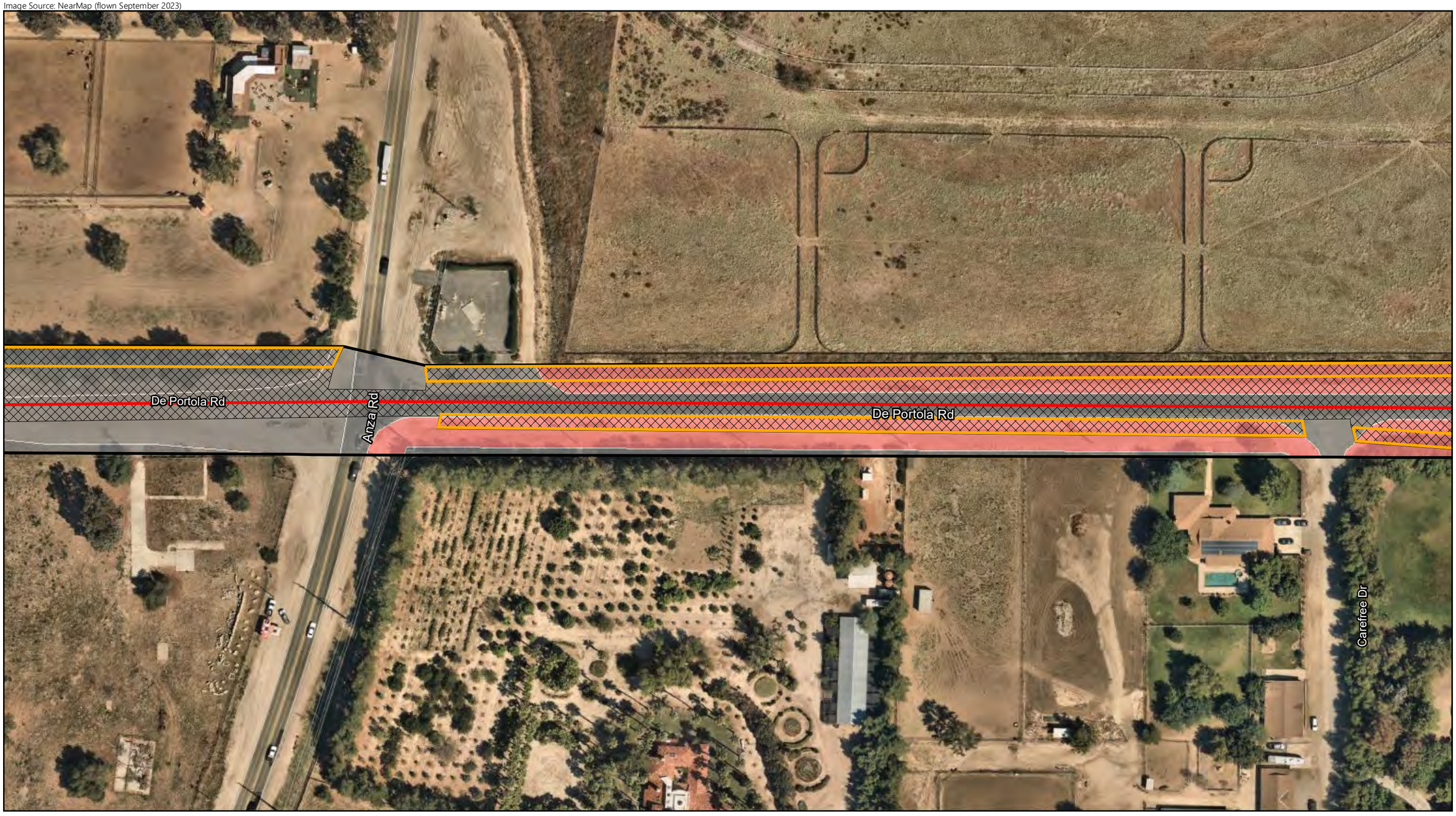
FIGURE 6.6
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 6.7
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 6.8
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 6.9
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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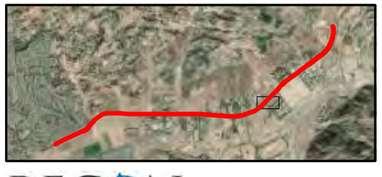
FIGURE 6.10
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



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- Project Alignment
- Potential Staging Area
- Project Impact Area
- Survey Area
- Culvert
- Culverted Non-vegetated Drainage
- Agricultural Ditch

Vegetation Community

- Ornamental
- Disturbed Land
- Urban/Developed

0 Feet 100

FIGURE 6.11
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

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- Project Alignment
- Potential Staging Area
- Project Impact Area
- Survey Area
- Agricultural Ditch

Vegetation Community

- Ornamental
- Disturbed Land
- Urban/Developed

0 Feet 100

FIGURE 6.12

Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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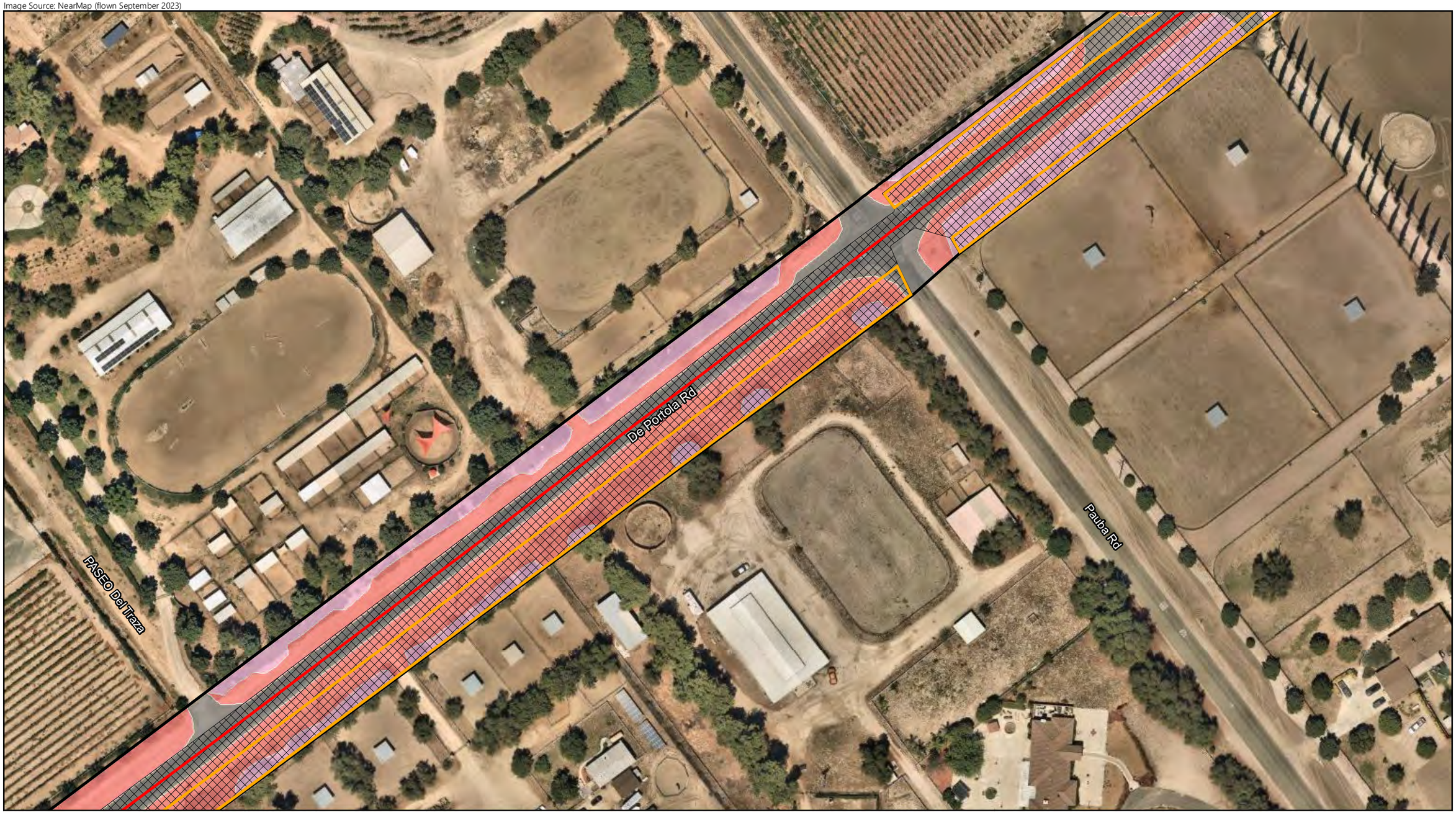
FIGURE 6.13
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

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FIGURE 6.14
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 6.15
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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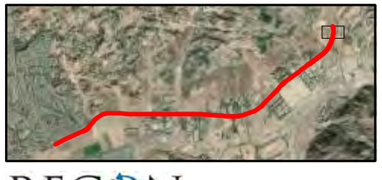
FIGURE 6.16
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 6.17
Existing Biological Resources within Southern Alignment

Wildlife Species

No sensitive wildlife species were detected within or adjacent to the survey area during biological surveys. However, six sensitive wildlife species are determined to have a moderate potential to occur in the project site: burrowing owl, ferruginous hawk (*Buteo regalis*), northern harrier (*Circus hudsonius*), Stephen's kangaroo rat (*Dipodomys stephensi*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and California glossy snake (*Arizona elegans occidentalis*). Impacts associated with all six of these species, as well as migratory and nesting Birds, would be the same as described above for the Northern Alignment. Therefore, implementation of mitigation measures BIO-1 through BIO-4 would reduce impacts on sensitive wildlife species and migratory and nesting birds to a level less than significant.

Plant Species

No sensitive plants were observed within or adjacent to the survey area during biological surveys and none have a moderate or high potential to occur within the Southern Alignment. Most portions of the Southern Alignment consist of urban/developed land and disturbed land that are not suitable to support sensitive plant species. The agricultural land is subject to repeated soil disturbance for cultivation purposes with sandy loam being the primary soil type in these areas. Therefore, the project would not impact any sensitive plant species.

b. No Impact

Northern and Southern Alignments

Direct impacts associated with the Northern and Southern alignments would be limited to ornamental, disturbed land, and urban/developed land, which are not considered sensitive riparian habitat. Therefore, the proposed project would not have a substantial direct adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS. No impact would occur.

c. Potentially Significant Unless Mitigation Incorporated

Northern Alignment

The general biological resources survey for the Northern Alignment identified several culverted drainage channels travel under Rancho California Road, Warren Road, East Benton Road, and De Portola Road (Figure 7). The culverted drainage channels are associated with ephemeral drainages and riparian habitat adjacent to these roadways with the survey area (see Figure 7). The culverted drainage channels underlying the roadways and ephemeral drainages adjacent to the roadways would likely be considered waters of the state under Regional Water Quality Control Board (RWQCB) and CDFW jurisdiction, as well as MSHCP riverine resources.

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area
Culvert

Aquatic Resources
Wetland
Culverted Non-vegetated Drainage
Drainage

0 Feet 100

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FIGURE 7.1
Existing Aquatic Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area
Culvert

Aquatic Resources
Wetland
Disturbed Wetland
Culverted Non-vegetated Drainage
Drainage

0 Feet 100

RECON

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FIGURE 7.2
Existing Aquatic Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Potential Staging Area
Project Impact Area
Culvert

Aquatic Resources
Wetland
Disturbed Wetland
Culverted Non-vegetated Drainage
Drainage

0 Feet 100

RECON

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FIGURE 7.3
Existing Aquatic Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area
Culvert

Aquatic Resources
Wetland
Culverted Non-vegetated Drainage
Drainage

0 Feet 100

RECON

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FIGURE 7.4
Existing Aquatic Resources within Northern Alignment

Several riparian areas associated with ephemeral drainages occur in the northern segment of the survey area adjacent to Rancho California Road, Warren Road, and East Benton Road (see Figure 5). The riparian areas and ephemeral drainages adjacent to the roadways would likely be considered waters of the state under RWQCB and CDFW jurisdiction. However, a formal aquatic resources delineation was not conducted because the project would avoid direct impacts to potentially jurisdictional non-wetland waters by using jack and bore and/or trenchless techniques. Nonetheless, the project has potential to result in indirect impacts to potential jurisdictional resources occurring adjacent to the project site which would be considered significant. Implementation of mitigation measure BIO-5 would reduce impacts to a level less than significant.

Southern Alignment

No potential jurisdictional wetlands or non-wetland waters were observed within the survey area of the Southern Alignment. An unlined roadside ditch occurs within and adjacent to the survey area (see Figure 5). The ditch appears to be manmade and associated with the adjacent agricultural fields and does not show evidence that it was constructed within a naturally occurring drainage. As such, the roadside ditch is not anticipated to be considered jurisdictional under U.S. Army Corps of Engineers (USACE), RWQCB, or CDFW. Therefore, implementation of the Southern Alignment would not have a substantial adverse effect on state or federally protected wetlands. No impact would occur.

d. Less Than Significant Impact

Northern and Southern Alignments

The Northern and Southern alignments are located on major thoroughfares that are primarily surrounded by a mosaic of agricultural and rural-residential development interspersed with unimproved lots. Surrounding open space may support wildlife movement; however, any movement from these areas through the proposed alignments are ultimately restricted by existing roadways. Also, the proposed alignments are unlikely to support wildlife nursery sites or large roosting or breeding colonies due to their disturbed and developed nature. Therefore, the proposed project would not 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, and impacts would be less than significant.

e. Less Than Significant Impact

Northern and Southern Alignments

The footprints of the Northern and Southern alignments do not possess any trees. All other potential impacts to biological resources have been addressed in Section 4.4a through 4.4d above. Therefore, the project would not conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance, and impacts would be less than significant.

f. Less Than Significant Impact

Northern and Southern Alignments

Both the Northern and Southern alignments are located within the Western Riverside County MSHCP area (County of Riverside 2003). The MSHCP was designed to conserve approximately 500,000 acres

of habitat, including 347,000 acres of existing conservation on public and quasi-public land and 153,000 acres of conservation on privately owned lands. Areas of privately owned lands considered for potential conservation are identified as Criteria Cells, which are intended to facilitate assessment of conservation potential under the MSHCP. In this way, the MSHCP directs future conservation efforts to occur within these Criteria Cells. As described in Section 4.4a above, the Northern and Southern alignments would not impact any sensitive habitats, and would mitigate impacts to sensitive wildlife species to a level less than significant, thereby maintaining consistency with the Western Riverside County MSHCP. Therefore, the proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan, and impacts would be less than significant.

MITIGATION MEASURES

BIO-1: Least Bell's Vireo

Between March 15 and September 15, no construction activities shall occur within any portion of the project site where construction activities would result in noise levels exceeding 60 A-weighted decibels [dB(A)] hourly average (or ambient, whichever is higher) at the edge of occupied least Bell's vireo habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(A) hourly average at the edge of occupied habitat must be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the District at least two weeks prior to the commencement of construction activities. Prior to the commencement of construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist.

BIO-2: Burrowing Owl

A pre-construction take avoidance survey shall be conducted by a qualified biologist in suitable disturbed land within the project footprint, plus 500 feet. Per the Staff Report on Burrowing Owl Mitigation (CDFW 2012), take avoidance surveys require an initial survey no less than 14 days prior to the start of ground disturbance activities and a final survey conducted within 24 hours of ground disturbance. If burrowing owls are detected, the CDFW must be notified within 48 hours and avoidance measures and/or mitigation would be required.

If active burrowing owl burrows are identified within the potential impact area, the project shall avoid disturbing active burrowing owl burrows (nesting sites) and burrowing owl individuals. Buffers shall be established around occupied burrows in accordance with guidance provided in the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012) based on the proposed level of disturbance. For low disturbance projects, initial setback distances for avoidance of active burrows shall be 200 meters (approximately 656 feet) from April 1 to October 15 and 50 meters (164 feet) from October 16 to March 31. Exceptions can be made to the avoidance distance for areas with natural (hills, trees) or artificial (buildings, walls) barriers in place. The final avoidance buffer shall be at the discretion of the biologist. If, after consideration of a reduced buffer, an adequate avoidance buffer cannot be provided between an occupied burrow and required ground-disturbing activities, then passive relocation activities during the non-breeding season (September 1 through January 31) may be authorized in consultation with CDFW, which would include preparation, approval, and

implementation of a Burrowing Owl Exclusion Plan in accordance with protocol described in the CDFW Staff Report on Burrowing Owl Mitigation.

BIO-3: Stephens' Kangaroo Rat

A pre-construction take avoidance survey shall be conducted by a qualified biologist within the potential staging areas. The take avoidance surveys would require a focused habitat assessment survey within 14 days prior to the start of ground disturbance activities to determine whether the potential staging area contains suitable habitat with potential Stephens' kangaroo rat sign, tracks, or burrows. If no evidence of Stephens' kangaroo rat is present, then the staging area will be fenced with silt fencing to the roadway to prevent occupation by this species during construction. If evidence of Stephens' kangaroo rat is present, potential staging areas will avoid suitable disturbed land and be limited to unsuitable areas of disturbed land and/or the developed roadway.

BIO-4: Migratory and Nesting Birds

Construction should be conducted outside the avian and raptor breeding season, which is generally defined as January 1 to August 31. If construction must take place during the nesting season, a qualified biologist shall perform a pre-construction survey for nesting birds within the project site, including a 500-foot buffer. The nesting bird survey shall occur no more than seven days prior to the start of construction. If active bird nests are confirmed to be present during the pre-construction survey, a buffer zone will be established by a qualified biologist until a qualified biologist has verified that the young have fledged or the nest has otherwise become inactive.

BIO-5: Aquatic Resources

To avoid indirect impacts to potentially jurisdictional features, best management practices, such as the use of silt fences, fiber rolls, and/or gravel bags, shall be implemented. No equipment maintenance or fueling shall be performed within or near the drainage channels where petroleum products or other pollutants from the equipment may enter this area.

4.5 Cultural Resources

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of an historical resource pursuant to §15064.5?	☐	☐	☒	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c. Disturb human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

EXPLANATIONS:

The following section is based on the Cultural Resources Survey Reports prepared by RECON for the Northern Alignment (Appendix C-1: Confidential) and Southern Alignment (Appendix C-2: Confidential), which conducted background research, review of topographic maps and historic aerial photographs, and an on-foot survey.

a. Less Than Significant Impact

Northern Alignment

A cultural resources records and literature search was prepared for the Area of Potential Effect (APE) of the Northern Alignment with a one-mile search radius buffer at the Eastern Information Center (EIC) located at University of California Riverside. The record search indicated 37 previously recorded cultural resources have been identified within one mile of the project APE, which consisted of 22 prehistoric sites (one of which has been subsumed by another site), 9 isolated prehistoric artifacts, and 6 historic-era sites. The record search identified one previously recorded historic feature within the APE of the Northern Alignment. However, the pedestrian survey of the Northern Alignment did not identify this resource, and it has been presumed destroyed during the creation of a vineyard.

Historic USGS topographic maps and aerial photographs were reviewed to determine changes within the APE of the Northern Alignment over time. The specific results of the review for each segment of the Northern Alignment are provided in Appendix C-1. Overall, the review documented the development of roadways and residential uses within the APE over time, and did not identify any historic resources.

The pedestrian survey conducted for each segment of the Northern Alignment did not identify any previously unrecorded historic resources within the APE (Appendix C-1). Therefore, implementation of the Northern Alignment would not cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5, and impacts would be less than significant.

Southern Alignment

A cultural resources records and literature search was performed for the APE of the Southern Alignment with a one-mile search radius buffer at the EIC located at University of California Riverside. The record search indicated 36 previously recorded cultural resources have been identified within one mile of the project APE, which consisted of 16 prehistoric sites, 8 isolated prehistoric artifacts, 7 historic sites, 2 historic-era isolates, and 3 multicomponent sites (sites containing a combination of prehistoric, protohistoric, or historic resources). The record search did not identify any previously recorded historic resources within or adjacent to the APE. .

Historic USGS topographic maps and aerial photographs were reviewed to determine changes within the APE of the Southern Alignment over time. The specific results of the review for each segment of the Southern Alignment are provided in Appendix C-2. Overall, the review documented the development of roadways and residential uses within the APE over time, and did not identify any historic resources.

The pedestrian survey conducted for the Southern Alignment identified two previously unrecorded concrete post markers that were evaluated for eligibility for eligible for inclusion in the National Register of Historic Places (NRHP) or listing in the California Register of Historical Resources (CRHR) (Appendix C-2). As documented in Appendix C-2, the evaluation determined that the markers are not historic properties under the NRHP or historical resources under the CRHR. Therefore, implementation of the Southern Alignment would not cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5, and impacts would be less than significant.

b. Potentially Significant Unless Mitigation Incorporated

Northern Alignment

No archaeological resources have been previously recorded within or immediately adjacent to the APE of the Northern Alignment. Additionally, RECON sent a letter to the Native American Heritage Commission (NAHC) on October 9, 2023, requesting a search of their Sacred Lands File to identify spiritually significant and/or sacred sites or traditional use areas in the project vicinity. A response was received from the NAHC on November 27, 2023, indicating that the Sacred Lands File search results was positive. However, no previously recorded significant or potentially significant prehistoric cultural resources were observed during the survey of the APE of the Northern Alignment. Given past disturbances within the APE of the Northern Alignment due to grading, road construction, swale construction, residential development, and agriculture, the possibility of buried significant cultural resources being present is considered low. Therefore, implementation of the Northern Alignment would not cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5, and impacts would be less than significant.

Southern Alignment

The records search completed for the Southern Alignment documented two prehistoric isolates within or adjacent to the project APE of the Southern Alignment. However, the pedestrian survey of the Southern Alignment did not identify either of these resources, nor did it identify any previously unrecorded prehistoric resources within or adjacent to the APE. RECON sent a letter to the NAHC on October 9, 2023, requesting a search of their Sacred Lands File to identify spiritually significant and/or sacred sites or traditional use areas in the project vicinity. A response was received from the NAHC on November 27, 2023, indicating that the Sacred Lands File search results was positive. Additionally, the APE of the Southern Alignment is located within alluvial and floodplain deposits from the Temecula Creek which may have unknown buried cultural resources, the discovery of which would be considered a significant impact. Implementation of mitigation measures CUL-1 through CUL-2 would reduce this impact to a level less than significant.

c. Potentially Significant Unless Mitigation Incorporated

Northern and Southern Alignments

There are no formal cemeteries or recorded burials in the vicinity of the Northern or Southern alignments. While no human remains are anticipated to be discovered during project construction, in the unexpected event that human remains are encountered during construction, mitigation measure CUL-3 would require the project to follow Public Resources Code Section 5097.98 and California Health and Safety Code Section 7050.5, which would reduce impacts to a level less than significant.

MITIGATION MEASURE

CUL-1: Cultural Resources Monitoring and Plan Development

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

CUL-2: Evaluation of Discovered Artifacts

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

CUL-3: Procedure for Discover of Human Remains.

If Native American human remains are encountered, Public Resources Code Section 5097.98 and California Health and Safety Code Section 7050.5 will be followed. If human remains are encountered no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to the origin. Further, pursuant to California Public Resources Code Section 5097.98(b), the remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the coroner shall contact the NAHC within 24 hours. Subsequently, the NAHC shall identify the person or persons it believes to be the "most likely descendant." The most likely descendant shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in Public Resources Code Section 5097.98.

4.6 Energy

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in potentially significant environmental impacts 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?	☐	☐	☒	☐

EXPLANATIONS:

a. Less Than Significant Impact

Northern and Southern Alignments

The Northern and Southern alignments would consume energy during both construction and operation. Energy use during construction would occur within two general categories: vehicle fuel used by workers commuting to and from the construction site, and fuel use by vehicles and other equipment to haul materials and conduct construction activities. While construction activities would consume fuels, project-related consumption of such resources would be temporary and would cease upon the completion of construction. In addition, mobile equipment energy usage during construction would be minimized through compliance with CARB's idling regulations, which restrict idling diesel vehicles and equipment to five minutes. Additionally, consistent with state requirements, all construction equipment would meet CARB Tier 3 In-Use Off-Road Diesel Engine Standards.

Engines are required to meet certain emission standards, and groups of standards are referred to as Tiers. A Tier 0 engine is unregulated with no emission controls, and each progression of standard level (i.e., Tier 1, Tier 2, Tier 3, etc.) generates lower emissions, uses less energy, and is more advanced technologically than the previous tier. CARB's Tier 3 In-Use Off-Road Diesel Engine Standards requires that construction equipment fleets become cleaner and use less energy over time. The fuel consumed during construction would also be typical of similar construction projects and would not require the use of new energy resources beyond what are typically consumed in California. Therefore, construction of the Northern and Southern alignments would not result in wasteful, inefficient, or unnecessary consumption of energy resources, and impacts would be less than significant.

Operational energy usage would be minimal and would consist of occasional inspection and maintenance trips for both alignments. Operational energy consumption associated with vehicle emissions from these inspection and maintenance activities would be negligible. Therefore, operation of the Northern and Southern alignments would not result in a wasteful, inefficient, or unnecessary consumption of energy resources, and impacts would be less than significant.

b. Less Than Significant Impact

Northern and Southern Alignments

Equipment required for construction of the Northern and Southern alignments would be subject to CARB's idling regulations and Tier 3 In-Use Off-Road Diesel Engine Standards. Operational energy usage would be minimal and would consist of occasional inspection and maintenance trips for both alignments. Operational energy consumption associated with vehicle emissions from these inspection and maintenance activities would be negligible. Therefore, implementation of the Northern and Southern alignments would not conflict with any state or local plans for renewable energy or energy efficiency, and impacts would be less than significant.

4.7 Geology and Soils

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

The following section is based on the Report of Geotechnical Investigation prepared by Kleinfelder for the Northern Alignment and Southern Alignment (Appendix D).

EXPLANATIONS:

a.i. Less Than Significant Impact

Northern and Southern Alignments

The Report of Geotechnical Investigation completed for the project determined that neither the Northern or Southern alignments are located within a state-designated Alquist-Priolo Earthquake Fault Zone, nor are there are no known faults underlying, or within the vicinity, of either alignment (Appendix D). Furthermore, the proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that could expose people

to fault rupture. Therefore, impacts related to the exposure of people or structures to rupture of a known earthquake fault would be less than significant.

a.ii. Less Than Significant Impact

Northern and Southern Alignments

The project site is in a seismically active southern California region. However, the proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that could expose people to strong ground shaking. Furthermore, project design and construction would adhere to the findings of a soils report and geotechnical investigation to minimize seismic and geological risk. Therefore, impacts related to strong seismic shaking would be less than significant.

a.iii. Less Than Significant Impact

Northern and Southern Alignments

The Report of Geotechnical Investigation completed for the project determined that the entire Southern Alignment has the potential for liquefaction. However, groundwater was not encountered in any of the borings drilled in the southern alignment to depths ranging from 20 to 50 feet below ground surface (bgs). Based on the lack of groundwater and the anticipated pipeline invert elevations, the potential for at the Southern Alignment is low. The Report of Geotechnical Investigation completed for the project determined that a localized drainage crossing the Northern Alignment in the vicinity of Rancho California Road, between Lomo Ventoso Lane and Hilt Road has the potential for liquefaction. Groundwater was measured at depths ranging between approximately three to eight feet bgs in this location, and the liquefaction analysis determined that invert, loose to medium dense sand layers are located below the groundwater at a depth of approximately 18 to 22 feet bgs, which may be subject to liquefaction in the event of a major earthquake occurring on a nearby fault. Based on the liquefaction analysis, seismically-induced settlement of saturated soils due to strong ground shaking during seismic event may occur. However, adherence to the excavation recommendations presented in the Report of Geotechnical Investigation regarding unstable subsurface souls would reduce impacts related to seismic-related ground failure, including liquefaction, for the Northern Alignment to a level less than significant.

a.iv. Less Than Significant Impact

Northern and Southern Alignments

The footprints of the Northern and Southern alignments and their surrounding areas are relatively flat and do not possess any slopes that could be subject to landslide. Once construction is complete, the footprints of both alignments would be restored to the pre-project condition and would not introduce any new slopes. Therefore, impacts related to landslides would be less than significant.

b. Less Than Significant Impact

Northern and Southern Alignments

Construction of the Northern and Southern alignments would implement best management practices consistent with the requirements of the NPDES Construction General Permit and SWPPP to control stormwater flows, and thereby minimize erosion and topsoil loss. Therefore, compliance with

the requirements of the NPDES Construction General Permit and SWPPP would prevent substantial soil erosion or the loss of topsoil, and impacts would be less than significant.

c. Less Than Significant Impact

Northern and Southern Alignments

As described in Section 4.7a.iii above, risk associated with unstable soils for the Southern Alignment was determined to be low. Adherence to the excavation recommendations presented in the Report of Geotechnical Investigation regarding unstable subsurface soils would reduce impacts associated with an unstable geologic unit or soils, for the Northern Alignment to a level less than significant.

d. Less Than Significant Impact

Northern and Southern Alignments

As described in Section 4.7a.iii above, risk associated with unstable soils for the Southern Alignment was determined to be low. Adherence to the excavation recommendations presented in the Report of Geotechnical Investigation regarding unstable subsurface soils would reduce impacts associated with expansive soils for the Northern Alignment to a level less than significant.

e. No Impact

Northern and Southern Alignments

The proposed project does not propose the use of septic tanks or alternative wastewater disposal systems. No impact would occur.

f. Potentially Significant Unless Mitigation Incorporated

Northern and Southern Alignments

The project site includes paved roads and land that have been previously disturbed. Given past disturbances within the footprint of the Northern Alignment due to grading, road construction, swale construction, residential development, and agriculture, the possibility of unknown buried paleontological resources being present is considered low. However, excavation to depths that would reach intact native soils may have unknown buried paleontological resources, the discovery of which would be considered significant. Implementation of mitigation measure PAL-1 would reduce impacts to a level less than significant.

MITIGATION MEASURE

PAL-1: Paleontological Monitor

Excavation to depths that would reach intact native soils shall be monitored by a qualified paleontologist. If paleontological resources are encountered, the paleontological monitor shall have the authority to temporarily halt or redirect work while the paleontological resources are documented and assessed. If significant deposits are found, additional data recovery shall be conducted, as necessary, in order to adequately mitigate project impacts. The fossil collection and all associated documentation shall be legally transferred to a qualified repository within Riverside

County. Full-time paleontological monitoring can be reduced to part-time inspections or ceased entirely if determined adequate by the qualified paleontologist.

4.8 Greenhouse Gas Emissions

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

The following section is based on the Greenhouse Gas Analyses prepared by RECON for the Northern Alignment (Appendix E-1) and Southern Alignment (Appendix E-2).

a. Less Than Significant Impact

Northern and Southern Alignments

Emissions associated with construction of both the Northern and Southern alignments were modeled using the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Roadway Construction Emissions Model (RCEM) Version 9.0.1 (SMAQMD 2022). The RCEM is a spreadsheet-based model that is able to use basic project information (e.g., total construction months, project type, total project area) to estimate a construction schedule and quantify exhaust emissions from heavy-duty construction equipment, haul trucks, and worker commute trips associated with linear construction projects. Based on guidance from the SCAQMD, total construction greenhouse gas (GHG) emissions resulting from a project should be amortized over 30 years and added to operational GHG emissions to account for their contribution to GHG emissions over the lifetime of a project (SCAQMD 2009). Additional details regarding this methodology are provided in Appendices E-1 and E-2.

Table 12 summarizes the total and amortized construction emissions for the Northern Alignment. As shown in Table 12, construction of the Northern Alignment would generate a total of 1,079 metric tons of CO_2 equivalent (MT CO_2E), which would be 36 MT CO_2E per year when amortized over the lifetime of the project. After installation of the underground pipeline, there would be occasional inspection and maintenance trips. There would also be minimal emissions associated with wastewater treatment. However, inspection and maintenance trips would be conducted by existing District

employees, and vehicle emissions would be negligible. Additionally, the project would reduce the reliance on septic systems, thereby reducing GHG emissions related to wastewater. Overall, GHG emissions generated during construction and operation would be less than the 3,000 MT CO_2E annual screening threshold.

Table 12 Construction GHG Emissions for the Northern Alignment	
Phase	Construction GHG Emissions (MT CO_2E)
Grubbing/Land Clearing	103
Grading/Excavation	515
Drainage/Utilities/Subgrade	308
Paving	152
Total Construction Emissions	**1,079**
Amortized over 30 Years	*36*
NOTE: Total varies due to independent rounding.	

Table 13 summarizes the total and amortized construction emissions for the Southern Alignment. As shown in Table 13, construction of the Southern Alignment would generate a total of 1,162 MT CO_2E, which would be 39 MT CO_2E per year when amortized over the lifetime of the project. After installation of the underground pipeline, there would be occasional inspection and maintenance trips. There would also be minimal emissions associated with wastewater treatment. However, inspection and maintenance trips would be conducted by existing District employees, and vehicle emissions would be negligible. Additionally, the project would reduce the reliance on septic systems, thereby reducing GHG emissions related to wastewater. Overall, GHG emissions generated during construction and operation would be less than the 3,000 MT CO_2E annual screening threshold.

Table 13 Construction GHG Emissions for the Southern Alignment	
Phase	Construction GHG Emissions (MT CO_2E)
Grubbing/Land Clearing	108
Grading/Excavation	565
Drainage/Utilities/Subgrade	329
Paving	161
Total Construction Emissions	**1,162**
Amortized over 30 Years	*39*
NOTE: Total varies due to independent rounding.	

Table 14 presents the combined total and amortized construction emissions for both alignments. As with the individual assessment of the Northern and Southern alignments, the combined GHG emissions generated during construction and operation of both alignments would not exceed the 3,000 MT CO_2E annual screening threshold. Therefore, the Northern and Southern alignments would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant.

Table 14 Construction GHG Emissions for Both Alignments	
Phase	Construction GHG Emissions (MT CO_2E)
Grubbing/Land Clearing	211
Grading/Excavation	1,080
Drainage/Utilities/Subgrade	637
Paving	313
Total Construction Emissions	**2,241**
Amortized over 30 Years	*75*
NOTE: Total varies due to independent rounding.	

b. Less Than Significant Impact

Northern and Southern Alignments

Executive Order (EO) S-3-05 and EO B-30-15 established GHG emission reduction targets for the state, and Assembly Bill 32 launched the CARB Climate Change Scoping Plan that outlined the reduction measures needed to reach the 2020 target, which the state has achieved. As required by Senate Bill 32, CARB's 2017 Scoping Plan outlines reduction measures needed to achieve the interim 2030 target, and the 2022 Scoping Plan outlines the path towards carbon neutrality by 2045. As detailed in Section 4.8a above, GHG emissions generated during construction of both the Northern and Southern alignments would be below the SCAQMD proposed Tier 3 screening threshold of 3,000 MT CO_2E per year. Project construction would not result in emissions that would adversely affect statewide attainment of GHG emission reduction goals as described in Assembly Bill 32, EOs S-3-05 and B-30-15, and Senate Bill 32. Therefore, construction emissions would have a less than cumulatively considerable contribution to global climate change.

Anaerobic decomposition in septic tanks produces fugitive emissions of methane. The project would reduce the reliance on septic systems, thereby reducing GHG emissions related to wastewater. The project would not result in a significant increase in regional vehicle miles traveled since vehicle trips would be limited to occasional maintenance trips that would be performed by existing District employees. The project would be consistent with land use designations, as it would provide sewer connections to existing residential uses. Because the project would provide sewer service for existing development, and because project trips would be limited to occasional maintenance activities, it would not conflict with the transportation-related GHG reduction goals outlined in the Regional Transportation Plan. Furthermore, the project would not conflict with energy efficiency standards or conflict with Southern California Edison's Renewables Portfolio Standard renewable energy goals, as these are not applicable to construction and operational activities associated with the project. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and impacts would be less than significant.

4.9 Hazards and Hazardous Materials

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 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?	☐	☐	☒	☐

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

EXPLANATIONS:

a. Less Than Significant Impact

Northern and Southern Alignments

The proposed project is limited to construction of a sewer transmission lines and would not involve the routine transport, use, or disposal of significant hazardous materials. Project construction may involve the use of small amounts of solvents, cleaners, paint, oils, and fuel for equipment. However, these materials are not acutely hazardous, and use of these common hazardous materials in small quantities would not represent a significant hazard to the public or environment. Additionally, project construction would be required to be undertaken in compliance with applicable federal, state, and local regulations pertaining to the proper use of these common hazardous materials. Compliance with these regulations is mandatory per standard permitting conditions. Once operational, the project would not require the use of any hazardous materials. Therefore, the proposed project would not create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials, and impacts would be less than significant.

b. Less Than Significant Impact

Northern and Southern Alignments

Project construction would be conducted consistent with all applicable safety regulations and would not introduce accident conditions that could result in the release of hazardous materials into the environment. Once construction is complete, roadways would be restored to preexisting conditions consistent with the safety requirements of the City and County. Therefore, the proposed project would not create upset and accident conditions that could result in the release of hazardous materials, and impacts would be less than significant.

c. No Impact

Northern and Southern Alignments

There are no schools located within a quarter mile of the project site. Therefore, the proposed project would not 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 would occur.

d. No Impact

Northern and Southern Alignments

Review of the State Water Resources Control Board Geotracker and Department of Toxic Substances Control Envirostor databases determined that there are no contaminated sites on or adjacent to the project site. Furthermore, the project site was not identified on the Department of Toxic Substance Control Cortese List. Therefore, the proposed project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. No impact would occur.

e. No Impact

Northern and Southern Alignments

The Northern and Southern alignments are not located within the vicinity of a private airstrip. The nearest airport is the French Valley Airport. located approximately five miles west of the Northern Alignment and six miles northwest of the Southern Alignment. Both alignments are located well outside Airport Influence Area (Coffman Associates, Inc. 2009). Furthermore, the project is limited to construction of sewer transmission lines and human presence would be limited to temporary construction and periodic maintenance. Therefore, the project would not result in a safety hazard or excessive noise for people residing or working in the project area. No impact would occur.

f. Less Than Significant Impact

Northern and Southern Alignments

Construction within roadway ROW would be temporary, and a TCP would be implemented that would maintain access and traffic conditions, thereby allowing for emergency access during construction. Roadways would be restored to preexisting conditions once construction is completed. As described in Section 4.17a below, vehicle trips generated during construction and operation would not affect intersection and roadway operations. Therefore, the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and impacts would be less than significant.

g. Less Than Significant Impact

Northern and Southern Alignments

Review of fire threat and hazard mapping prepared by the California Department of Forestry and Fire Protection (CAL FIRE) determined that the Northern and Southern alignments are both located in areas designated as moderate, high, and very high fire hazard severity zones. However, the proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that could expose people to wildland fire risks. Human presence would be limited to temporary construction and periodic maintenance. Therefore, the proposed project would not expose people or structures, either directly or indirectly, to significant risk of loss, injury, or death involving wildland fires, and impacts would be less than significant.

4.10 Hydrology and Water Quality

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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;	☐	☐	☒	☐
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?	☐	☐	☐	☒

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

EXPLANATIONS:

a. Less Than Significant Impact

Northern and Southern Alignments

Construction of the Northern and Southern alignments would have the potential to generate erosion/sedimentation and pollutants that could impact water quality. However, project construction would implement BMPs consistent with the requirements of the NPDES Construction General Permit and SWPPP for the prevention of polluted runoff. The proposed project would be required to prepare and implement a SWPPP identifying feasible BMPs prior to the commencement of construction activities, and to incorporate water quality design features to address potential erosion and siltation impacts. Geotechnical borings did not encounter groundwater for the Southern Alignment. Geotechnical borings encountered groundwater at depths ranging from 3 feet to 8 feet below ground surface for the Northern Alignment along Rancho California Road between Lomo Ventoso Lane and Hilt Road. Some dewatering may be necessary during construction: however, the quantity is unknown at this time. Dewatering discharge would be collected and transported to nearest sewer via tank truck or discharged to natural drainage ways. Once construction is complete, the footprints of both alignments would be restored to the pre-project condition. Therefore, the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, and impacts would be less than significant.

b. Less Than Significant Impact

Northern and Southern Alignments

Construction of the Northern and Southern alignments would not increase the amount of impervious surface area, and therefore would not interfere with groundwater recharge. The proposed project would not introduce any residential, commercial, or other uses that would use groundwater. Therefore, the proposed project would not significantly decrease groundwater supplies or interfere with groundwater recharge or obstruct sustainable groundwater management, and impacts would be less than significant.

c.i. Less Than Significant Impact

Northern and Southern Alignments

Construction of the Northern and Southern alignments would implement BMPs consistent with the requirements of the NPDES Construction General Permit and SWPPP to control stormwater flows,

and thereby minimize erosion and siltation. Once construction is complete, the footprints of both alignments would be restored to the pre-project condition. Therefore, the proposed project would not substantially alter the drainage pattern of the site or the surrounding area in a manner that would result in substantial erosion or siltation on- or off-site, and impacts would be less than significant.

c.ii. Less Than Significant Impact

Northern and Southern Alignments

Construction of the Northern and Southern alignments would implement BMPs consistent with the requirements of the NPDES Construction General Permit and SWPPP that would control the rate or amount of surface runoff. Once construction is complete, the footprints of both alignments would be restored to the pre-project condition and would not result in an increase in the amount of impervious surface in the post-project condition. Therefore, the proposed project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site, and impacts would be less than significant.

c.iii. Less Than Significant Impact

Northern and Southern Alignments

Construction of the Northern and Southern alignments would implement BMPs consistent with the requirements of the NPDES Construction General Permit and SWPPP that would minimize erosion and prevent pollution from affecting water quality and control the rate or amount of surface runoff. Once construction is complete, the footprints of both alignments would be restored to the pre-project condition and would not result in an increase in the amount of impervious surface in the post-project condition. Therefore, the proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, and impacts would be less than significant.

c.iv. Less Than Significant Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines that would be located underground and would not impede or redirect flood flows. Once construction is complete, the footprints of both alignments would be restored to the pre-project condition and would not result in an increase in the amount of impervious surface in the post-project condition. Therefore, the proposed project would not impede or redirect flood flows, and impacts would be less than significant.

d. No Impact

Northern and Southern Alignments

Review of Federal Emergency Management Agency (FEMA) mapping determined that the Northern Alignment is not located within the 100- or 500-year floodplain, while the Southern Alignment is located within the 100- or 500-year floodplain. However, the proposed project is limited to

construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that could expose people to flooding hazards. Human presence would be limited to temporary construction and periodic maintenance. The project site is located over 30 miles inland from the Pacific Ocean and therefore is not subject to risk associated with tsunami. The nearest body of water is Vail Dam, located approximately six miles southeast of the project site. Given this distance of approximately 2.5 miles, the proposed project would not be affected by a seiche. Therefore, the proposed project would not result in impacts associated with flood hazard, tsunami, or seiche zones. No impact would occur.

e. Less Than Significant Impact

Northern and Southern Alignments

As described in Section 4.10a, construction of the Northern and Southern alignments would implement BMPs consistent with the requirements of the NPDES Construction General Permit and SWPPP that would prevent erosion and pollution from affecting water quality. As described in Section 4.10b, implementation of the Northern and Southern alignments would not decrease groundwater supplies or interfere with groundwater recharge. Therefore, the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and impacts would be less than significant.

4.11 Land Use and Planning

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

EXPLANATIONS:

a. Less Than Significant Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines and would not result in any permanent changes to the existing land use plan or circulation network. The proposed sewer transmission lines would be constructed within the ROW of roadways, and potential construction

staging areas would be located within disturbed land within the ROW adjacent to the roadway, subject to access agreements with private property owners. Construction within roadway ROW would be temporary, and TCP would be implemented that include traffic control measures that would maintain access and traffic conditions. Roadways impacted during construction would be returned to original grade, and adjacent natural soils impacted during construction would be revegetated with hydroseeding. Operation of the proposed project would not result in any access restrictions since the pipelines are located underground. Ongoing maintenance would also not result in a disruption to the surrounding properties. Therefore, the proposed project would not physically divide an established community and impacts would be less than significant.

b. Less Than Significant Impact

Northern and Southern Alignments

The proposed sewer transmission lines would be constructed within the ROW of roadways, which do not have General Plan or zoning designations. The proposed project is limited to construction of a sewer transmission lines and would not introduce any new land uses. The pipelines would be located below ground and would not result in any permanent changes above ground. All proposed improvements would be located underground and would not include any permanent aboveground components. Once construction is complete, the footprints of both alignments would be restored to the pre-project condition. As described in Section 4.4f, the proposed project would be consistent with the Western Riverside MSHCP and would mitigate all potential impacts related to biological resources to a level less than significant. As described in Section 4.5b, the proposed project would mitigate all impacts related to cultural resources to a level less than significant. As described in Section 4.13a, the proposed project would mitigate all impacts related to construction noise to a level less than significant. As described throughout this Draft IS/MND, all other impacts not requiring mitigation would be less than significant or would have no impact. Therefore, the proposed project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, and no impact would occur.

4.12 Mineral Resources

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

EXPLANATIONS:

a. No Impact

Northern and Southern Alignments

Review of Figure OS-6 of the County of Riverside General Plan determined that the footprints of both the Northern and Southern alignments are classified as Mineral Resource Zone 3, land for which the significance of mineral resources cannot be determined (County of Riverside 2015). Land classified as Mineral Resource Zone 3 is not considered a significant mineral resource. Therefore, the proposed project would not result in the loss of availability of known mineral resources that would be of value to the region and the residents of the state or of a locally important mineral resource recovery site. No impact would occur.

b. No Impact

Northern and Southern Alignments

None of the properties within the Northern or Southern alignments, nor any surrounding properties, are delineated as a mineral resource recovery area on any land use plans. Furthermore, the Northern and Southern alignments would be constructed within ROW of existing roadways, and are surrounded by existing uses that would preclude extraction of mineral resources. Therefore, the project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. No impact would occur.

4.13 Noise

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 ground borne vibration or ground borne 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 area to excessive noise levels?	☐	☐	☐	☒

EXPLANATIONS:

The following section is based on the Noise Analyses prepared by RECON for the Northern Alignment (Appendix F-1) and Southern Alignment (Appendix F-2).

a. Less Than Significant Impact

Northern and Southern Alignments

Construction Noise

Noise impacts from construction are a function of the noise generated by equipment, the location and sensitivity of nearby land uses, and the timing and duration of the noise-generating activities. The County regulates noise in accordance with Chapter 9.52, Noise Regulations of the Riverside County Municipal Code (Municipal Code) Section 9.52.020[I], which states that sound emanating from private construction projects located within a quarter mile from an inhabited dwelling is exempt from the provisions of Chapter 9.52, if construction occurs between the hours of 6:00 a.m. and 6:00 p.m. during the months of June through September, and between the hours of 7:00 a.m. and 6:00 p.m.

during the months of October through May. The County's Municipal Code does not establish a quantitative construction noise level limit. For the purposes of this analysis, the Federal Transit Authority (FTA) recommended threshold of 80 dB(A) L_{eq} at noise sensitive residential land uses was used.

The City regulates noise in accordance with Chapter 9.20, Noise of the City's Municipal Code. Section 9.20.060(D) states that no person shall engage in or conduct construction activity, when the construction site is within one-quarter mile of an occupied residence, between the hours of 6:30 p.m. and 7:00 a.m., Monday through Friday, and shall only engage in or conduct construction activity between the hours of 7:00 a.m. and 6:30 p.m. on Saturday. No construction activity shall be undertaken on Sunday and nationally recognized holidays unless exempted by Section 9.20.070 of the City's Municipal Code. Public works projects of any federal, state or local entity or emergency work by public utilities are exempt from the provisions of this subsection. Like the County's Municipal Code, the City's Municipal Code does not establish a quantitative construction noise level limit. For the purposes of this analysis, the FTA recommended threshold of 80 dB(A) L_{eq} at noise sensitive residential land uses was used.

Table 15 presents a list of noise generation levels for various types of equipment anticipated to be used for construction of the sewer transmission lines. The duty cycle is the amount of time that equipment generates the reported noise level during typical, standard equipment operation. The noise levels and duty cycles summarized in Table 15 are based on measurements and studies conducted by Federal Highway Administration (FHWA) and the FTA.

Table 15
Typical Construction Equipment Noise Levels

Equipment	Maximum Noise Level at 50 Feet [dB(A) L_{max}]	Typical Duty Cycle	Maximum Average Hourly Noise Level [dB(A) L_{eq}]
Backhoe/Loader	80	40%	76
Compressor	80	40%	76
Concrete Saw	90	20%	83
Generator	82	50%	79
Hydraulic Excavator	85	40%	81
Paver	85	50%	82
Pavement Breaker	85	20%	78
Pump[1]	77	50%	74
Sweeper[2]	84	40%	80
Water Truck[2]	84	40%	80
Utility Truck[3,4]	78	5%	65

SOURCE: FHWA 2006, 2008, FTA 2006.
dB(A) = A-weighted decibels; L_{max} = maximum equivalent noise level; L_{eq} = one-hour equivalent noise level
[1]Pump would only be needed for construction of the Northern Alignment. All other equipment presented in this table will be used during construction of both alignments.
[2]Sweeper and water truck noise assumed to be comparable to tractor noise.
[3]Utility truck noise assumed to be comparable to flat-bed truck noise.
[4]The dump truck and utility truck duty cycle was adjusted to 5 percent to represent the time this equipment is arriving at and departing from the site. Engines would be idle all other times.

Due to the complex nature of construction sites, construction noise from a linear project, such as a sewer transmission line, is assessed from the centerline of the alignment and work area. Maximum noise levels would occur when the construction equipment is nearest to a noise sensitive receiver. Although construction equipment may temporarily be located at the point on the alignment nearest to a receiver, throughout the day equipment would move along the alignment. Therefore, the distance from a receiver to the centerline of the alignment is not the same as the average distance during a given day from the receiver to construction equipment. Thus, average noise levels correlate to the area of active construction.

The residential receiver closest to the Northern Alignment is located at the intersection of Glen Oaks Road and Milkweed Way, 50 feet from the sewer transmission alignment. This receiver is elevated approximately 12 feet above the road elevation. The next closest residential receivers are located 65 feet or more from the sewer transmission alignment. It is estimated that approximately 50 to 80 feet of the pipeline would be constructed per day depending on the required depth. For a receiver that is set back 50 feet from the active work area alignment, using the Pythagorean theorem ($a^2 + b^2 = c^2$), it is calculated that the receiver is at an average distance of 56 feet from the construction equipment. For a receiver that is set back 65 feet from the active work area alignment, it is calculated that the receiver is at an average distance of 70 feet from the construction equipment.

The residential receivers closest to the Southern Alignment are located north of De Portola Road between Butterfield State Road and just east of Via Angeles. These receptors are located 60 feet or more from the sewer transmission alignment and are separated with a 6-foot masonry wall. The next closest residential receivers are located 80 feet or more from the sewer transmission alignment. It is estimated that approximately 50 to 80 feet of the pipeline would be constructed per day depending on the required depth. For a receiver that is set back 60 feet from the active work area alignment, using the Pythagorean theorem ($a^2 + b^2 = c^2$), it is calculated that the receiver is at an average distance of 65 feet from the construction equipment. For a receiver that is set back 80 feet from the active work area alignment, it is calculated that the receiver is at an average distance of 84 feet from the construction equipment.

Construction noise levels were calculated assuming the simultaneous use of two pieces of construction equipment during each phase. Although more construction equipment would be present on-site, not all would be used at the same time. Noise levels from construction activities are typically considered point sources and would drop off at a rate of -6 dB(A) per doubling of distance over hard site surfaces, such as streets and parking lots. Construction noise attenuation is calculated using the following formula:

$$N_R = N_C + 20 \times \text{Log}(D_C/D_R)$$

Where,

N_R = Noise level at receiver

N_C = Construction equipment reference noise level

D_C = Construction equipment reference noise level distance (i.e., 50 feet)

D_R = Distance to receiver (i.e., 67 feet)

For the Northern Alignment, the slope between Glen Oaks Road and the receiver located 50 feet from the alignment was taken into account when calculating construction noise levels at that receiver. Using FHWA formulas, it was calculated that this difference in elevation would reduce noise levels by 5 dB. No attenuation was taken into account for the receivers located 65 feet or more from the alignment.

Table 16 presents the average noise level at the residential receivers for each phase of construction of the Northern Alignment. As shown in Table 16, construction noise levels are not anticipated to exceed 80 dB(A) L_{eq} at the adjacent residential uses. Furthermore, construction of the Northern Alignment would adhere to the following measures to the extent feasible:

- For construction activities that occur within the unincorporated portion of Riverside County, the District shall require its contractor to implement the following actions relative to construction noise: the District shall conduct construction activities between 6:00 a.m. to 6:00 p.m. during the months of June through September, and between the hours of 7:00 a.m. and 6:00 p.m. during the months of October through May in accordance with the County of Riverside Municipal Code Section 9.52.020[I].
- Prior to construction, the District in coordination with the construction contractor, shall provide written notification to all properties within 50 feet of the project facilities informing occupants of the type and duration of construction activities. Notification materials shall identify a method to contact the District's program manager with noise concerns. Prior to construction commencement, the District program manager shall establish a noise complaint process to allow for resolution of noise problems. This process shall be clearly described in the notifications.
- Stationary noise-generating equipment shall be located as far from sensitive receptors as possible. Such equipment shall also be oriented to minimize noise that would be directed toward sensitive receptors. Whenever possible, other non-noise generating equipment (e.g., roll-off dumpsters) shall be positioned between the noise source and sensitive receptors.
- Equipment and staging areas shall be located as far from sensitive receptors as possible. At the staging location, equipment and materials shall be kept as far from adjacent sensitive receptors as possible.
- Construction vehicles and equipment shall be maintained in the best possible working order; operated by an experienced, trained operator; and shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds).
- Unnecessary idling of internal combustion engines shall be prohibited. In practice, this would require turning off equipment if it would idle for five or more minutes.
- Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where feasible.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.

Therefore, construction of the Northern Alignment would not generate a temporary increase in ambient noise levels in excess of standards established in the Municipal Code, and impacts would be less than significant.

Table 16
Construction Equipment Noise Levels for the Northern Alignment

Phase	Equipment	Maximum Average Hourly Noise Level at 50 Feet [dB(A) L_{eq}]	Active Construction Area (feet/day)	Average Distance to Receiver (feet)	Average Noise Level at Receiver without Attenuation [dB(A) L_{eq}]	Average Noise Level at Receiver with Attenuation [dB(A) L_{eq}]
Receiver at 50 feet from Pipeline						
Grubbing/ Land Clearing	Concrete Saw	83	50	56	82	77
	Dump Truck	71				
	Total	**83**				
Grading/ Excavation	Excavator	81	50	56	81	76
	Front End Loader	76				
	Total	**82**				
Drainage/ Utilities/ Subgrade	Excavator	81	50	56	81	76
	Utility Truck	74				
	Total	**82**				
Paving	Paver	82	50	56	81	76
	Utility Truck	65				
	Total	**82**				
Receiver at 65 feet from Pipeline						
Grubbing/ Land Clearing	Concrete Saw	83	50	70	80	--
	Dump Truck	71				
	Total	**83**				
Grading/ Excavation	Excavator	81	50	70	79	--
	Front End Loader	76				
	Total	**82**				
Drainage/ Utilities/ Subgrade	Excavator	81	50	70	79	--
	Utility Truck	74				
	Total	**82**				
Paving	Paver	82	50	70	79	--
	Utility Truck	65				
	Total	**82**				

dB(A) = A-weighted decibels; L_{eq} = one-hour equivalent noise level

For the Southern Alignment, the masonry wall located between De Portola Road and the residences between Butterfield State Road and just east of Via Angeles was taken into account when calculating construction noise levels at those receivers. Using FHWA formulas, it was calculated that this difference in elevation would reduce noise levels by 5 dB. No attenuation was taken into account for the receivers located 80 feet or more from the alignment.

Table 17 presents the average noise level at the residential receivers for each phase of construction of the Southern Alignment. As shown in Table 17, construction noise levels are not anticipated to exceed the FTA's recommended threshold of 80 dB(A) L_{eq} at the adjacent residential uses. Furthermore, construction of the Southern Alignment would adhere to the measures listed above for the Northern Alignment to the extent feasible, as well as the following measure related to construction within the City to the extent feasible:

- For construction activities that occur within the city of Temecula, the District shall require its contractor to implement the following actions relative to construction noise: the District shall conduct construction activities between 7:00 a.m. to 6:30 p.m. in accordance with the City of Temecula Municipal Code Section 9.20.060(D).

Therefore, construction of the Southern Alignment would not generate a temporary increase in ambient noise levels in excess of standards established in the Municipal Code, and impacts would be less than significant.

Table 17
Construction Equipment Noise Levels for the Southern Alignment

Phase	Equipment	Maximum Average Hourly Noise Level at 50 Feet [dB(A) L_{eq}]	Active Construction Area (feet/day)	Average Distance to Receiver (feet)	Average Noise Level at Receiver without Attenuation [dB(A) L_{eq}]	Average Noise Level at Receiver with Attenuation [dB(A) L_{eq}]
Receiver at 60 Feet from Pipeline						
Grubbing/ Land Clearing	Concrete Saw	83	50	65	81	76
	Dump Truck	71				
	Total	**83**				
Grading/ Excavation	Excavator	81	50	65	80	75
	Front End Loader	76				
	Total	**82**				
Drainage/ Utilities/ Subgrade	Excavator	81	50	65	80	75
	Utility Truck	74				
	Total	**82**				
Paving	Paver	82	50	65	80	75
	Utility Truck	65				
	Total	**82**				
Receiver at 80 Feet from Pipeline						
Grubbing/ Land Clearing	Concrete Saw	83	50	84	79	--
	Dump Truck	71				
	Total	**83**				
Grading/ Excavation	Excavator	81	50	84	78	--
	Front End Loader	76				
	Total	**82**				
Drainage/ Utilities/ Subgrade	Excavator	81	50	84	77	--
	Utility Truck	74				
	Total	**82**				
Paving	Paver	82	50	84	78	--
	Utility Truck	65				
	Total	**82**				

dB(A) = A-weighted decibels; L_{eq} = one-hour equivalent noise level

Operational Noise

The below-ground sewer transmission lines would not generate noise during operation. Noise may be associated with occasional vehicle maintenance trips, but these trips would be negligible. Therefore, operation of the proposed project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project, and impacts would be less than significant.

b. Less Than Significant Impact

Northern and Southern Alignments

Human reaction to vibration is dependent on the environment the receiver is in, as well as individual sensitivity. For example, outdoor vibration is rarely noticeable and generally not considered annoying. Typically, humans must be inside a structure for vibrations to become noticeable and/or annoying (FTA 2006). Based on several federal studies, the threshold of perception is 0.035 inch per second (in/sec) peak particle velocity (PPV), with 0.24 in/sec PPV being a distinctly perceptible (Caltrans 2013). Based on best available data, impacts for hydraulic breakers, or hammers, and other non-transient sources such as those associated with project construction shall be considered significant if the PPV exceeds 0.2 in/sec. Vibration perception would occur at structures, as people do not perceive vibrations without vibrating structures.

Construction activities produce varying degrees of ground vibration depending on the equipment and methods employed. While ground vibrations from typical construction activities rarely reach levels high enough to cause damage to structures, special consideration must be made when sensitive or historic land uses are near the construction site. Construction activities that typically generate the highest levels of vibration are blasting and impact pile driving. The project would not require pile driving or blasting. The equipment that would be used during construction with the greatest potential to generate vibration would be a jack hammer. According to the FTA, jack hammers generate vibration levels of 0.035 in/sec PPV at 25 feet. This vibration level would attenuate to 0.016 in/sec PPV at 50 feet for the Northern Alignment, and to 0.013 in/sec PPV at 60 feet for the Southern Alignment, and therefore would not be perceptible at the nearest structures. Therefore, the project would not generate excessive ground borne vibration or ground borne noise levels, and impacts would be less than significant.

Operation of the project would not generate groundborne noise or vibration. No impact would occur.

c. No Impact

Northern and Southern Alignments

The Northern and Southern alignments are not located within the vicinity of a private airstrip. The nearest airport is the French Valley Airport. located approximately five miles west of the Northern Alignment and six miles northwest of the Southern Alignment. Both alignments are located well outside Airport Influence Area, and therefore outside of the noise contours for the French Valley Airport (Coffman Associates, Inc. 2009). Furthermore, the project is limited to construction of sewer transmission lines and would not introduce any sensitive noise receivers. Therefore, the proposed project would not expose people to excessive noise levels. No impact would occur.

4.14 Population and Housing

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

EXPLANATIONS:

a. Less Than Significant Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses. The proposed project would provide sewer service to portions of the City and unincorporated County that are currently utilizing septic systems. As such, the project would accommodate existing development and would not provide for excess capacity that could induce growth. Therefore, the proposed project would not induce substantial unplanned population growth either directly or indirectly, and impacts would be less than significant.

b. No Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines within ROW of roadways and would not impact any existing residential structures. Therefore, the proposed project would not displace any existing people or housing. No impact would occur.

4.15 Public Services

Would the proposed project:

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

EXPLANATIONS:

a.i. No Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that would require fire protection services. The proposed project would provide sewer service to portions of the City and unincorporated County that are currently utilizing septic systems. As such, the proposed project would accommodate existing development and would not provide for excess capacity that could induce growth that would require fire protection services. Therefore, the proposed project would not require new or expanded fire protection facilities. No impact would occur.

a.ii. No Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that would require police protection services. The

proposed project would provide sewer service to portions of the City and unincorporated County that are currently utilizing septic systems. As such, the proposed project would accommodate existing development and would not provide for excess capacity that could induce growth that would require police protection services. Therefore, the proposed project would not require new or expanded police protection facilities. No impact would occur.

a.iii. No Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines and would not introduce any residential uses that would generate any student enrollment that would increase demand for school services. The proposed project would provide sewer service to portions of the City and unincorporated County that are currently utilizing septic systems. As such, the proposed project would accommodate existing development and would not provide for excess capacity that could induce growth that would require school services. Therefore, the proposed project would not require new or expanded school facilities. No impact would occur.

a.iv. No Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines and would not introduce any residential uses that would increase demand for parks. The proposed project would provide sewer service to portions of the City and unincorporated County that are currently utilizing septic systems. As such, the proposed project would accommodate existing development and would not provide for excess capacity that could induce growth that would increase demand for parks. Therefore, the proposed project would not require new or expanded park facilities. No impact would occur.

a.v. No Impact

Northern and Southern Alignments

Other public facilities include libraries and government administrative services. The proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that would require additional public services. The proposed project would provide sewer service to portions of the City and unincorporated County that are currently utilizing septic systems. As such, the proposed project would accommodate existing development and would not provide for excess capacity that could induce growth that would increase demand for other public facilities. Therefore, the proposed project would not require new or expanded public facilities. No impact would occur.

4.16 Recreation

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. 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. Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

EXPLANATIONS:

a. No Impact

Northern and Southern Alignments

The proposed project would not introduce any residential uses that would increase demand for parks. The proposed project would construct sewer transmission lines to provide sewer service to portions of the City and unincorporated County that are currently utilizing septic systems. As such, the proposed project would accommodate existing development and would not provide for excess capacity that could induce growth that would increase demand for parks Therefore, to the project would not increase the use of existing neighborhood and regional parks or other recreational facilities. No impact would occur.

b. No Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines and would not include recreational facilities or require the construction or expansion of recreational facilities. No impact would occur.

4.17 Transportation/Traffic

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d. Result in inadequate emergency access?	☐	☐	☒	☐

EXPLANATIONS:

a. Less Than Significant Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that would generate vehicle trips. Operational traffic trips would be limited to periodic maintenance and inspection that would not affect intersection and roadway operations. Vehicle trips associated with project construction would be minimal and would not affect intersection and roadway segment operations on the surrounding roadway network.

A TCP would be approved by County and the City based on jurisdictional authority for construction work within public roadways. The TCP would be prepared in accordance with U.S. Department of Transportation Manual of Uniform Traffic Control Devices, the California Department of Transportation Manual of Uniform Traffic Control Devices, and permit requirements by the authority having jurisdiction. Conventional traffic control measures may include typical traffic control devices such as the following: traffic cones, K-rails, signs, message boards, flaggers (as needed), and related devices. When work is not being performed, trenches would be covered with an appropriate cover to restore normal traffic flow. Similarly, the proposed project would not impact any public transportation, bicycle, or pedestrian facilities. Roadways would be restored to preexisting conditions

once construction is completed. Therefore, the project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, and impacts would be less than significant.

b. Less Than Significant Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines, and would not introduce any residential, commercial, or other uses that would generate vehicle trips. Vehicle trips generated during construction and operation would be minimal. The proposed project would not result in any changes to the amount of travel required for existing vehicle trips. Therefore, preparation of a Vehicle Miles Traveled Analysis per CEQA Guidelines Section 15064.3, subdivision (b) was not required, and impacts would be less than significant.

c. Less Than Significant Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines and would not result in any permanent changes to the existing circulation network. Construction within roadway ROW would be temporary, and a TCP would be implemented that would maintain access and traffic conditions. Roadways would be restored to preexisting conditions once construction is completed. Therefore, the proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses, and impacts would be less than significant.

d. Less Than Significant Impact

Northern and Southern Alignments

Construction within roadway ROW would be temporary, and a TCP would be implemented that would maintain access and traffic conditions, thereby allowing for emergency access during construction. Roadways would be restored to preexisting conditions once construction is completed. As described in Section 4.17a above, vehicle trips generated during construction and operation would not affect intersection and roadway operations. Therefore, the proposed project would not result in inadequate emergency access, and impacts would be less than significant.

4.18 Tribal Cultural Resources

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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)?	☐	☐	☐	☒
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?	☐	☒	☐	☐

EXPLANATIONS:

a.i. No Impact

Northern and Southern Alignments

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

As a part of the consultation pursuant Public Resources Code Section21080.3.1(b), both parties may suggest mitigation measures (Public Resources Code Section 21082.3) that can avoid or substantially lessen potential significant impacts to tribal cultural resources or provide alternatives that would avoid significant impacts to a tribal cultural resource. The California Native American tribe may request consultation on mitigation measures, alternatives to the proposed project, or significant effects. The consultation may also include discussion on the environmental review, the significance of tribal cultural resources, the significance of the proposed project's impact on the tribal cultural resources, project alternatives, or the measures planned to preserve or mitigate impacts on resources. Consultation shall end when either (1) both parties agree on the mitigation measures to avoid or mitigate significant effects on a tribal cultural resource or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

Per AB 52, the District initiated consultation with Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project to identify resources of cultural or spiritual value to the tribe. On October 6, 2023, the District sent consultation notification letters to Native American tribes on the District's Master List pursuant to the requirements of AB 52 pertaining to government-to-government consultation. Table 18 summarizes the District's consultation efforts. To date, the District has conducted consultation with two federally recognized Native American tribes: the Pechanga Band of Indians and the Rincon Band of Luiseño Indians. An additional four Native American tribes were contacted but declined consultation or did not respond, as noted in Table 18.

Table 18 Assembly Bill 52 Consultation				
Tribe	Individual Contacted	Date Letter Mailed	Response Received	Consultation Held
Agua Caliente	Pattie Garcia	10/6/2023	10/16/2023	Declined
Morongo	Laura Chatterton	10/6/2023	10/14/2023	Declined
Pechanga	Ebru Ozdil	10/6/2023	11/06/2023	1/24/2024
Rincon	Cheryl Madrigal	10/6/2023	10/25/2023	1/18/2024
San Manuel	Alexandra McCleary	10/6/2023	11/16/2023	Declined
Soboba	Joe Ontiveros	10/6/2023	DNR	N/A
DNR = Did not respond; N/A = Consultation was not requested				

As described in Section 4.5a above, the record search completed for the Northern Alignment identified one previously recorded historic feature within the APE. However, the pedestrian survey of the Northern Alignment did not identify this resource, and it has been presumed destroyed during the creation of a vineyard. The pedestrian survey conducted for each segment of the Northern Alignment did not identify any previously unrecorded historic resources within the APE. The record search completed for the Southern Alignment did not identify any previously recorded historic resources within or adjacent to the APE. The pedestrian survey of the Southern Alignment identified two previously unrecorded concrete post markers that were evaluated for eligibility for inclusion in the National Register of Historic Places (NRHP) or listing in the California Register of Historical Resources (CRHR). As documented in Appendix C-2, the evaluation determined that the markers do not qualify as historic properties under the NRHP or historical resources under the CRHR. Therefore, the proposed project would not cause a substantial adverse change to a tribal cultural resource that would qualify or be eligible for listing in the California Register of Historical Resources or the local register of historical resources in accordance with the Public Resources Code Section 5020.1(k). No impact would occur.

a.ii. Potentially Significant Unless Mitigation Incorporated

Northern and Southern Alignments

During the consultation meetings, the Pechanga Band of Indians and the Rincon Band of Luiseño Indians highlighted their concerns, noting that the proposed project is located within their Traditional Use Areas, which they considered sensitive as there are existing sites in the areas surrounding both alignments. Both responding tribe expressed concern with potential unearthing of unknown artifacts while grading any of the potential sites, and provided recommendations with regards to mitigation and tribal monitoring, consistent with those measures used in prior CEQA analysis conducted by the District to mitigate the potential for uncovering of unknown buried artifacts. Therefore, the project would have the potential to unearth previously unknown tribal cultural resources, which would be considered a significant impact. Implementation of mitigation measure TRIBAL-1 through TRIBAL-4 would reduce impacts to a level less than significant.

MITIGATION MEASURES

TRIBAL-1: Tribal Resources Monitoring Agreement

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

TRIBAL-2: Tribal Monitoring

Prior to the start of ground-disturbing activities, a Tribal monitor may participate in the construction workers archaeological resources sensitivity training, conducted by the project archaeologist. At least seven business days prior to ground-disturbing activities, the District shall notify the Tribe of the grading/excavation schedule and coordinate the tribal monitoring schedule.

A tribal monitor shall be present for ground-disturbing activities associated with the Project. Both the project archaeologist and tribal monitor working together will determine the areas with a potential for encountering potential tribal cultural resources. Both the archaeologist and tribal monitor shall have the authority to stop and redirect grading activities in order to evaluate the nature and significance of any archaeological resources discovered within the project limits. Such evaluation shall include culturally appropriate temporary and permanent treatment pursuant to the Cultural Resources Treatment and Monitoring Agreement, which may include avoidance of tribal cultural resources, in-place preservation, data recovery, and/or reburial so the resources are not subject to further disturbance in perpetuity. Any reburial shall occur at a location determined between the District and the consulting tribe as described in **TRIBAL-4**. Treatment may also include curation of the resources at a tribal curation facility or an archaeological curation facility, as determined in discussion among the District, the tribe and the project archaeologist as addressed in the Cultural Resources Treatment and Monitoring Agreement. The on-site tribal monitoring shall end when all ground disturbing activities on the project site are completed, or when the tribal representatives and tribal monitor have indicated that the project site has little or no potential for impacting tribal cultural resources.

TRIBAL-3: Disposition of Inadvertent Discoveries

In the event that tribal cultural resources are recovered during the course of grading, the District shall relinquish ownership of all cultural resources, including sacred items, burial goods, archaeological artifacts, and non-human remains. The District will coordinate with the project archaeologist and the tribe to conduct analysis of recovered resources. If it is determined that the resource is a Native American resource and thus significant under CEQA, avoidance of the resource will be explored as the preferred option and on-site reburial will be evaluated as the second option. If avoidance and on-site reburial are not possible, a treatment plan shall be prepared with State guidelines and in consultation with the tribe. The treatment plan may include, but would not be limited to capping in place, excavation and removal of the resource, interpretive displays, sensitive

area signage, or other mutually agreed upon measures. Treatment may also include curation of the cultural resources at a tribal curation facility, as determined by the District and the consulting tribe.

TRIBAL-4: Non-Disclosure of Reburial Locations

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

4.19 Utilities and Service Systems

Would the proposed project:

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

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 statutes and regulation related to solid waste?	☐	☐	☒	☐

EXPLANATIONS:

a. No Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that would increase demand for utilities. The proposed project would provide sewer service to portions of the City and unincorporated County that are currently utilizing septic systems. Therefore, the proposed project would not require construction of new or expanded water or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. No impact would occur.

b. No Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that would require water supply. The proposed project would provide sewer service to portions of the City and unincorporated County that are currently utilizing septic systems. Therefore, the proposed project would have sufficient water supplies available to serve the project. No impacts would occur.

c. No Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that would require expanded wastewater treatment capacity. The proposed project would provide sewer service to portions of the City and unincorporated County that are currently utilizing septic systems. Therefore, the proposed project would not exceed existing wastewater treatment capacity and would accommodate existing and planned growth in the City. No impact would occur.

d. Less Than Significant Impact

Northern and Southern Alignments

Project construction would generate small amounts of waste that would require disposal. The Lamb Canyon Landfill in Beaumont is the facility closest to the proposed project, which has a remaining capacity of 19,242,950 cubic yards and a maximum permitted throughput of 5,000 tons per day (California Department of Resources Recycling and Recovery 2023). The Lamb Canyon Landfill has sufficient capacity to accommodate the small amounts of waste that would be generated during construction. Operation of the proposed project would not generate any solid waste. Therefore, the proposed project would not generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure, and impacts would be less than significant.

e. Less Than Significant Impact

Northern and Southern Alignments

As described in Section 4.19d, the proposed project would generate small amounts of waste during construction that would be disposed the Lamb Canyon Landfill, which has adequate capacity. The proposed project would also comply with local regulations pertaining to recycling of construction waste. Operation of the proposed project would not generate any solid waste. Therefore, the proposed project would comply with federal, state, and local statutes and regulation related to solid waste, and impacts would be less than significant.

4.20 Wildfire

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that	☐	☐	☐	☒

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

EXPLANATIONS:

a. Less Than Significant Impact

Northern and Southern Alignments

Construction within roadway ROW would be temporary, and a TCP would be implemented that would maintain access and traffic conditions, thereby allowing for emergency access during construction. Roadways would be restored to preexisting conditions once construction is completed. As described in Section 4.17a above, vehicle trips generated during construction and operation would not affect intersection and roadway operations. Therefore, the proposed project would not impair an adopted emergency response plan or emergency evacuation plan, and impacts would be less than significant.

b. Less than Significant Impact

Northern and Southern Alignments

As described in Section 4.9g above, review of fire threat and hazard mapping prepared by CAL FIRE determined that the Northern and Southern alignments are both located in areas designated as moderate, high, and very high fire hazard severity zones. However, the proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that could expose people to wildland fire risks. Human presence would be limited to temporary construction and periodic maintenance. Therefore, the project would not exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire, and impacts would be less than significant.

c. No Impact

Northern and Southern Alignments

The proposed project is limited to construction of sewer transmission lines that would be installed underground, and would not require any supporting infrastructure. Therefore, the proposed project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. No impact would occur.

d. Less than Significant Impact

Northern and Southern Alignments

As described in Section 4.9g above, the Northern and Southern alignments are both located in areas designated as moderate, high, and very high fire hazard severity zones. However, the proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that could expose people to wildland fire risks. Human presence would be limited to temporary construction and periodic maintenance. As described in Section 4.10d above, review of FEMA mapping determined that the Northern Alignment is not located within the 100- or 500-year floodplain, while the Southern Alignment is located within the 100- or 500-year floodplain. However, the proposed project is limited to construction of sewer transmission lines and would not introduce any residential, commercial, or other uses that could expose people to flooding hazards. Human presence would be limited to temporary construction and periodic maintenance. Therefore, the proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes, and impacts would be less than significant.

4.21 Mandatory Findings of Significance

Does the proposed project:

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

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

EXPLANATIONS:

a. Potentially Significant Unless Mitigation Incorporated

Northern and Southern Alignments

As described in Section 4.4, implementation of mitigation measures BIO-1 would through BIO-4 reduce potential impacts on sensitive species and migratory and nesting birds to a level less than significant. In addition, as described in Section 4.4c, implementation of mitigation measure BIO-5 would reduce potential impacts to jurisdictional features to a level less than significant. The proposed project does not have the potential to result in any other impacts that would 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, or substantially reduce the number or restrict the range of a rare or endangered plant or animal. As described in Section 4.5 and 5.18 above, implementation of mitigation measures CUL-1 through CUL-3 and TRIBAL-1 through TRIBAL-4 would reduce potential impacts on examples of the major periods of California history and prehistory to a level less than significant.

b. Potentially Significant Unless Mitigation Incorporated

Northern and Southern Alignments

As described in the Draft IS/MND, all potential impacts would be mitigated to a level less than significant. Air quality is a regional issue and the cumulative study area for air quality impacts encompasses the SoCAB as a whole. Therefore, the cumulative analysis addresses regional air quality plans and policies, such as the NAAQS, CAAQS, and SCAQMD 2022 AQMP as well as the project's contribution to a net increase of any criteria pollutant for which the SoCAB is listed as a non-attainment area. As described in Section 4.3a, the proposed project does not include growth-generating components, but rather would provide sewer service to existing development. As such,

the proposed project would be consistent with growth projections contained in the Moreno Valley General Plan and AQMP forecasts. Based on these considerations and pursuant to SCAQMD guidelines, project-related emissions are accounted for in the AQMP. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality plan. As described in Section 4.4a above, implementation of mitigation measures BIO-1 through BIO-4 would reduce impacts on sensitive wildlife species and migratory and nesting birds to a level less than significant, thereby avoiding cumulative impacts. As described in Section 4.4c above, implementation of mitigation measure BIO-4 would reduce impacts on jurisdictional resources to a level less than significant, thereby avoiding cumulative impacts. As described in Section 4.4f, the proposed project would be consistent with the Western Riverside MSHCP, which is a regional resource conservation document. Consequently, projects that are consistent with the Western Riverside MSHCP would not contribute a cumulative impact to biological resources. As described in Section 4.5, implementation of mitigation measures CUL-1 through CUL-3 would reduce potential impacts on cultural resources to a level less than significant, thereby avoiding cumulative impacts. As described in Section 4.18, implementation of mitigation measures TRIBAL-1 through TRIBAL-4 would reduce potential impacts on tribal cultural resources to a level less than significant, thereby avoiding cumulative impacts. As described throughout this Draft IS/MND, all other project-level impacts not requiring mitigation would be less than significant or would have no impact. Therefore, the project would not result in any project-level significant impacts that could contribute to an existing cumulative impact on the environment.

c. Less Than Significant Impact

Northern and Southern Alignments

As described in Sections 4.1 through 4.20, the proposed project would not result in any substantial adverse direct or indirect impacts to human beings. Therefore, impacts would be less than significant.

5.0 Preparers

Eastern Municipal Water District
- Anthony Budicin, Director of Environmental Regulatory Compliance
- Joseph Broadhead, Principal Water Resource Specialist, CEQA/NEPA
- Helen Stratton, Water Resources Specialist Assistant II
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- Cailin Lyons, Biology Director
- Jessica Fleming, Air Quality/GHG/Noise Analyst
- Frank McDermott, GIS Specialist
- Stacey Higgins, Senior Production Specialist

6.0 Sources Consulted

Project Description

United States Geological Survey (USGS)

1978 Bachelor Mountain Quadrangle 7.5-Minute Topographic Map.

1997 7.5-Minute Topographic Map Pechenga Quadrangle.

Air Quality

Bay Area Air Quality Management District

2017 California Environmental Quality Act Air Quality Guidelines. May.

Office of Environmental Health Hazard Assessment (OEHHA)

2015 Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments (Guidance Manual), February.

Sacramento Metropolitan Air Quality Management District (SMAQMD)

2022 Road Construction Emissions Model, Version 9.0.1.

South Coast Air Quality Management District (SCAQMD)

1993 SCAQMD CEQA Air Handbook. November.

2008 Final Localized Significance Threshold Methodology. July.

2015 SCAQMD Air Quality Significance Thresholds. Updated March 2015.

2023 SCAQMD Air Quality Significance Thresholds. Revision: March 2023.

Biology

California Department of Fish and Wildlife (CDFW)

2023 Natural Diversity Database. Nongame-Heritage Program, California Department of Fish and Wildlife, Sacramento. RareFind Version 5.2.14. Accessed January.

Western Riverside County Regional Conservation Authority [WRCRCA]

2003 Final Western Riverside County Multiple Species Habitat Conservation Plan.

Cultural Resources

Morgan, Chris

1993a Site form for P-33-009032. Confidential form on file at the Eastern Information Cetner, University of California, Riverside.

1993b Site form for P-33-013527. Confidential form on file at the Eastern Information Cetner, University of California, Riverside.

Greenhouse Gas Emissions

Sacramento Metropolitan Air Quality Management District (SMAQMD)

2022 Road Construction Emissions Model, Version 9.0.1.

South Coast Air Quality Management District (SCAQMD)
2009 Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group 14. http://www.aqmd.gov/ceqa/handbook/GHG/2009/nov19mtg/ghgmtg14.pdf.

Hazards and Hazardous Materials

Coffman Associates, Inc.
2009 Airport Master Plan for the French Valley Airport. Draft Final Technical Report. April 2009.

Department of Toxic Substances Control
2023 EnviroStor. https://www.envirostor.dtsc.ca.gov/public/

State Water Resources Control Board
2023 GeoTracker. https://geotracker.waterboards.ca.gov/

Mineral Resources

Riverside, County of
2015 County of Riverside General Plan. https://planning.rctlma.org/general-plan-and-zoning/riverside-county-general-plan/riverside-county-general-plan-december-2015.

Noise

California Department of Transportation (Caltrans)
2013 Technical Noise Supplement. November.

Federal Highway Administration (FHWA)
2006 Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054, SOT-VNTSC-FHWA-05-01. Final Report. January.

2008 Roadway Construction Noise Mode, V1.1. Washington, DC.

Federal Transit Administration (FTA)
2006 Transit Noise and Vibration Impact Assessment. Washington, DC. May.

Utilities and Service Systems

California Department of Resources Recycling and Recovery (CalRecycle)
2023 Solid Waste Information System. https://www2.calrecycle.ca.gov/swfacilities/Directory/.

Wildfire

Moreno Valley, City of
2021 City of Moreno Valley General Plan 2040. Adopted June 15. Prepared by Dyett & Bhatia. https://www.moval.org/city_hall/general-plan2040/MV-GeneralPlan-complete.pdf.

APPENDICES

APPENDIX A-1

Air Quality Analysis for the Wine Country Sewer Project, Northern Alignment

RECON

An Employee-Owned Company

December 6, 2023

Mr. Joseph Broadhead
Eastern Municipal Water District
2270 Trumble Road
P.O. Box 8300
Perris, CA 92572

Reference: Air Quality Analysis for the Wine Country Sewer Project, Northern Alignment (RECON Number 9878-21)

Dear Mr. Broadhead:

The purpose of this report is to assess potential short-term local and regional air quality impacts resulting from development of the Wine Country Sewer Project, Northern Alignment (project) located in an unincorporated portion of Riverside County, California. The analysis of impacts is based on state and federal Ambient Air Quality Standards (AAQS) and assessed in accordance with the regional guidelines, policies, and standards and the South Coast Air Quality Management District (SCAQMD) and the County of Riverside (County).

1.0 Project Description

The Eastern Municipal Water District (District) is proposing to construct a new sewer transmission line and associated laterals that would provide sewer service to an area within the County that is currently utilizing septic systems (Figure 1). Regional access to the project is provided via Interstate 15, located approximately 7.5 miles to the west, and local access is provided via Rancho California Road. The project site is located within the rights-of-way (ROW) of the following roadway segments, which are presented in Figure 2:

- Rancho California Road, Lomo Ventoso Lane to Buck Road
- Glenoaks Road, Rancho California Road to Camino del Vino
- Buck Road, Rancho California Road to Otis Street
- Warren Road, Otis Street to East Benton Road
- East Benton Road, Warren Road to Bella Vista Road

The project is generally bounded by residential developments, agricultural land, and disturbed land, with sparse native habitats occurring along the project alignment.

Figure 3 presents the location of the proposed sewer transmission lines, which would be constructed within the ROW of paved roadways. The approximate locations of the sewer transmission lines are shown with a red line, and the aboveground work areas, including trenching and potential construction staging areas, are shown in black cross-hatching. The sewer transmission lines would be constructed primarily with open trench construction, and culvert crossings would be protected in place with supports that allow for undercrossing. Laterals for future connections would be constructed to adjacent property lines. Potential construction staging areas would be located in disturbed land within the ROW adjacent to the roadway, subject to access agreements with private property owners. Roadways impacted during construction would be returned to original grade, and adjacent natural soils impacted during construction would be revegetated with hydroseeding. No night work would occur, nor would temporary/permanent lighting be used. The project would not construct any aboveground structures.

Pipeline installation would occur at 80 feet per day for pipe with standard cover (7.5-foot depth), and at 50 feet per day for pipe deeper than standard cover (greater than 7.5-foot depth). Construction is anticipated to last 13 months. Operation would involve routine sewer video inspections approximately every three years. Operational cleaning using a Vactor truck (sewage vacuum truck) would occur every 3 to 5 years.

It is anticipated that the District would implement the project. This report provides the necessary air quality data and background information required for environmental analysis of the project subject to the California Environmental Quality Act (CEQA).

2.0 Environmental Setting

2.1 Regulatory Setting

2.1.1 Federal Regulations

AAQS represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. The federal Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 [42 United States Code (USC) 7401] for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, in order to achieve the purposes of Section 109 of the CAA [42 USC 7409], the U.S. Environmental Protection Agency (U.S. EPA) developed primary and secondary National Ambient Air Quality Standards (NAAQS).

Six criteria pollutants of primary concern have been designated: ozone, carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb), and respirable particulate matter (PM_{10} and $PM_{2.5}$). The primary NAAQS ". . . in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health . . . " and the secondary standards ". . . protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air" [42 USC 7409(b)(2)]. The primary NAAQS were established, with a margin of safety, considering long-term exposure for the most sensitive groups in the general population (i.e., children, senior citizens, and people with breathing difficulties). The NAAQS are presented in Table 1 (California Air Resources Board [CARB] 2016).

An air basin is designated as either attainment or non-attainment for a particular pollutant. Once a non-attainment area has achieved the AAQS for a particular pollutant, it is redesignated as an attainment area for that pollutant. To be redesignated, the area must meet air quality standards for three consecutive years. After redesignation to attainment, the area is known as a maintenance area and must develop a 10-year plan for continuing to meet and maintain air quality standards, as well as satisfy other requirements of the federal CAA. The project is located in the South Coast Air Basin (SoCAB). The SoCAB is designated as in attainment or unclassifiable attainment (expected to be meeting the standard despite a lack of monitoring data) for all federal air quality standards except for the 8-hour ozone and $PM_{2.5}$ standards.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.07 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM_{10})[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		–		
Fine Particulate Matter ($PM_{2.5}$)[9]	24 Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-dispersive Infrared Photometry	35 ppm (40 mg/m^3)	–	Non-dispersive Infrared Photometry
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	–	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemi-luminescence	100 ppb (188 µg/m^3)	–	Gas Phase Chemi-luminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	–	Ultraviolet Fluorescence; Spectro-photometry (Pararosaniline Method)
	3 Hour	–		–	0.5 ppm (1,300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[11]	–	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	–	–	High Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	–		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chroma-tography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chroma-tography			

Table 1
Ambient Air Quality Standards

NOTES:

ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; – = not applicable.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

[8] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[9] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standards of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[12] The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[13] The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

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

SOURCE: CARB 2016.

2.1.2 State Regulations

Criteria Pollutants

The CARB has developed the California AAQS (CAAQS) and generally has set more stringent limits on the criteria pollutants than the NAAQS (see Table 1). In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride.

Similar to the federal CAA, the state classifies as either "attainment" or "non-attainment" areas for each pollutant based on the comparison of measured data with the CAAQS. The portion of the SoCAB covering the project site is a non-attainment area for the state 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards.

Toxic Air Contaminants

The public's exposure to toxic air contaminants (TACs) is a significant public health issue in California. Diesel particulate matter (DPM) emissions have been identified as TACs. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (Assembly Bill [AB] 1807: Health and Safety Code Sections 39650–39674). The California Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The California Air Toxics Program establishes the process for the identification and control of TACs and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly Bill) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air.

The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

The Children's Environmental Health Protection Act, California Senate Bill 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. The act requires CARB to review its air quality standards from a children's health perspective, evaluate the statewide air monitoring network, and develop any additional air toxic control measures needed to protect children's health. Locally, toxic air pollutants are regulated through the SCAQMD's Regulation XIV. Of particular concern statewide are DPM emissions. DPM was established as a TAC in 1998 and is estimated to represent a majority of the cancer risk from TACs statewide (based on the statewide average). Diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants program.

Following the identification of DPM as a TAC in 1998, CARB has worked on developing strategies and regulations aimed at reducing the risk from DPM. The overall strategy for achieving these reductions is found in the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (CARB 2000). A stated goal of the plan is to reduce the statewide cancer risk arising from exposure to DPM by 85 percent by 2020.

In April 2005, CARB published the Air Quality and Land Use Handbook: A Community Health Perspective (CARB 2005). The handbook makes recommendations directed at protecting sensitive land uses from air pollutant emissions while balancing a myriad of other land use issues (e.g., housing, transportation needs, economics). Sensitive land uses

include but are not limited to, schools, hospitals, residences, resident care facilities, and day-care centers. The handbook is not regulatory or binding on local agencies and recognizes that application takes a qualitative approach. Therefore, the CARB has provided guidelines for the siting of land uses near heavily traveled roadways. Of pertinence to this study, the CARB guidelines indicate that siting new sensitive land uses within 500 feet of a freeway or urban roads with 100,000 or more vehicles/day should be avoided when possible.

As an ongoing process, CARB will continue to establish new programs and regulations for the control of DPM and other air-toxics emissions as appropriate. The continued development and implementation of these programs and policies will ensure that the public's exposure to DPM and other TACs will continue to decline.

State Implementation Plan

The State Implementation Plan (SIP) is a collection of documents that set forth the state's strategies for achieving the NAAQS. In California, the SIP is a compilation of new and previously submitted plans, programs (such as air quality management plans, monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. The CARB is the lead agency for all purposes related to the SIP under state law. Local air districts and other agencies, such as the Department of Pesticide Regulation and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. The CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the Federal Register. All of the items included in the California SIP are listed in the Code of Federal Regulations (CFR) at 40 CFR 52.220.

The California Environmental Quality Act

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of any inconsistencies between the project and applicable general plans and regional plans, including the applicable air quality attainment or maintenance plan (or SIP).

2.1.3 Local Regulations

South Coast Air Quality Management District

The SCAQMD is the air pollution control agency in the SoCAB. The role of the local SCAQMD is to protect the people and the environment of the SoCAB from the effects of air pollution. As the SCAQMD is designated as a nonattainment area for state air quality standards for 8-hour ozone, PM_{10}, and $PM_{2.5}$, SCAQMD periodically prepares its Air Quality Management Plan (AQMP) outlining measures to reduce these pollutants. The most recent version is the 2022 AQMP (SCAQMD 2022).

Emissions that would result from mobile, area, and stationary sources during construction and operation of the project are subject to the rules and regulations of SCAQMD. The SCAQMD rules applicable to the project may include the following:

- **Rule 401, Visible Emissions.** This rule establishes the limit for visible emissions from stationary sources.
- **Rule 402, Nuisance.** This rule prohibits the discharge of air pollutants from a facility that cause injury, detriment, nuisance, or annoyance to the public or damage to business or property.
- **Rule 403, Fugitive Dust.** This rule requires fugitive dust sources to implement best available control measures for all sources and prohibits all forms of visible particulate matter from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.

- Rule 431.2, Sulfur Content of Liquid Fuels. The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose of reducing the formation of oxides of sulfur (SO_X) and particulates during combustion and of enabling the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary-source applications in the SCAQMD. The rule also affects diesel fuel supplied for mobile sources.

- Rule 1110.2, Emissions from Gaseous- and Liquid-Fueled Engines. This rule applies to stationary and portable engines rated at greater than 50 horsepower. The purpose of Rule 1110.2 is to reduce oxides of nitrogen (NO_X), volatile organic compounds (VOC), and CO emissions from engines. Emergency engines, including those powering standby generators, are generally exempt from the emissions and monitoring requirements of this rule because they have permit conditions that limit operation to 200 hours or less per year as determined by an elapsed operating time meter.

- Rule 1113, Architectural Coatings. This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

Southern California Association of Governments

In September 2020, the Southern California Association of Governments (SCAG) adopted Connect SoCal, the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy. The Connect SoCal plan identifies that land use strategies that focus on new housing and job growth in areas with a variety of destinations and mobility options would support and complement the proposed transportation network. The overarching strategy in Connect SoCal is to provide for a plan that allows the southern California region to grow in more compact communities in transit priority areas and priority growth areas; provide neighborhoods with efficient and plentiful public transit; establish abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and preserve more of the region's remaining natural lands and farmlands (SCAG 2020). The Connect SoCal plan contains transportation projects to help more efficiently distribute population, housing, and employment growth as well as projected development that promotes active transport and reduces GHG emissions.

County of Riverside

The Air Quality Element of the County's General Plan (County of Riverside 2015). contains the following policies related to air quality:

Pollution Control Policies:

Multi-jurisdictional Cooperation

AQ 1.1 Promote and participate with regional and local agencies, both public and private, to protect and improve air quality.

AQ 1.2 Support Southern California Association of Government's (SCAG) Regional Growth Management Plan by developing intergovernmental agreements with appropriate governmental entities such as the Western Riverside Council of Governments (WRCOG), the Coachella Valley Association of Governments (CVAG), sanitation districts, water districts, and those subregional entities identified in the Regional Growth Management Plan.

AQ 1.3 Participate in the development and update of those regional air quality management plans required under federal and state law, and meet all standards established for clean air in these plans.

AQ 1.4 Coordinate with the SCAQMD and Mojave Desert Air Quality Management District (MDAQMD) to ensure that all elements of air quality plans regarding reduction of air pollutant emissions are being enforced.

AQ 1.5 Establish and implement air quality, land use and circulation measures that improve not only the County's environment but the entire region.

AQ 1.6 Establish a level playing field by working with local jurisdictions to simultaneously adopt policies similar to those in this Air Quality Element.

AQ 1.7 Support legislation which promotes cleaner industry, clean fuel vehicles and more efficient burning engines and fuels.

AQ 1.8 Support the introduction of federal, state or regional enabling legislation to permit the County to promote inventive air quality programs, which otherwise could not be implemented.

AQ 1.9 Encourage, publicly recognize and reward innovative approaches that improve air quality.

AQ 1.10 Work with regional and local agencies to evaluate the feasibility of implementing a system of charges (e.g., pollution charges, user fees, congestion pricing and toll roads) that requires individuals who undertake polluting activities to bear the economic cost of their actions where possible.

AQ 1.11 Involve environmental groups, the business community, special interests, and the general public in the formulation and implementation of programs that effectively reduce airborne pollutants.

Sensitive Receptors

AQ 2.1 The County land use planning efforts shall assure that sensitive receptors are separated and protected from polluting point sources to the greatest extent possible.

AQ 2.2 Require site plan designs to protect people and land uses sensitive to air pollution through the use of barriers and/or distance from emissions sources when possible.

AQ 2.3 Encourage the use of pollution control measures such as landscaping, vegetation and other materials, which trap particulate matter or control pollution.

AQ 2.4 Consider creating a program to plant urban trees on an Area Plan basis that removes pollutants from the air, provides shade and decreases the negative impacts of heat on the air.

Mobile Pollution Sources

AQ 3.1 Allow the market place, as much as possible, to determine the most economical approach to relieve congestion and cut emissions.

AQ 3.2 Seek new cooperative relationships between employers and employees to reduce vehicle miles traveled.

AQ 3.3 Encourage large employers and commercial/industrial complexes to create Transportation Management Associations.

AQ 3.4 Encourage employee rideshares and transit incentives for employers with more than 25 employees at a single location.

Stationary Pollution Sources

AQ 4.1 Require the use of all feasible building materials/methods which reduce emissions.

AQ 4.2 Require the use of all feasible efficient heating equipment and other appliances, such as water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces and boiler units.

AQ 4.3 Require centrally heated facilities to utilize automated time clocks or occupant sensors to control heating where feasible.

AQ 4.4 Require residential building construction to comply with energy use guidelines detailed in Part 6 (California Energy Code) and/or Part 11 (California Green Building Standards Code) of Title 24 of the California Code of Regulations.

AQ 4.5 Require stationary pollution sources to minimize the release of toxic pollutants through:

- Design features;
- Operating procedures;
- Preventive maintenance;
- Operator training; and
- Emergency response planning

AQ 4.6 Require stationary air pollution sources to comply with applicable air district rules and control measures.

AQ 4.7 To the greatest extent possible, require every project to mitigate any of its anticipated emissions which exceed allowable emissions as established by the SCAQMD, MDAQMD, SoCAB, the Environmental Protection Agency and the California Air Resources Board.

AQ 4.8 Expand, as appropriate, measures contained in the County's Fugitive Dust Reduction Program for the Coachella Valley to the entire County.

AQ 4.9 Require compliance with SCAQMD Rules 403 and 403.1, and support appropriate future measures to reduce fugitive dust emanating from construction sites.

AQ 4.10 Coordinate with the SCAQMD and MDAQMD to create a communications plan to alert those conducting grading operations in the County of first, second, and third stage smog alerts, and when wind speeds exceed 25 miles per hour. During these instances all grading operations should be suspended.

Energy Efficiency and Conservation

AQ 5.1 Utilize source reduction, recycling and other appropriate measures to reduce the amount of solid waste disposed of in landfills.

AQ 5.2 Adopt incentives and/or regulations to enact energy conservation requirements for private and public developments.

AQ 5.3 Update, when necessary, the County's Policy Manual for Energy Conservation to reflect revisions to the County Energy Conservation Program.

AQ 5.4 Encourage the incorporation of energy-efficient design elements, including appropriate site orientation and the use of shade and windbreak trees to reduce fuel consumption for heating and cooling.

2.2 Existing Air Quality

2.2.1 Climate and Meteorology

The project is located approximately 40 miles east of the Pacific Ocean, within Riverside County, between the Santa Ana Mountains and the San Jacinto Mountains. Air quality in the county is influenced by both topographical and meteorological conditions.

The county, like other inland valley areas in southern California, has a Mediterranean climate characterized by warm, dry summers and mild winters. Based on measurements taken at the Perris climate monitoring station (ID 047473), the average annual precipitation is 9.86 inches, falling primarily from November to April (Western Regional Climate Center 2023). Overall annual temperatures in the project area average about 65 degrees Fahrenheit (°F), winter low temperatures average about 42°F, and summer high temperatures average about 92°F.

The dominant meteorological feature affecting the region is the Pacific High Pressure Zone, which produces the prevailing westerly to northwesterly winds. These winds tend to blow pollutants away from the coast toward the inland areas. Consequently, air quality near the coast is generally better than that which occurs at the base of the coastal mountain range.

The prevailing westerly wind pattern is sometimes interrupted by regional "Santa Ana" conditions. A Santa Ana occurs when a strong high pressure develops over the Nevada–Utah area and overcomes the prevailing westerly coastal winds, sending strong, steady, hot, dry northeasterly winds over the mountains and out to sea.

2.2.2 Background Air Quality

The state of California is divided geographically into 15 air basins for managing the air resources of the state on a regional basis. The project is located in the SoCAB, which includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The SoCAB is designated as in attainment or unclassifiable attainment (expected to be meeting the standard despite a lack of monitoring data) for all federal air quality standards except 8-hour ozone and $PM_{2.5}$ standards. The SoCAB is designated as in nonattainment for state air quality standards for 8-hour ozone, PM_{10}, and $PM_{2.5}$.

Air quality is commonly expressed as the number of days in which air pollution levels exceed state standards set by CARB or federal standards set by the U.S. EPA. SCAQMD has divided its jurisdictional territory of the SoCAB into 38 Source Receptor Areas (SRAs), most of which have monitoring stations that collect air quality data. These SRAs are designated to provide a general representation of the local meteorological, terrain, and air quality conditions within a particular geographical area, such as urbanized regions, interior valleys, coastal areas, and mountains. The SCAQMD maintains 41 active air quality monitoring sites located throughout the SoCAB. Air pollutant concentrations and meteorological information are continuously recorded at these stations. Measurements are then used by scientists to help forecast daily air pollution levels.

The monitoring station closest to the project site is the Winchester monitoring station located approximately 3 miles northwest of the project site at 33700 Borel Road. The Winchester monitoring station measures ozone and has limited $PM_{2.5}$ data. The Temecula monitoring station, located approximately 7 miles southwest of the project site at 12705 Pechanga Road, measures ozone and NO_X. The nearest monitoring station that measures PM_{10} is the Lake Elsinore monitoring station located approximately 19 miles northwest of the project site at 5060 West Flint Street. Table 2 provides a summary of measurements collected at these monitoring stations for the years 2020 through 2022.

Table 2 Summary of Air Quality Measurements Recorded at the Perris and Lake Elsinore Air Quality Monitoring Stations			
Pollutant/Standard	2020	2021	2022
Winchester Monitoring Station			
Ozone			
Federal Max 8-hr (ppm)	0.091	0.083	0.079
Days 2015 Federal 8-hour Standard Exceeded (0.07 ppm)	37	10	3
Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm)	20	6	2
State Max 8-hr (ppm)	0.091	0.084	0.079
Days State 8-hour Standard Exceeded (0.07 ppm)	39	11	4
Max. 1-hour (ppm)	0.108	0.095	0.087
Days State 1-hour Standard Exceeded (0.09 ppm)	5	1	0
$PM_{2.5}$*			
Federal Max. Daily (μg/m^3)	--	--	--
Measured Days Federal 24-hour Standard Exceeded (35 μg/m^3)	--	--	--
Calculated Days Federal 24-hour Standard Exceeded (35 μg/m^3)	--	--	--
Federal Annual Average (μg/m^3)	--	--	--
State Max. Daily (μg/m^3)	37.1	26.9	20.3
State Annual Average (μg/m^3)	9.5	8.8	8.5
Temecula Monitoring Station			
Ozone			
Federal Max 8-hr (ppm)	0.079	0.078	0.080
Days 2015 Federal 8-hour Standard Exceeded (0.07 ppm)	20	3	5
Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm)	7	2	1
State Max 8-hr (ppm)	0.080	0.078	0.081
Days State 8-hour Standard Exceeded (0.07 ppm)	20	3	5
Max. 1-hour (ppm)	0.104	0.087	0.097
Days State 1-hour Standard Exceeded (0.09 ppm)	2	0	1
Nitrogen Dioxide			
Max 1-hour (ppm)	0.0298	0.0242	0.0229
Days State 1-hour Standard Exceeded (0.18 ppm)	0	0	0
Days Federal 1-hour Standard Exceeded (0.100 ppm)	0	0	0
Annual Average (ppm)	--	0.003	--
Lake Elsinore Monitoring Station			
PM_{10}*			
Federal Max. Daily (μg/m^3)	192.4	90.0	91.8
Measured Days Federal 24-hour Standard Exceeded (150 μg/m^3)	1	0	0
Calculated Days Federal 24-hour Standard Exceeded (150 μg/m^3)	1.0	0.0	0.0
Federal Annual Average (μg/m^3)	23.7	22.4	20.3
State Max. Daily (μg/m^3)	--	--	--
Measured Days State 24-hour Standard Exceeded (50 μg/m^3)	--	--	--
Calculated Days State 24-hour Standard Exceeded (50 μg/m^3)	--	--	--
State Annual Average (μg/m^3)	--	--	--

SOURCE: CARB 2023.
ppm = parts per million; μg/m^3 = micrograms per cubic meter; -- = Not available.
* Calculated days value. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

3.0 Thresholds of Significance

Thresholds used to evaluate potential impacts to air quality are based on applicable criteria in the CEQA Guidelines Appendix G. The project would have a significant air quality impact if it would:

1. Obstruct or conflict with the implementation of the applicable air quality plan.

2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standards (including the release of emissions which exceed quantitative thresholds for ozone precursors).

3. Expose sensitive receptors to substantial pollutant concentration including air toxics.

4. Create objectionable odors affecting a substantial number of people.

3.1 Regional Significance Thresholds

The SCAQMD has established significance thresholds to assess the regional and localized impacts of project-related air pollutant emissions. These significance thresholds are updated as needed to appropriately represent the most current technical information and attainment status in the SoCAB. The County uses the current SCAQMD thresholds to determine whether a project would have a significant impact. SCAQMD's significance thresholds for impacts to regional air quality are shown in Table 3.

Table 3
SCAQMD Air Quality Significance Thresholds – Mass Daily Thresholds

Pollutant	Emissions (pounds)	
	Construction	Operational
Oxides of Nitrogen (NO_X)	100	55
Volatile Organic Compounds (VOC)	75	55
Coarse Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Oxides of Sulfur (SO_X)	150	150
Carbon Monoxide (CO)	550	550
Lead (Pb)	3	3
SOURCE: SCAQMD CEQA Air Quality Handbook (SCAQMD 1993); SCAQMD Air Quality Significance Thresholds (SCAQMD 2023)		

3.2 Localized Significance Thresholds

The SCAQMD's Final Localized Significance Threshold (LST) Methodology was developed as a tool to assist lead agencies to analyze localized air quality impacts to sensitive receptors in the vicinity of the project (SCAQMD 2008). The LST Methodology outlines how to analyze localized impacts from common pollutants of concern including NO_2, CO, PM_{10}, and $PM_{2.5}$. Localized air quality impacts would occur if pollutant concentrations at sensitive receptors exceeded applicable NAAQS or CAAQS.

LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest residence or sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its air quality impact

analyses. The significance of localized emissions impacts depends on whether ambient levels in the vicinity of any given project are above or below state standards. In the case of CO and NO_2, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM_{10} and $PM_{2.5}$, both of which are non-attainment pollutants.

4.0 Emission Calculations

4.1 Construction Regional Emissions

Sewer pipeline construction would result in short-term emissions. Project operation would result in emissions related to minor vehicle/equipment use associated with routine inspection and maintenance. Routine sewer video inspection would occur approximately every three years, and cleaning would occur every five to ten years. These operational activities would be conducted by existing District employees. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible. Therefore, this analysis focuses on emissions associated with construction activities.

Emissions associated with pipeline construction were modeled using the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Roadway Construction Emissions Model (RCEM) Version 9.0.1 (SMAQMD 2022). The RCEM is a spreadsheet-based model that is able to use basic project information (e.g., total construction months, project type, total project area) to estimate a construction schedule and quantify exhaust emissions from heavy-duty construction equipment, haul trucks, and worker commute trips associated with linear construction projects. Version 9.0.1 of the model incorporates the most currently approved 2017 Emission Factor (EMFAC2017) model and Off-Road emissions factors model. The 2021 Emission Factor (EMFAC2021) model was released in January 2021; however, EMFAC2021 has not yet been approved for use by the U.S. EPA. EMFAC2017 is the most recent version of the model approved by the U.S. EPA, and was therefore used in this analysis. Use of EMFAC2021 would not result in emissions that are substantially different than those calculated in this analysis, particularly since the main source of emissions would be construction equipment, which are calculated using the Off-Road emissions factor model methodologies incorporated into RCEM. Although RCEM was developed by SMAQMD, it is appropriate for use in the SCAQMD jurisdiction because it is applicable for all statewide construction projects that involve construction equipment that is subject to CARB construction equipment emissions standards and incorporates statewide emission factor models (EMFAC2017 and Off-Road). RCEM calculates fugitive dust, exhaust, and off-gas emissions from grubbing/land clearing, grading/excavation, drainage/utilities/sub-grade, and paving activities associated with construction projects that are linear in nature (e.g., road or levee construction, pipeline installation, transmission lines).

Construction is expected to begin in 2024 and last approximately 13 months. The pipeline alignment would consist of a total of approximately 2.74 miles (14,467 linear feet) of sewer transmission lines. The total project area is 20.0 acres. Excavated soil would likely be replaced in the trench once the new pipeline is replaced; however, to be conservative, hauling was included in the analysis. Hauling emissions associated with asphalt removal were calculated assuming a total of 670 cubic yards of asphalt export (2.74 miles of paved road, 5 feet wide, and 3 inches deep). Hauling emissions associated with soil removal were calculated assuming half the excavated soil would be hauled, for a total of 13,395 cubic yards of soil export (2.74 miles long, 5 feet wide, and 10 feet deep). Asphalt hauling was modeled over the duration of the 1.3-month grubbing/land clear phase, and soil hauling was modeled over the duration of the 5.9-month grading/excavation phase. Modeled construction equipment is summarized in Table 4. This equipment was modeled during each phase of construction. Two signal boards, a water truck, dump trucks used for asphalt and soil hauling, and employee vehicles were also included in the emission calculations. Based on RCEM default values, project construction would require up to 27 workers per day.

Table 4 Construction Equipment	
Equipment	Number
Backhoe/loader	1
Hydraulic excavator	1
Utility truck	2
Water truck	1
Compressor	1
Pump	1
Pick-up trucks	1
Concrete saw	1
Pavement breaker	1
Sweeper	1
Paver	1
Generator	1
NOTE: Each phase would also include vehicles associated with work commutes, a water truck, and dump trucks for hauling.	

The maximum daily construction emissions are summarized in Table 5. Attachment 1 contains the RCEM calculations for this project. Attachment 1 also contains detailed calculations showing how the project size and hauling quantities were calculated. As shown in Table 5, maximum daily construction emissions would be less than the SCAQMD screening level thresholds.

Table 5 Maximum Daily Construction Emissions (pounds per day)						
	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Grubbing/Land Clearing	3.21	25.18	33.99	0.08	2.13	1.25
Grading/Excavation	3.31	26.12	35.38	0.09	2.22	1.29
Drainage/Utilities/Sub-Grade	3.25	24.82	34.62	0.08	2.15	1.26
Paving	3.15	23.68	34.22	0.08	1.06	0.97
Maximum Daily Emissions	**3.31**	**26.12**	**35.38**	**0.09**	**2.22**	**1.29**
SCAQMD Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No
ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns						

4.2 Localized Significance Thresholds

The project site is located within two SRAs: Temecula Valley SRA 26 and Anza Area SRA 27. LSTs apply to on-site air emissions of CO, NO_2, PM_{10}, and $PM_{2.5}$. Based on the SCAQMD's Fact Sheet for Applying CalEEMod to Localized Significance Thresholds (Fact Sheet), the appropriate methodology for determining localized impacts that could occur as a result of project-related construction, should follow these steps:

- Use CalEEMod to determine the maximum daily on-site emissions that will occur during construction activity.
- The SCAQMD's Fact Sheet is used to determine the maximum site acreage that is actively disturbed based on the construction equipment fleet and equipment hours as estimated in CalEEMod.
- If the total calculated acreage is less than or equal to five acres, then the SCAQMD's screening look-up tables may be utilized to determine the potential for significant impacts. The look-up tables establish a maximum daily emissions threshold in pounds per day to be directly compared to CalEEMod emission results.
- If the total acreage disturbed is greater than five acres per day, then the SCAQMD recommends dispersion modeling to be conducted to determine the actual pollutant concentrations for applicable LSTs.

Additionally, the LST Methodology (SCAQMD 2008) states that only on-site emissions should be compared to LSTs. Therefore, off-site emissions associated with worker travel, materials deliveries, and other mobile sources are not evaluated against LSTs.

The maximum on-site daily construction emissions for CO, NO_X, PM_{10}, and $PM_{2.5}$ are compared to the applicable screening thresholds based on construction site acreage and the distance to the closest sensitive receptor. Residential uses are located adjacent to the proposed alignment as close as approximately 50 feet from the pipeline. The project would disturb up to 80 linear feet per day with a work area width of 20 feet, for a total area of approximately 0.1-acre rounded up. The SCAQMD's LST look-up tables provide LSTs for one-, two-, and five-acre sites. The closest receptor distance in LST look-up tables is 25 meters. The LSTs for receptors located at 25 meters from a one-acre site were conservatively used.

The maximum daily localized emissions from project construction and LSTs are presented in Table 6. As shown in Table 6, the maximum localized construction emissions would not exceed any of the SCAQMD recommended localized screening thresholds.

Table 6
Localized Construction Emissions

	Pollutant			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Maximum On-Site Daily Emission	26.12	35.38	2.22	1.29
LST Threshold	162	750	4	3
Exceeds Threshold?	No	No	No	No

NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns

5.0 Air Quality Impact Analysis

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

The SoCAB is designated as in attainment or unclassifiable attainment (expected to be meeting the standard despite a lack of monitoring data) for all federal air quality standards except for the 8-hour ozone and $PM_{2.5}$ standards. The SoCAB is also designated as in nonattainment for state air quality standards for 8-hour ozone and $PM_{2.5}$, and additionally is in nonattainment of state PM_{10} standards. The regional air quality plan, the 2022 AQMP, outlines measures to reduce emissions of ozone and $PM_{2.5}$. Whereas reducing PM concentrations is achieved by reducing

emissions of $PM_{2.5}$ to the atmosphere, reducing ozone concentrations is achieved by reducing the precursors of photochemical formation of ozone, VOC, and NO_X.

The growth forecast for the 2022 AQMP is based in part on the land uses established by local general plans. Thus, if a project is consistent with land use as designated in the local general plan, it can normally be considered consistent with the 2022 AQMP. Projects that propose a different land use than is identified in the local general plan may also be considered consistent with the 2022 AQMP if the proposed land use is less intensive than buildout under the current designation. For projects that propose a land use that is more intensive than the current designation, analysis that is more detailed is required to assess conformance with the 2022 AQMP.

The project does not include growth-generating components, but rather would provide sewer service to existing development that is currently utilizing septic systems. As such, the project would be consistent with growth projections contained in the County's General Plan and AQMP forecasts. Based on these considerations and pursuant to SCAQMD guidelines, project-related emissions are accounted for in the AQMP.

Another factor used to determine if a project would conflict with implementation of the 2022 AQMP is determining if the project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards (NAAQS and CAAQS) or interim emissions reductions specified in the 2022 AQMP. NAAQS and CAAQS violations could occur if project emissions exceed regional significance thresholds or LSTs. As shown in Tables 5 and 6 above, construction emissions would not exceed the regional significance thresholds or the LSTs. After installation of the underground pipeline, there would be occasional inspection and maintenance trips. Routine sewer video inspection would occur approximately every three years, and cleaning would occur every five to ten years. These operational activities would be conducted by existing District employees. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible. Therefore, the project would not conflict with or obstruct the implementation of the 2022 AQMP or applicable portions of the SIP, and impacts would be less than significant.

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

The SoCAB is designated as a nonattainment area for federal AAQS for the 8-hour ozone and $PM_{2.5}$ standards, and is in nonattainment area under state 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards. Ozone is not emitted directly but is a result of atmospheric activity on precursors. NO_X and ROG are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone.

Based on SCAQMD cumulative significance methodologies, the emissions-based thresholds shown in Table 3 are used to determine if a project's contribution to regional cumulative emissions is cumulatively considerable. These thresholds were used to assess the significance of the project-specific and cumulative air quality impacts. Air quality impacts are basin-wide, and air quality is affected by all pollutant sources in the SoCAB. As the individual project thresholds are designed to help achieve attainment with cumulative basin-wide standards, they are also appropriate for assessing the project's contribution to cumulative impacts.

As shown in Table 5, emissions of ozone precursors (ROG and NO_X), PM_{10}, and $PM_{2.5}$ during construction of the project would not exceed the SCAQMD's thresholds of significance. These thresholds are designed to provide limits below which project emissions from an individual project would not significantly affect regional air quality or the timely attainment of the NAAQS and CAAQS. Therefore, project construction would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

As discussed above, after installation of the underground pipeline, there would be occasional inspection and maintenance trips. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible. Therefore, project operation would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

3. *Would the project expose sensitive receptors to substantial pollutant concentration including air toxics such as diesel particulates?*

A sensitive receptor is a person in the population who is more susceptible to health effects due to exposure to an air contaminant than is the population at large. Examples of sensitive receptor locations in the community include residences, schools, playgrounds, childcare centers, churches, athletic facilities, retirement homes, and long-term health care facilities. The nearest sensitive receptors are the residential uses located as close as 50 feet from the proposed alignment.

The two primary emissions of concern regarding health effects for land development projects are DPM and CO. Projects that would site sensitive receptors near potential CO hotspots or would contribute vehicle traffic to local intersections where a CO hotspot could occur would be considered as having a potentially significant impact.

Diesel Particulate Matter – Construction

Construction of the pipeline would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. Construction of the pipeline would result in the generation of diesel exhaust DPM emissions from the use of off-road diesel equipment required for construction activities and on-road diesel equipment used to bring materials to and from the project site.

Generation of DPM from construction projects typically occurs in a single area for a short period. Construction is anticipated to last for approximately 13 months. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Although the alignment is located adjacent to residential uses, construction equipment would only be located adjacent to a particular sensitive receptor for a matter of days or weeks since work would move along the alignment at an average rate of 50 to 80 feet per day. Thus, the duration of proposed construction activities near any specific sensitive receptor would be minimal, and would be significantly less than the 30-year exposure period used in health risk assessments.

Additionally, with ongoing implementation of U.S. EPA and CARB requirements for cleaner fuels; off-road diesel engine retrofits; and new, low-emission diesel engine types, the DPM emissions of individual equipment would be reduced over time. All construction equipment is subject to the CARB In-Use Off-Road Diesel-Fueled Fleets Regulation, which limits unnecessary idling to 5 minutes, requires all construction fleets to be labeled and reported to CARB, bans Tier 0 equipment and phases out Tier 1 and 2 equipment (thereby replacing fleets with cleaner equipment), and requires that fleets comply with Best Available Control Technology requirements. Therefore, due to the limited duration of construction activities, the limited amount of time equipment would be located adjacent to any specific sensitive receptor, and implementation of the In-Use Off-Road Diesel-Fueled Fleets Regulation, DPM generated by project construction is not expected to create conditions where the probability is greater than 10 in 1

million of contracting cancer for the Maximally Exposed Individual, or to generate ground-level concentrations of non-carcinogenic TACs that exceed a Hazard Index greater than 1 for the Maximally Exposed Individual. Therefore, project construction would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant.

Carbon Monoxide Hot Spots

A CO hot spot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. CO hot spots have the potential to violate state and federal CO standards at intersections, even if the broader basin is in attainment for federal and state levels. CO hot spots occur nearly exclusively at signalized intersections operating at level of service (LOS) E or F. Due to increased requirements for cleaner vehicles, equipment, and fuels, CO levels in the state have dropped substantially. All air basins are attainment or maintenance areas for CO. Therefore, more recent screening procedures based on more current methodologies have been developed. The SMAQMD developed a screening threshold in 2011, which states that any project involving an intersection experiencing 31,600 vehicles per hour or more will require detailed analysis. In addition, the Bay Area Air Quality Management District developed a screening threshold in 2010 which states that any project involving an intersection experiencing 44,000 vehicles per hour would require detailed analysis.

Project construction would generate vehicle trips in the form of trucks and worker commute vehicles. Based on the RCEM emission calculations prepared for project construction, up to 27 daily worker trips would occur during peak construction activities. However, there are no signalized intersections in the vicinity of the project site. As discussed above, CO hot spots occur nearly exclusively at signalized intersections operating at LOS E or F. The addition of 27 worker trips to other intersections used to access the project site would not cause an intersection to operate at a failing LOS and would not significantly increase peak hourly volumes. Construction vehicle generation would also be temporary. Therefore, project construction would not generate CO hot spots, and impacts would be less than significant.

4. *Would the project result in other emissions, such as those leading to odors adversely affecting a substantial number of people?*

The potential for an odor impact is dependent on a number of variables, including the nature of the odor source, distance between the receptor and odor source, and local meteorological conditions. During construction, diesel equipment may generate some nuisance odors from equipment exhaust. Additionally, paving activities have the potential to generate odors while laying asphalt. Sensitive receptors near the project site/pipeline alignment include residential uses. However, exposure to odors associated with project construction would be short-term and temporary in nature. In addition, construction activities within the project site would be required to comply with SCAQMD Rule 402, which prohibits the discharge of odorous emissions that would create a public nuisance. Further, per CARB's Airborne Toxic Control Measures 13 (California Code of Regulations Chapter 10 Section 2485), the applicant shall not allow idling time to exceed five minutes unless more time is required per engine manufacturers' specifications or for safety reasons. Compliance with this regulation would reduce odors from equipment exhaust. Given the short-term nature of construction, compliance with SCAQMD Rule 402, and the distance to the nearest sensitive receptors, project construction would not generate odors that would affect a substantial number of people, and impacts would be less than significant.

The following list provides some common types of facilities that are known producers of objectionable odors (Bay Area Air Quality Management District 2017). This list of facilities is not meant to be all-inclusive.

- Wastewater Treatment Plant
- Wastewater Pumping Facilities

- Sanitary Landfill
- Transfer Station
- Composting Facility
- Petroleum Refinery
- Asphalt Batch Plant
- Chemical Manufacturing
- Fiberglass Manufacturing
- Painting/Coating Operations
- Rendering Plant
- Coffee Roaster
- Food Processing Facility
- Confined Animal Facility/Feed Lot/Dairy
- Green Waste and Recycling Operations
- Metal Smelting Plants

The project does not include any of these uses that are typically associated with odor complaints. There would be no operational source of odors associated with the project, as the sewer pipeline would be completely enclosed and underground. Therefore, project operation would not generate substantial amounts of odors adversely affecting a substantial number of people, and impacts would be less than significant.

6.0 Conclusions

The project's potential to result in impacts to air quality was assessed in accordance with the guidelines, policies, and standards established by the County and the SCAQMD. The SCAQMD prepared the 2022 AQMP, which represents its contribution to the SIP, to outline the district's strategy for achieving attainment of federal and state AAQS. The 2022 AQMP provides an overview of air quality and sources of air pollution and identifies the pollution-control measures needed to meet clean air standards. As discussed in this analysis, the project does not include growth-generating components, but rather would provide sewer service to existing development that is currently utilizing septic systems. Therefore, the project would not result in an exceedance of the growth forecasting used to develop the 2022 AQMP. Additionally, the project would not result in an air quality violation. Therefore, the project would not conflict with or obstruct the implementation of the 2022 AQMP or applicable portions of the SIP, and impacts would be less than significant.

As shown in Tables 5 and 6 above, project construction would not exceed the SCAQMD's thresholds of significance. After installation of the underground pipeline, there would be occasional inspection and maintenance trips. Routine sewer video inspection would occur approximately every three years, and cleaning would occur every five to ten years. These operational activities would be conducted by existing District employees. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible. Therefore, construction and operation of the project would not result in regional emissions that would exceed the NAAQS or CAAQS or contribute to existing violations, and impacts would be less than significant.

On-site emissions during construction would be less than the SCAQMD LSTs. Project construction would not result in the exposure of sensitive receptors to significant levels of DPM that could result in excess cancer risks. The project would not result in the creation of a CO hot spot. Therefore, construction and operation of the project would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant.

During construction, potential odor sources would be associated with construction equipment; however, exposure to odors associated with project construction would be short term and temporary in nature. The operation of the

project would not include any uses that would generate substantial odors. Therefore, construction and operation of the project would not generate odors adversely affecting a substantial number of people, and impacts would be less than significant.

If you have any questions about the results of this analysis, please contact me at jfleming@reconenvironmental.com or (619) 308-9333 extension 177.

Sincerely,

Jessica Fleming
Senior Air Quality Specialist

JLF:sh

7.0 References Cited

Bay Area Air Quality Management District
2017 California Environmental Quality Act Air Quality Guidelines. May.

California Air Resources Board (CARB)
2000 Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. California Air Resources Board. Stationary Source Division, Mobile Source Control Division. October.

2005 Air Quality and Land Use Handbook: A Community Health Perspective. California Air Resources Board. April.

2016 Ambient Air Quality Standards. California Air Resources Board. October 1.

2023 California Air Quality Data Statistics. California Air Resources Board Internet Site. http://www.arb.ca.gov/adam/welcome.html. Accessed November 21, 2023.

Office of Environmental Health Hazard Assessment (OEHHA)
2015 Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments (Guidance Manual), February.

Riverside, County of
2015 General Plan. December.

Sacramento Metropolitan Air Quality Management District (SMAQMD)
2022 Road Construction Emissions Model, Version 9.0.1.

South Coast Air Quality Management District (SCAQMD)
1993 SCAQMD CEQA Air Handbook. November.

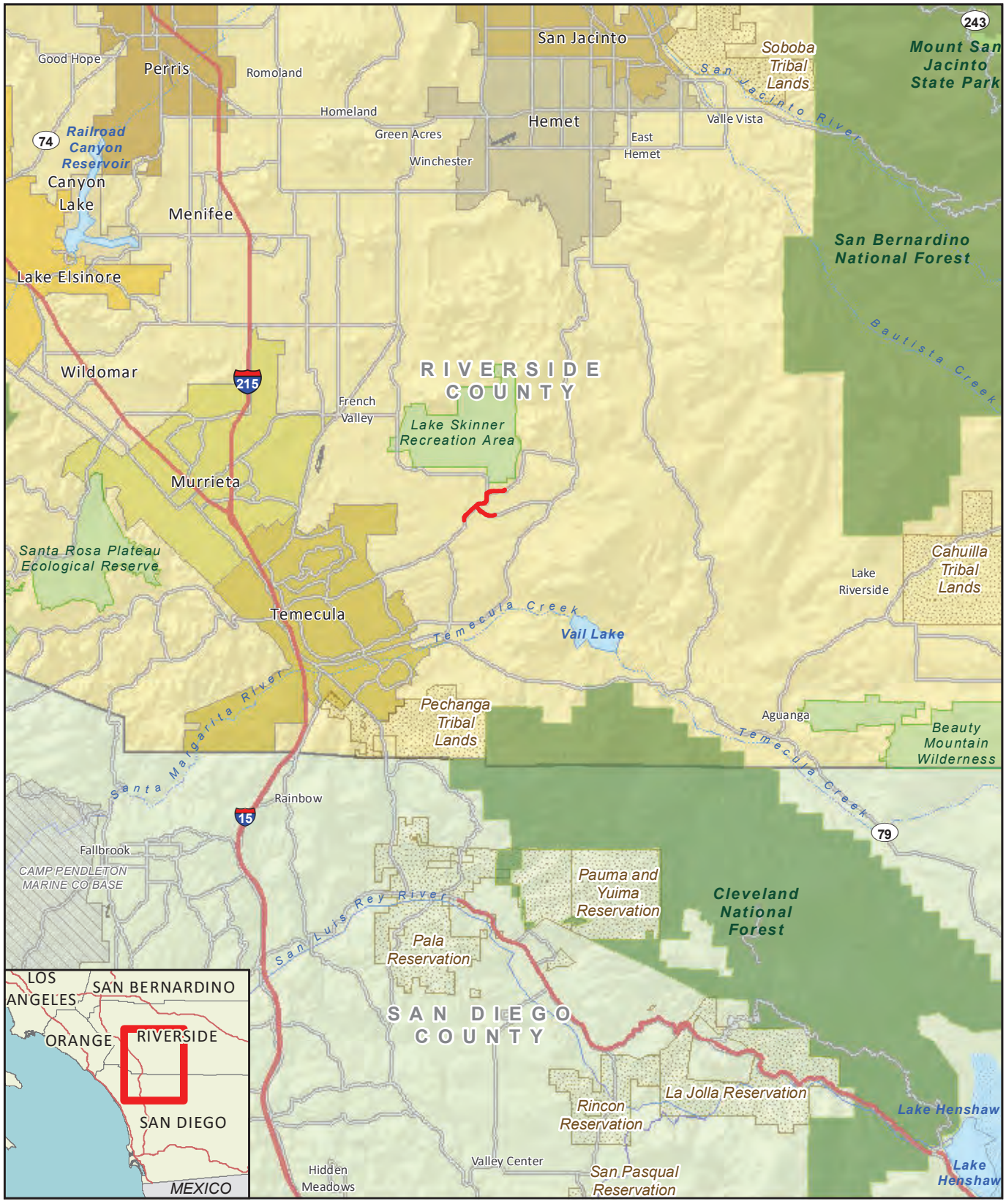
2008 Final Localized Significance Threshold Methodology. July.

2022 Air Quality Management Plan. December.

2023 SCAQMD Air Quality Significance Thresholds. Revision: March 2023.

Southern California Association of Governments (SCAG)
2020 Connect SoCal – The 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy.

Western Regional Climate Center
2023 Western U.S. Climate Historical Summaries. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2805.



RECON

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FIGURE 1
Regional Location

Image Source: NearMap (flown September 2023)

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FIGURE 2
Project Location on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.1
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.2
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.3
Northern Alignment

Image Source: NearMap (flown September 2023)

0 Feet 100

Project Alignment
Project Impact Area

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FIGURE 3.4
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.5
Northern Alignment

Image Source: NearMap (flown September 2023)

0 Feet 100

Project Alignment
Project Impact Area

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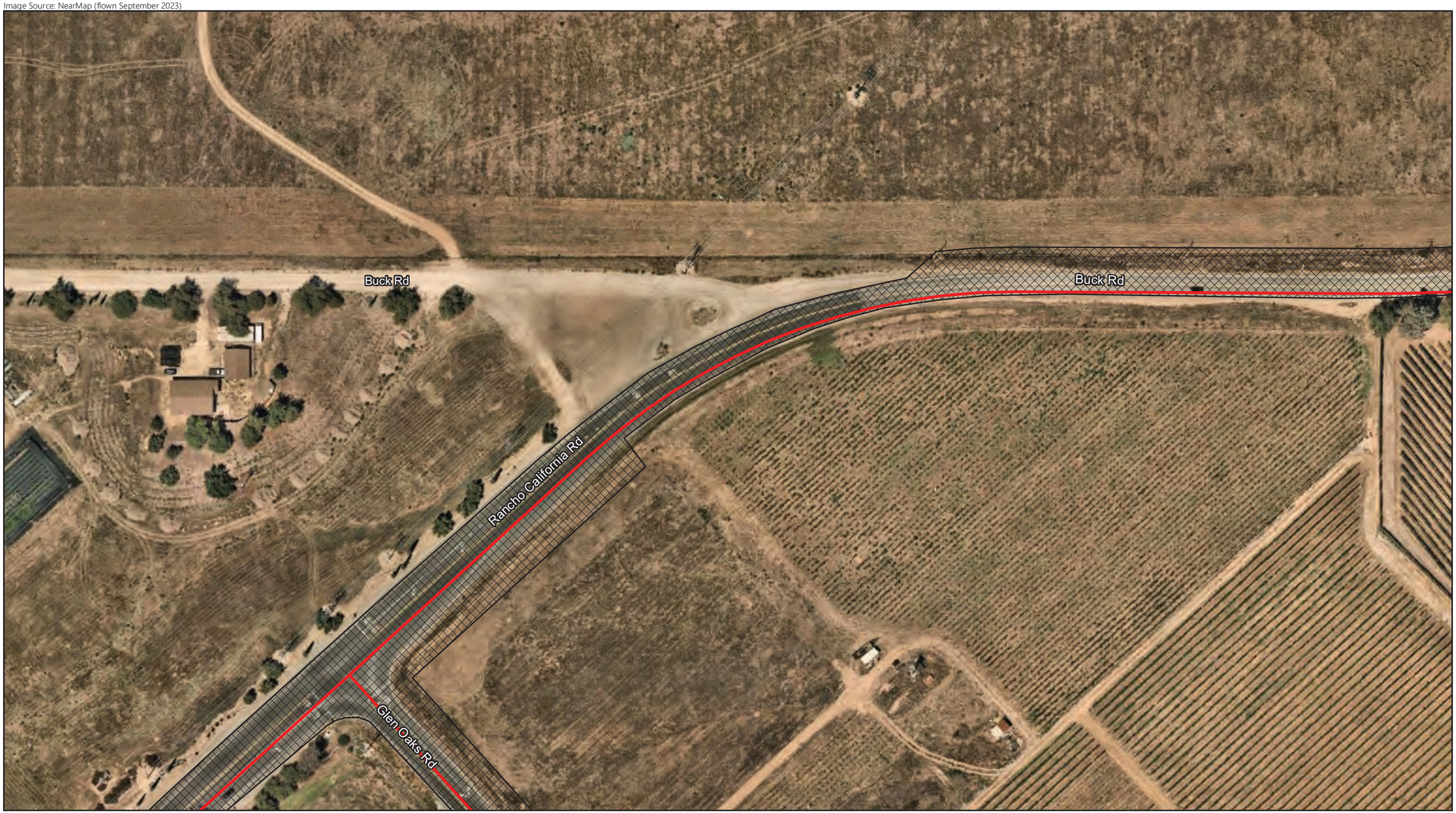
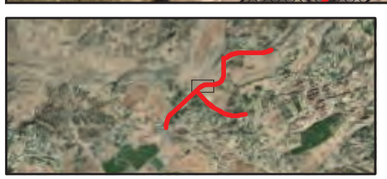
FIGURE 3.6
Northern Alignment

Image Source: NearMap (flown September 2023)





Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.7
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

RECON

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FIGURE 3.8
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.9
Northern Alignment

Image Source: NearMap (flown September 2023)

0 Feet 100

Project Alignment
Project Impact Area

RECON

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FIGURE 3.10
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

RECON

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FIGURE 3.11
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

RECON

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FIGURE 3.12
Northern Alignment

ATTACHMENT 1

Road Construction Emissions Model Calculations

Wine Country Sewer - Northern Alignment
Calculation Details

Pipeline Length:

14,467	feet
5,280	feet/mile
2.74	miles

Project Area:

20.00	acres

Area Disturbed per Day

80.00	linear feet per day
35.00	feet wide
2800.00	square feet
0.06	acres

Asphalt Export:

14,467	feet paved
5	feet wide
0.25	feet deep (3 inch asphalt depth)
18,084	cubic feet
27	cubic feet/cubic yard
669.78	cubic yards
20	cubic yard truck capacity
34	hauling trips (rounded up)
1.3	month grubbing/land clearing phase
22	work days/month
28.6	days
24	cubic yards/day (rounded up)

Soil Export

14,467	feet long
5	feet wide
10	feet deep
723,360	cubic feet
27	cubic feet/cubic yard
26,791.11	cubic yards
13,395.56	cubic yards hauled away (half)
20	cubic yard truck capacity
670	hauling trips (rounded up)
5.85	month grading/excavation phase
22	work days/month
128.7	days
105	cubic yards/day (rounded up)

Road Construction Emissions Model, Version 9.0.1

Daily Emission Estimates for -> Wine Country Sewer - Northern Alignment

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	3.21	33.99	25.18	2.13	1.13	1.00	1.25	1.04	0.21	0.08	7,864.80	1.73	0.11	7,940.36
Grading/Excavation	3.31	35.38	26.12	2.22	1.22	1.00	1.29	1.08	0.21	0.09	8,722.90	1.74	0.19	8,822.59
Drainage/Utilities/Sub-Grade	3.25	34.62	24.82	2.15	1.15	1.00	1.26	1.05	0.21	0.08	7,859.48	1.73	0.08	7,926.21
Paving	3.15	34.22	23.68	1.06	1.06	0.00	0.97	0.97	0.00	0.08	7,767.99	1.73	0.08	7,833.84
Maximum (pounds/day)	3.31	35.38	26.12	2.22	1.22	1.00	1.29	1.08	0.21	0.09	8,722.90	1.74	0.19	8,822.59
Total (tons/construction project)	0.47	4.98	3.61	0.29	0.17	0.12	0.18	0.15	0.03	0.01	1,177.58	0.25	0.02	1,189.35

Notes:

Project Start Year ->	2024
Project Length (months) ->	13
Total Project Area (acres) ->	20
Maximum Area Disturbed/Day (acres) ->	0
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	24	0	60	480	5
Grading/Excavation	105	0	180	0	1,080	5
Drainage/Utilities/Sub-Grade	0	0	0	0	800	5
Paving	0	0	0	0	680	5

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Wine Country Sewer - Northern Alignment

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.05	0.49	0.36	0.03	0.02	0.01	0.02	0.01	0.00	0.00	112.47	0.02	0.00	103.01
Grading/Excavation	0.21	2.28	1.68	0.14	0.08	0.06	0.08	0.07	0.01	0.01	561.32	0.11	0.01	515.04
Drainage/Utilities/Sub-Grade	0.14	1.49	1.06	0.09	0.05	0.04	0.05	0.05	0.01	0.00	337.17	0.07	0.00	308.48
Paving	0.07	0.73	0.51	0.02	0.02	0.00	0.02	0.02	0.00	0.00	166.62	0.04	0.00	152.44
Maximum (tons/phase)	0.21	2.28	1.68	0.14	0.08	0.06	0.08	0.07	0.01	0.01	561.32	0.11	0.01	515.04
Total (tons/construction project)	0.47	4.98	3.61	0.29	0.17	0.12	0.18	0.15	0.03	0.01	1177.58	0.25	0.02	1,078.97

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Data Entry Worksheet

Version 9.0.1

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a
yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Wine Country Sewer - Northern Alignment	
Construction Start Year	2024	Enter a Year between 2014 and 2040 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	13.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	2.74	miles
Total Project Area	20.00	acres
Maximum Area Disturbed/Day	0.10	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County. NEW LINK 8-2-2022.

https://maps.conservation.ca.gov/cgs/gmc/

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation	20.00		105.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing	20.00		24.00
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			

Mitigation Options

On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation		Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		1.30		1/1/2024
Grading/Excavation		5.85		2/10/2024
Drainage/Utilities/Sub-Grade		3.90		8/6/2024
Paving		1.95		12/3/2024
Totals (Months)	13			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	30.00			0	0.00
Miles/round trip: Grading/Excavation	30.00			6	180.00
Miles/round trip: Drainage/Utilities/Sub-Grade	30.00			0	0.00
Miles/round trip: Paving	30.00			0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Paving (grams/mile)	0.03	0.41	3.04	0.11	0.05	0.02	1,682.64	0.00	0.26	1,761.49
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.01	0.16	1.26	0.04	0.02	0.01	672.06	0.00	0.11	703.55
Tons per const. Period - Grading/Excavation	0.00	0.01	0.08	0.00	0.00	0.00	43.25	0.00	0.01	45.27
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.01	0.08	0.00	0.00	0.00	43.25	0.00	0.01	45.27

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	30.00			2	60.00
Miles/round trip: Grading/Excavation	30.00			0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade	30.00			0	0.00
Miles/round trip: Paving	30.00			0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Paving (grams/mile)	0.03	0.41	3.04	0.11	0.05	0.02	1,682.64	0.00	0.26	1,761.49
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.05	0.42	0.01	0.01	0.00	224.02	0.00	0.04	234.52
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.01	0.00	0.00	0.00	3.20	0.00	0.00	3.35
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	3.20	0.00	0.00	3.35

Note: Worker commute default values can be overridden in cells D121 through D126.

Worker Commute Emissions	User Override of Worker			
User Input	Commute Default Values	Default Values		
Miles/ one-way trip	20		Calculated	Calculated
One-way trips/day	2		Daily Trips	Daily VMT
No. of employees: Grubbing/Land Clearing	12		24	480.00
No. of employees: Grading/Excavation	27		54	1,080.00
No. of employees: Drainage/Utilities/Sub-Grade	20		40	800.00
No. of employees: Paving	17		34	680.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Grading/Excavation (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Draining/Utilities/Sub-Grade (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Paving (grams/mile)	0.01	0.81	0.06	0.05	0.02	0.00	300.96	0.00	0.01	302.72
Grubbing/Land Clearing (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Grading/Excavation (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Draining/Utilities/Sub-Grade (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Paving (grams/trip)	0.95	2.61	0.26	0.00	0.00	0.00	64.80	0.06	0.03	75.11
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.07	1.03	0.08	0.05	0.02	0.00	328.05	0.01	0.01	330.56
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	4.69	0.00	0.00	4.73
Pounds per day - Grading/Excavation	0.15	2.31	0.18	0.11	0.05	0.01	738.11	0.02	0.02	743.75
Tons per const. Period - Grading/Excavation	0.01	0.15	0.01	0.01	0.00	0.00	47.50	0.00	0.00	47.86
Pounds per day - Drainage/Utilities/Sub-Grade	0.11	1.71	0.14	0.08	0.03	0.01	546.75	0.01	0.01	550.93
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.07	0.01	0.00	0.00	0.00	23.46	0.00	0.00	23.63
Pounds per day - Paving	0.09	1.40	0.11	0.07	0.03	0.00	456.05	0.01	0.01	459.46
Tons per const. Period - Paving	0.00	0.03	0.00	0.00	0.00	0.00	9.78	0.00	0.00	9.86
Total tons per construction project	0.02	0.27	0.02	0.01	0.01	0.00	85.43	0.00	0.00	86.08

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated	User Override of	Default Values	Calculated
User Input	Default # Water Trucks	Number of Water Trucks	Round Trips/Vehicle/Day	Round Trips/Vehicle/Day	Trips/day	Miles/Round Trip	Miles/Round Trip	Daily VMT
Grubbing/Land Clearing - Exhaust	1		1.00			5.00		5.00
Grading/Excavation - Exhaust	1		1.00			5.00		5.00
Drainage/Utilities/Subgrade	1		1.00			5.00		5.00
Paving	1		1.00			5.00		5.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Paving (grams/mile)	0.03	0.41	3.04	0.11	0.05	0.02	1,682.64	0.00	0.26	1,761.49
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.04	0.00	0.00	0.00	18.67	0.00	0.00	19.54
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.28
Pounds per day - Grading/Excavation	0.00	0.00	0.04	0.00	0.00	0.00	18.67	0.00	0.00	19.54
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.00	1.26
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.04	0.00	0.00	0.00	18.67	0.00	0.00	19.54
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.84
Pounds per day - Paving	0.00	0.00	0.04	0.00	0.00	0.00	18.55	0.00	0.00	19.42
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.42
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	2.67	0.00	0.00	2.79

Note: Fugitive dust default values can be overridden in cells D183 through D185.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing			1.00	0.01	0.21	0.00
Fugitive Dust - Grading/Excavation			1.00	0.06	0.21	0.01
Fugitive Dust - Drainage/Utilities/Subgrade			1.00	0.04	0.21	0.01

Values in cells D195 through D228, D246 through D279, D297 through D330, and D348 through D381 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.24	2.41	1.63	0.08	0.08	0.00	375.26	0.02	0.00	376.63
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.90	0.06	0.06	0.01	917.36	0.30	0.01	927.26
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.31	3.65	2.41	0.11	0.11	0.01	592.67	0.03	0.00	594.70
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.18	3.27	1.40	0.07	0.06	0.01	500.27	0.16	0.00	505.66
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.29	3.66	2.54	0.11	0.11	0.01	623.04	0.03	0.00	625.06
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Off-Highway Trucks	0.99	6.50	6.66	0.24	0.22	0.03	2,560.70	0.83	0.02	2,588.27
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.74	0.08	0.07	0.00	455.16	0.15	0.00	460.07
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.31	3.72	2.58	0.12	0.12	0.01	623.04	0.03	0.00	625.12
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.17	1.92	1.61	0.10	0.09	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.24	1.45	0.07	0.06	0.00	301.77	0.10	0.00	305.01
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	3.14	32.90	24.64	1.06	1.02	0.08	7,294.07	1.72	0.06	7,355.74
Grubbing/Land Clearing	tons per phase	0.04	0.47	0.35	0.02	0.01	0.00	104.31	0.02	0.00	105.19

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.24	2.41	1.63	0.08	0.08	0.00	375.26	0.02	0.00	376.63
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.90	0.06	0.06	0.01	917.36	0.30	0.01	927.26
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.31	3.65	2.41	0.11	0.11	0.01	592.67	0.03	0.00	594.70
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.18	3.27	1.40	0.07	0.06	0.01	500.27	0.16	0.00	505.66
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.29	3.66	2.54	0.11	0.11	0.01	623.04	0.03	0.00	625.06
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Off-Highway Trucks	0.99	6.50	6.66	0.24	0.22	0.03	2,560.70	0.83	0.02	2,588.27
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.74	0.08	0.07	0.00	455.16	0.15	0.00	460.07
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.31	3.72	2.58	0.12	0.12	0.01	623.04	0.03	0.00	625.12
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.17	1.92	1.61	0.10	0.09	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.24	1.45	0.07	0.06	0.00	301.77	0.10	0.00	305.01
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles		Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation		pounds per day	3.14	32.90	24.64	1.06	1.02	0.08	7,294.07	1.72	0.06	7,355.74
	Grading/Excavation		tons per phase	0.20	2.12	1.59	0.07	0.07	0.00	469.37	0.11	0.00	473.34

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.24	2.41	1.63	0.08	0.08	0.00	375.26	0.02	0.00	376.63
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.90	0.06	0.06	0.01	917.36	0.30	0.01	927.26
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.31	3.65	2.41	0.11	0.11	0.01	592.67	0.03	0.00	594.70
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.18	3.27	1.40	0.07	0.06	0.01	500.27	0.16	0.00	505.66
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.29	3.66	2.54	0.11	0.11	0.01	623.04	0.03	0.00	625.06
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Off-Highway Trucks	0.99	6.50	6.66	0.24	0.22	0.03	2,560.70	0.83	0.02	2,588.27
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.74	0.08	0.07	0.00	455.16	0.15	0.00	460.07
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.31	3.72	2.58	0.12	0.12	0.01	623.04	0.03	0.00	625.12
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.17	1.92	1.61	0.10	0.09	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.24	1.45	0.07	0.06	0.00	301.77	0.10	0.00	305.01
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	3.14	32.90	24.64	1.06	1.02	0.08	7,294.07	1.72	0.06	7,355.74
Drainage/Utilities/Sub-Grade	tons per phase	0.13	1.41	1.06	0.05	0.04	0.00	312.92	0.07	0.00	315.56

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.23	2.41	1.57	0.07	0.07	0.00	375.26	0.02	0.00	376.62
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.88	0.06	0.06	0.01	917.30	0.30	0.01	927.20
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.30	3.65	2.34	0.10	0.10	0.01	592.67	0.03	0.00	594.67
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.17	3.26	1.31	0.06	0.06	0.01	500.30	0.16	0.00	505.70
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.28	3.66	2.47	0.10	0.10	0.01	623.04	0.02	0.00	625.03
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Off-Highway Trucks	0.97	6.43	6.17	0.22	0.20	0.03	2,559.99	0.83	0.02	2,587.55
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.66	0.08	0.07	0.00	455.07	0.15	0.00	459.98
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.30	3.72	2.50	0.11	0.11	0.01	623.04	0.03	0.00	625.09
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.16	1.91	1.53	0.09	0.08	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.23	1.39	0.06	0.06	0.00	301.92	0.10	0.00	305.17
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Paving	pounds per day	3.06	32.81	23.53	0.99	0.94	0.08	7,293.40	1.72	0.06	7,354.97
Paving	tons per phase	0.07	0.70	0.50	0.02	0.02	0.00	156.44	0.04	0.00	157.76
Total Emissions all Phases (tons per construction period) =>		0.45	4.70	3.50	0.15	0.14	0.01	1,043.04	0.25	0.01	1,051.85

Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		221		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		231		8
Crawler Tractors		212		8
Crushing/Proc. Equipment		85		8
Excavators		158		8
Forklifts		89		8
Generator Sets		84		8
Graders		187		8
Off-Highway Tractors		124		8
Off-Highway Trucks		402		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		168		8
Pavers		130		8
Paving Equipment		132		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		80		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		247		8
Rubber Tired Loaders		203		8
Scrapers		367		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		263		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		97		8
Trenchers		78		8
Welders		46		8

END OF DATA ENTRY SHEET

APPENDIX A-2

Air Quality Analysis for the Wine Country Sewer Project, Southern Alignment

RECON

An Employee-Owned Company

December 7, 2023

Mr. Joseph Broadhead
Eastern Municipal Water District
2270 Trumble Road
P.O. Box 8300
Perris, CA 92572

Reference: Air Quality Analysis for the Wine Country Sewer Project, Southern Alignment (RECON Number 9878-21)

Dear Mr. Broadhead:

The purpose of this report is to assess potential short-term local and regional air quality impacts resulting from development of the Wine Country Sewer Project, Southern Alignment (project) located within the city of Temecula and an unincorporated portion of Riverside County, California. The analysis of impacts is based on state and federal Ambient Air Quality Standards (AAQS) and assessed in accordance with the regional guidelines, policies, and standards and the South Coast Air Quality Management District (SCAQMD), the City of Temecula (City), and the County of Riverside (County).

1.0 Project Description

The Eastern Municipal Water District (District) is proposing to construct a new sewer transmission line and associated laterals that would provide sewer service to an area within the County and the City that is currently utilizing septic systems (Figure 1). Regional access to the project is provided via Interstate 15, located approximately 3.6 miles to the west, and local access is provided via State Route 79. The project site consists of an approximately 4.34-mile segment of De Portola Road, beginning at the intersection with Butterfield Stage Road and extending eastward to the intersection with Pulgas Creek Road (Figure 2). The project is generally bounded by residential developments, agricultural land, and disturbed land, with sparse native habitats occurring along the project alignment.

Figure 3 presents the location of the proposed sewer transmission line within De Portola Road. The sewer transmission line would be constructed primarily within the rights-of-way (ROW) of paved roadways, with the exception of an approximately 1.15-mile segment of De Portola Road that is unpaved. The approximate locations of the sewer transmission lines are shown with a red line, and the aboveground work areas, including trenching and potential construction staging areas, are shown in black cross-hatching. The sewer transmission lines would be constructed primarily with open trench construction, and culvert crossings would be protected in place with supports that allow for undercrossing. Laterals for future connections would be constructed to adjacent property lines. Potential construction staging areas would be located within disturbed land within the ROW adjacent to the roadway, subject to access agreements with private property owners. Roadways impacted during construction would be returned to original grade, and adjacent natural soils impacted during construction would be revegetated with hydroseeding. No night work would occur, nor would temporary/permanent lighting be used. The project would not construct any aboveground structures.

Pipeline installation would occur at 80 feet per day for pipe with standard cover (7.5-foot depth), and at 50 feet per day for pipe deeper than standard cover (greater than 7.5-foot depth). Construction is anticipated to last 18 months. Operation would involve routine sewer video inspections approximately every three years. Operational cleaning using a Vactor truck (sewage vacuum truck) would occur every 3 to 5 years.

It is anticipated that the District would implement the project. This report provides the necessary air quality data and background information required for environmental analysis of the project subject to the California Environmental Quality Act (CEQA). In addition, because the project will be partially funded with the State and Tribal Assistance Grants account of the U.S. Environmental Protection Agency's (U.S. EPA) section of the Consolidated Appropriations Act, the project is subject to federal regulations, including the National Environmental Policy Act (NEPA).

2.0 Environmental Setting

2.1 Regulatory Setting

2.1.1 Federal Regulations

AAQS represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. The federal Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 [42 United States Code (USC) 7401] for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, in order to achieve the purposes of Section 109 of the CAA [42 USC 7409], the U.S. EPA developed primary and secondary National Ambient Air Quality Standards (NAAQS).

Six criteria pollutants of primary concern have been designated: ozone, carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb), and respirable particulate matter (PM_{10} and $PM_{2.5}$). The primary NAAQS ". . . in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health . . . " and the secondary standards ". . . protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air" [42 USC 7409(b)(2)]. The primary NAAQS were established, with a margin of safety, considering long-term exposure for the most sensitive groups in the general population (i.e., children, senior citizens, and people with breathing difficulties). The NAAQS are presented in Table 1 (California Air Resources Board [CARB] 2016).

An air basin is designated as either attainment or non-attainment for a particular pollutant. Once a non-attainment area has achieved the AAQS for a particular pollutant, it is redesignated as an attainment area for that pollutant. To be redesignated, the area must meet air quality standards for three consecutive years. After redesignation to attainment, the area is known as a maintenance area and must develop a 10-year plan for continuing to meet and maintain air quality standards, as well as satisfy other requirements of the federal CAA. The project is located in the South Coast Air Basin (SoCAB). The SoCAB is designated as in attainment or unclassifiable attainment (expected to be meeting the standard despite a lack of monitoring data) for all federal air quality standards except for the 8-hour ozone and $PM_{2.5}$ standards.

2.1.2 State Regulations

Criteria Pollutants

The CARB has developed the California AAQS (CAAQS) and generally has set more stringent limits on the criteria pollutants than the NAAQS (see Table 1). In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride.

Similar to the federal CAA, the state classifies as either "attainment" or "non-attainment" areas for each pollutant based on the comparison of measured data with the CAAQS. The portion of the SoCAB covering the project site is a non-attainment area for the state 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.07 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM_{10})[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		–		
Fine Particulate Matter ($PM_{2.5}$)[9]	24 Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-dispersive Infrared Photometry	35 ppm (40 mg/m^3)	–	Non-dispersive Infrared Photometry
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	–	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemi-luminescence	100 ppb (188 µg/m^3)	–	Gas Phase Chemi-luminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	–	Ultraviolet Fluorescence; Spectro-photometry (Pararosaniline Method)
	3 Hour	–		–	0.5 ppm (1,300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[11]	–	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	–	–	High Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	–		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chroma-tography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chroma-tography			

Table 1
Ambient Air Quality Standards

NOTES:

ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; – = not applicable.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

[8] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[9] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standards of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[12] The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[13] The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

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

SOURCE: CARB 2016.

Toxic Air Contaminants

The public's exposure to toxic air contaminants (TACs) is a significant public health issue in California. Diesel particulate matter (DPM) emissions have been identified as TACs. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (Assembly Bill [AB] 1807: Health and Safety Code Sections 39650–39674). The California Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The California Air Toxics Program establishes the process for the identification and control of TACs and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly Bill) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air.

The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

The Children's Environmental Health Protection Act, California Senate Bill 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. The act requires CARB to review its air quality standards from a children's health perspective, evaluate the statewide air monitoring network, and develop any additional air toxic control measures needed to protect children's health. Locally, toxic air pollutants are regulated through the SCAQMD's Regulation XIV. Of particular concern statewide are DPM emissions. DPM was established as a TAC in 1998 and is estimated to represent a majority of the cancer risk from TACs statewide (based on the statewide average). Diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants program.

Following the identification of DPM as a TAC in 1998, CARB has worked on developing strategies and regulations aimed at reducing the risk from DPM. The overall strategy for achieving these reductions is found in the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (CARB 2000). A stated goal of the plan is to reduce the statewide cancer risk arising from exposure to DPM by 85 percent by 2020.

In April 2005, CARB published the Air Quality and Land Use Handbook: A Community Health Perspective (CARB 2005). The handbook makes recommendations directed at protecting sensitive land uses from air pollutant emissions while balancing a myriad of other land use issues (e.g., housing, transportation needs, economics). Sensitive land uses include but are not limited to, schools, hospitals, residences, resident care facilities, and day-care centers. The handbook is not regulatory or binding on local agencies and recognizes that application takes a qualitative approach. Therefore, the CARB has provided guidelines for the siting of land uses near heavily traveled roadways. Of pertinence to this study, the CARB guidelines indicate that siting new sensitive land uses within 500 feet of a freeway or urban roads with 100,000 or more vehicles/day should be avoided when possible.

As an ongoing process, CARB will continue to establish new programs and regulations for the control of DPM and other air-toxics emissions as appropriate. The continued development and implementation of these programs and policies will ensure that the public's exposure to DPM and other TACs will continue to decline.

State Implementation Plan

The State Implementation Plan (SIP) is a collection of documents that set forth the state's strategies for achieving the NAAQS. In California, the SIP is a compilation of new and previously submitted plans, programs (such as air quality management plans, monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. The CARB is the lead agency for all purposes related to the SIP under state law. Local air districts and other agencies, such as the Department of Pesticide Regulation and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. The CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the Federal Register. All of the items included in the California SIP are listed in the Code of Federal Regulations (CFR) at 40 CFR 52.220.

The California Environmental Quality Act

Section 15125(d) of the CEQA Guidelines requires discussion of any inconsistencies between the project and applicable general plans and regional plans, including the applicable air quality attainment or maintenance plan (or SIP).

2.1.3 Local Regulations

South Coast Air Quality Management District

The SCAQMD is the air pollution control agency in the SoCAB. The role of the local SCAQMD is to protect the people and the environment of the SoCAB from the effects of air pollution. As the SCAQMD is designated as a nonattainment area for state air quality standards for 8-hour ozone, PM_{10}, and $PM_{2.5}$, SCAQMD periodically prepares its Air Quality Management Plan (AQMP) outlining measures to reduce these pollutants. The most recent version is the 2022 AQMP (SCAQMD 2022).

Emissions that would result from mobile, area, and stationary sources during construction and operation of the project are subject to the rules and regulations of SCAQMD. The SCAQMD rules applicable to the project may include the following:

- **Rule 401, Visible Emissions.** This rule establishes the limit for visible emissions from stationary sources.
- **Rule 402, Nuisance.** This rule prohibits the discharge of air pollutants from a facility that cause injury, detriment, nuisance, or annoyance to the public or damage to business or property.
- **Rule 403, Fugitive Dust.** This rule requires fugitive dust sources to implement best available control measures for all sources and prohibits all forms of visible particulate matter from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.
- **Rule 431.2, Sulfur Content of Liquid Fuels.** The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose of reducing the formation of oxides of sulfur (SO_X) and particulates during combustion and of enabling the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary-source applications in the SCAQMD. The rule also affects diesel fuel supplied for mobile sources.
- **Rule 1110.2, Emissions from Gaseous- and Liquid-Fueled Engines.** This rule applies to stationary and portable engines rated at greater than 50 horsepower. The purpose of Rule 1110.2 is to reduce oxides of nitrogen

(NO_X), volatile organic compounds (VOC), and CO emissions from engines. Emergency engines, including those powering standby generators, are generally exempt from the emissions and monitoring requirements of this rule because they have permit conditions that limit operation to 200 hours or less per year as determined by an elapsed operating time meter.

- Rule 1113, Architectural Coatings. This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

Southern California Association of Governments

In September 2020, the Southern California Association of Governments (SCAG) adopted Connect SoCal, the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy. The Connect SoCal plan identifies that land use strategies that focus on new housing and job growth in areas with a variety of destinations and mobility options would support and complement the proposed transportation network. The overarching strategy in Connect SoCal is to provide for a plan that allows the southern California region to grow in more compact communities in transit priority areas and priority growth areas; provide neighborhoods with efficient and plentiful public transit; establish abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and preserve more of the region's remaining natural lands and farmlands (SCAG 2020). The Connect SoCal plan contains transportation projects to help more efficiently distribute population, housing, and employment growth as well as projected development that promotes active transport and reduces GHG emissions.

County of Riverside

The Air Quality Element of the County's General Plan (County of Riverside 2015). contains the following policies related to air quality:

Pollution Control Policies:

Multi-jurisdictional Cooperation

AQ 1.1 Promote and participate with regional and local agencies, both public and private, to protect and improve air quality.

AQ 1.2 Support Southern California Association of Government's (SCAG) Regional Growth Management Plan by developing intergovernmental agreements with appropriate governmental entities such as the Western Riverside Council of Governments (WRCOG), the Coachella Valley Association of Governments (CVAG), sanitation districts, water districts, and those subregional entities identified in the Regional Growth Management Plan.

AQ 1.3 Participate in the development and update of those regional air quality management plans required under federal and state law, and meet all standards established for clean air in these plans.

AQ 1.4 Coordinate with the SCAQMD and Mojave Desert Air Quality Management District (MDAQMD) to ensure that all elements of air quality plans regarding reduction of air pollutant emissions are being enforced.

AQ 1.5 Establish and implement air quality, land use and circulation measures that improve not only the County's environment but the entire region.

AQ 1.6 Establish a level playing field by working with local jurisdictions to simultaneously adopt policies similar to those in this Air Quality Element.

AQ 1.7 Support legislation which promotes cleaner industry, clean fuel vehicles and more efficient burning engines and fuels.

AQ 1.8 Support the introduction of federal, state or regional enabling legislation to permit the County to promote inventive air quality programs, which otherwise could not be implemented.

AQ 1.9 Encourage, publicly recognize and reward innovative approaches that improve air quality.

AQ 1.10 Work with regional and local agencies to evaluate the feasibility of implementing a system of charges (e.g., pollution charges, user fees, congestion pricing and toll roads) that requires individuals who undertake polluting activities to bear the economic cost of their actions where possible.

AQ 1.11 Involve environmental groups, the business community, special interests, and the general public in the formulation and implementation of programs that effectively reduce airborne pollutants.

Sensitive Receptors

AQ 2.1 The County land use planning efforts shall assure that sensitive receptors are separated and protected from polluting point sources to the greatest extent possible.

AQ 2.2 Require site plan designs to protect people and land uses sensitive to air pollution through the use of barriers and/or distance from emissions sources when possible.

AQ 2.3 Encourage the use of pollution control measures such as landscaping, vegetation and other materials, which trap particulate matter or control pollution.

AQ 2.4 Consider creating a program to plant urban trees on an Area Plan basis that removes pollutants from the air, provides shade and decreases the negative impacts of heat on the air.

Mobile Pollution Sources

AQ 3.1 Allow the market place, as much as possible, to determine the most economical approach to relieve congestion and cut emissions.

AQ 3.2 Seek new cooperative relationships between employers and employees to reduce vehicle miles traveled.

AQ 3.3 Encourage large employers and commercial/industrial complexes to create Transportation Management Associations.

AQ 3.4 Encourage employee rideshares and transit incentives for employers with more than 25 employees at a single location.

Stationary Pollution Sources

AQ 4.1 Require the use of all feasible building materials/methods which reduce emissions.

AQ 4.2 Require the use of all feasible efficient heating equipment and other appliances, such as water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces and boiler units.

AQ 4.3 Require centrally heated facilities to utilize automated time clocks or occupant sensors to control heating where feasible.

AQ 4.4 Require residential building construction to comply with energy use guidelines detailed in Part 6 (California Energy Code) and/or Part 11 (California Green Building Standards Code) of Title 24 of the California Code of Regulations.

AQ 4.5 Require stationary pollution sources to minimize the release of toxic pollutants through:

- Design features;
- Operating procedures;
- Preventive maintenance;
- Operator training; and
- Emergency response planning

AQ 4.6 Require stationary air pollution sources to comply with applicable air district rules and control measures.

AQ 4.7 To the greatest extent possible, require every project to mitigate any of its anticipated emissions which exceed allowable emissions as established by the SCAQMD, MDAQMD, SoCAB, the Environmental Protection Agency and the California Air Resources Board.

AQ 4.8 Expand, as appropriate, measures contained in the County's Fugitive Dust Reduction Program for the Coachella Valley to the entire County.

AQ 4.9 Require compliance with SCAQMD Rules 403 and 403.1, and support appropriate future measures to reduce fugitive dust emanating from construction sites.

AQ 4.10 Coordinate with the SCAQMD and MDAQMD to create a communications plan to alert those conducting grading operations in the County of first, second, and third stage smog alerts, and when wind speeds exceed 25 miles per hour. During these instances all grading operations should be suspended.

Energy Efficiency and Conservation

AQ 5.1 Utilize source reduction, recycling and other appropriate measures to reduce the amount of solid waste disposed of in landfills.

AQ 5.2 Adopt incentives and/or regulations to enact energy conservation requirements for private and public developments.

AQ 5.3 Update, when necessary, the County's Policy Manual for Energy Conservation to reflect revisions to the County Energy Conservation Program.

AQ 5.4 Encourage the incorporation of energy-efficient design elements, including appropriate site orientation and the use of shade and windbreak trees to reduce fuel consumption for heating and cooling.

City of Temecula

The Air Quality Element of the City's General Plan (City of Temecula 2005) contains the following policies related to air quality:

Goal 1 – Continue coordination of air quality improvement efforts in the Western Riverside area.

Policy 1.1 – Coordinate planning efforts with other local, regional and State agencies, including the County of Riverside, WRCOG, SCAQMD and SoCAB.

Policy 1.2 - Encourage participation of local citizens, the business community and interested groups and individuals in air quality planning and implementation efforts.

Policy 1.3 – Promote programs that educate the public about regional air quality issues, opportunities and solutions.

Goal 2 – Improve air quality through effective land use planning in Temecula.

Policy 2.1 – Encourage new development that provides employment opportunities for Temecula residents to improve the balance of jobs relative to housing.

Policy 2.2 – Encourage infill development near activity centers, within Mixed Use Overlay Areas, and along transportation corridors.

Policy 2.3 – Minimize land use conflicts between emission sources and sensitive receptors.

Policy 2.4 – Mitigate air quality impacts associated with development projects to the greatest extent feasible.

Goal 3 – Enhance mobility to minimize air pollutant emissions.

Policy 3.1 – Use transportation demand reduction techniques to reduce motor vehicle trips.

Policy 3.2 – Use transportation systems management techniques to maintain an orderly flow of traffic and improve mobility.

Policy 3.3 – Pursue development of a public transit system consisting of local shuttle and bus routes, as well as bicycle and pedestrian trails that are linked to the regional transit network.

Policy 3.4 – Establish a convenient and efficient system of bicycle routes and pedestrian walkways.

Policy 3.5 – Promote the use of alternative clean-fueled vehicles, new transportation technologies, and combustion engine alternatives for personal and business use.

Policy 3.6 – Develop and implement programs that reduce local traffic congestion at peak hours and during special events.

Goal 4 – Adopt effective energy conservation and recycling practices to reduce emissions.

Policy 4.1 – Encourage community-wide reductions in energy consumption through conservation.

Policy 4.2 – Promote local recycling of wastes and the use of recycled materials.

Policy 4.3 – Encourage energy-efficient design in new development projects.

2.2 Existing Air Quality

2.2.1 Climate and Meteorology

The project is located approximately 40 miles east of the Pacific Ocean, within Riverside County, between the Santa Ana Mountains and the San Jacinto Mountains. Air quality in the county is influenced by both topographical and meteorological conditions.

The county, like other inland valley areas in southern California, has a Mediterranean climate characterized by warm, dry summers and mild winters. Based on measurements taken at the Perris climate monitoring station (ID 047473), the average annual precipitation is 9.86 inches, falling primarily from November to April (Western Regional Climate Center 2023). Overall annual temperatures in the project area average about 65 degrees Fahrenheit (°F), winter low temperatures average about 42°F, and summer high temperatures average about 92°F.

The dominant meteorological feature affecting the region is the Pacific High Pressure Zone, which produces the prevailing westerly to northwesterly winds. These winds tend to blow pollutants away from the coast toward the inland areas. Consequently, air quality near the coast is generally better than that which occurs at the base of the coastal mountain range.

The prevailing westerly wind pattern is sometimes interrupted by regional "Santa Ana" conditions. A Santa Ana occurs when a strong high pressure develops over the Nevada–Utah area and overcomes the prevailing westerly coastal winds, sending strong, steady, hot, dry northeasterly winds over the mountains and out to sea.

2.2.2 Background Air Quality

The state of California is divided geographically into 15 air basins for managing the air resources of the state on a regional basis. The project is located in the SoCAB, which includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The SoCAB is designated as in attainment or unclassifiable attainment (expected to be meeting the standard despite a lack of monitoring data) for all federal air quality standards except 8-hour ozone and $PM_{2.5}$ standards. The SoCAB is designated as in nonattainment for state air quality standards for 8-hour ozone, PM_{10}, and $PM_{2.5}$.

Air quality is commonly expressed as the number of days in which air pollution levels exceed state standards set by CARB or federal standards set by the U.S. EPA. SCAQMD has divided its jurisdictional territory of the SoCAB into 38 Source Receptor Areas (SRAs), most of which have monitoring stations that collect air quality data. These SRAs are designated to provide a general representation of the local meteorological, terrain, and air quality conditions within a particular geographical area, such as urbanized regions, interior valleys, coastal areas, and mountains. The SCAQMD maintains 41 active air quality monitoring sites located throughout the SoCAB. Air pollutant concentrations and meteorological information are continuously recorded at these stations. Measurements are then used by scientists to help forecast daily air pollution levels.

The monitoring station closest to the project site is the Temecula monitoring station, located approximately 3 miles south of the project site at 12705 Pechanga Road. The Temecula monitoring station measures ozone and NO_X. The nearest monitoring station that measures PM_{10} is the Lake Elsinore monitoring station located approximately 19 miles northwest of the project site at 5060 West Flint Street. The nearest monitoring station that has limited $PM_{2.5}$ measurements is the Winchester monitoring station located approximately 6 miles north of the project site at 33700 Borel Road. Table 2 provides a summary of measurements collected at these monitoring stations for the years 2020 through 2022.

Table 2 Summary of Air Quality Measurements Recorded at the Perris and Lake Elsinore Air Quality Monitoring Stations			
Pollutant/Standard	2020	2021	2022
Temecula Monitoring Station			
Ozone			
Federal Max 8-hr (ppm)	0.079	0.078	0.080
Days 2015 Federal 8-hour Standard Exceeded (0.07 ppm)	20	3	5
Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm)	7	2	1
State Max 8-hr (ppm)	0.080	0.078	0.081
Days State 8-hour Standard Exceeded (0.07 ppm)	20	3	5
Max. 1-hour (ppm)	0.104	0.087	0.097
Days State 1-hour Standard Exceeded (0.09 ppm)	2	0	1
Nitrogen Dioxide			
Max 1-hour (ppm)	0.0298	0.0242	0.0229
Days State 1-hour Standard Exceeded (0.18 ppm)	0	0	0
Days Federal 1-hour Standard Exceeded (0.100 ppm)	0	0	0
Annual Average (ppm)	--	0.003	--
Lake Elsinore Monitoring Station			
PM_{10}*			
Federal Max. Daily ($\mu g/m^3$)	192.4	90.0	91.8
Measured Days Federal 24-hour Standard Exceeded (150 $\mu g/m^3$)	1	0	0
Calculated Days Federal 24-hour Standard Exceeded (150 $\mu g/m^3$)	1.0	0.0	0.0
Federal Annual Average ($\mu g/m^3$)	23.7	22.4	20.3
State Max. Daily ($\mu g/m^3$)	--	--	--
Measured Days State 24-hour Standard Exceeded (50 $\mu g/m^3$)	--	--	--
Calculated Days State 24-hour Standard Exceeded (50 $\mu g/m^3$)	--	--	--
State Annual Average ($\mu g/m^3$)	--	--	--
Winchester Monitoring Station			
Ozone			
Federal Max 8-hr (ppm)	0.091	0.083	0.079
Days 2015 Federal 8-hour Standard Exceeded (0.07 ppm)	37	10	3
Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm)	20	6	2
State Max 8-hr (ppm)	0.091	0.084	0.079
Days State 8-hour Standard Exceeded (0.07 ppm)	39	11	4
Max. 1-hour (ppm)	0.108	0.095	0.087
Days State 1-hour Standard Exceeded (0.09 ppm)	5	1	0
$PM_{2.5}$*			
Federal Max. Daily ($\mu g/m^3$)	--	--	--
Measured Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$)	--	--	--
Calculated Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$)	--	--	--
Federal Annual Average ($\mu g/m^3$)	--	--	--
State Max. Daily ($\mu g/m^3$)	37.1	26.9	20.3
State Annual Average ($\mu g/m^3$)	9.5	8.8	8.5

SOURCE: CARB 2023.
ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; -- = Not available.
* Calculated days value. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

3.0 Thresholds of Significance

The significance of the project's air quality impacts were evaluated using CEQA Guidelines. In addition, because the project will be partially funded with the State and Tribal Assistance Grants account of the U.S. EPA's section of the Consolidated Appropriations Act, the project is subject to federal regulations, including NEPA.

3.1 CEQA

Thresholds used to evaluate potential impacts to air quality are based on applicable criteria in the CEQA Guidelines Appendix G. The project would have a significant air quality impact if it would:

1. Obstruct or conflict with the implementation of the applicable air quality plan.

2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standards (including the release of emissions which exceed quantitative thresholds for ozone precursors).

3. Expose sensitive receptors to substantial pollutant concentration including air toxics.

4. Create objectionable odors affecting a substantial number of people.

3.1.1 Regional Significance Thresholds

The SCAQMD has established significance thresholds to assess the regional and localized impacts of project-related air pollutant emissions. These significance thresholds are updated as needed to appropriately represent the most current technical information and attainment status in the SoCAB. The County uses the current SCAQMD thresholds to determine whether a project would have a significant impact. SCAQMD's significance thresholds for impacts to regional air quality are shown in Table 3.

Table 3
SCAQMD Air Quality Significance Thresholds – Mass Daily Thresholds

Pollutant	Emissions (pounds)	
	Construction	Operational
Oxides of Nitrogen (NO_X)	100	55
Volatile Organic Compounds (VOC)	75	55
Coarse Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Oxides of Sulfur (SO_X)	150	150
Carbon Monoxide (CO)	550	550
Lead (Pb)	3	3
SOURCE: SCAQMD CEQA Air Quality Handbook (SCAQMD 1993); SCAQMD Air Quality Significance Thresholds (SCAQMD 2023)		

3.1.2 Localized Significance Thresholds

The SCAQMD's Final Localized Significance Threshold (LST) Methodology was developed as a tool to assist lead agencies to analyze localized air quality impacts to sensitive receptors in the vicinity of the project (SCAQMD 2008). The LST Methodology outlines how to analyze localized impacts from common pollutants of concern including NO_2,

CO, PM_{10}, and $PM_{2.5}$. Localized air quality impacts would occur if pollutant concentrations at sensitive receptors exceeded applicable NAAQS or CAAQS.

LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest residence or sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its air quality impact analyses. The significance of localized emissions impacts depends on whether ambient levels in the vicinity of any given project are above or below state standards. In the case of CO and NO_2, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM_{10} and $PM_{2.5}$, both of which are non-attainment pollutants.

3.2 NEPA

The General Conformity Rule requires that federal agencies demonstrate that actions would conform to the applicable SIP, by either determining that the action is exempt from the General Conformity Rule requirements or subject to a formal conformity determination. This requires analysis of the total direct and indirect emissions of criteria pollutants and their precursors for which an area is designated non-attainment or covered by a maintenance plan. The total direct and indirect emissions are the net emission increases in the non-attainment or maintenance area caused by the action. The emissions must be reasonably foreseeable at the time the conformity determination is made. For indirect emissions, the federal agency also must be able to practicably control the emissions based upon the agency's continuing program responsibility. If the emissions resulting from an action would not exceed applicable General Conformity *de minimis* levels, then the action would conform to the applicable SIP and no further analysis would be required. If emissions resulting from an action would exceed applicable General Conformity *de minimis* levels, then a formal Air Quality Conformity Analysis would be required.

The project site is located within the SoCAB, which is a federal non-attainment area for 8-hour ozone (extreme) and $PM_{2.5}$ (serious) as well as a maintenance area for CO. Therefore, the General Conformity Rule is applicable to the project emissions of CO and ozone precursors (reactive organic gases [ROG] and NO_X). The General Conformity *de minimis* levels applicable to the SoCAB are shown in Table 4.

Table 4
General Conformity *De Minimis* Limits

Pollutant	Designation Category	Emissions (Tons/Year)
Ozone Precursors (VOC or NO_X)	Non-attainment (Extreme)	10
Fine Particulate Matter ($PM_{2.5}$)	Non-attainment (Serious)	70
Carbon Monoxide (CO)	Attainment (Maintenance)	100

SOURCE: 40 CFR 93.53(b)(1) and 40 CFR 93.53(b)(2)
VOC = volatile organic compound; NOx = oxides of nitrogen; CO = carbon monoxide

The first significance criteria above, whether the project would obstruct or conflict with the implementation of the applicable air quality plan, is addressed by the assessment of General Conformity Rule compliance. The applicable General Conformity *de minimis* levels are established based on the attainment status of the project region. Therefore, the second significance criteria above, whether the project would result in a cumulatively considerable net increase of

any criteria pollutant for which the project region is a non-attainment area, is also addressed by the assessment of General Conformity Rule compliance.

General Conformity *de minimis* levels are also appropriate guidelines for the determination of an air quality impact under NEPA. A NEPA air quality analysis differs from the General Conformity Rule analysis in that both attainment pollutant emissions and non-attainment pollutant emissions are considered in the analysis. Therefore, in addition to the non-attainment pollutant emissions, emissions of SO_X, and PM_{10} are included in the NEPA analysis. The appropriate NEPA criteria are SCAQMD significance thresholds (see Table 3).

4.0 Emission Calculations

4.1 Construction Regional Emissions

Sewer pipeline construction would result in short-term emissions. Project operation would result in emissions related to minor vehicle/equipment use associated with routine inspection and maintenance. Routine sewer video inspection would occur approximately every three years, and cleaning would occur every five to ten years. These operational activities would be conducted by existing District employees. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible. Therefore, this analysis focuses on emissions associated with construction activities.

Emissions associated with pipeline construction were modeled using the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Roadway Construction Emissions Model (RCEM) Version 9.0.1 (SMAQMD 2022). The RCEM is a spreadsheet-based model that is able to use basic project information (e.g., total construction months, project type, total project area) to estimate a construction schedule and quantify exhaust emissions from heavy-duty construction equipment, haul trucks, and worker commute trips associated with linear construction projects. Version 9.0.1 of the model incorporates the most currently approved 2017 Emission Factor (EMFAC2017) model and Off-Road emissions factors model. The 2021 Emission Factor (EMFAC2021) model was released in January 2021; however, EMFAC2021 has not yet been approved for use by the U.S. EPA. EMFAC2017 is the most recent version of the model approved by the U.S. EPA, and was therefore used in this analysis. Use of EMFAC2021 would not result in emissions that are substantially different than those calculated in this analysis, particularly since the main source of emissions would be construction equipment, which are calculated using the Off-Road emissions factor model methodologies incorporated into RCEM. Although RCEM was developed by SMAQMD, it is appropriate for use in the SCAQMD jurisdiction because it is applicable for all statewide construction projects that involve construction equipment that is subject to CARB construction equipment emissions standards and incorporates statewide emission factor models (EMFAC2017 and Off-Road). RCEM calculates fugitive dust, exhaust, and off-gas emissions from grubbing/land clearing, grading/excavation, drainage/utilities/sub-grade, and paving activities associated with construction projects that are linear in nature (e.g., road or levee construction, pipeline installation, transmission lines).

Construction is expected to begin in 2024 and last approximately 18 months. The pipeline alignment would consist of a total of approximately 4.34 miles (22,915 linear feet) of sewer transmission lines. The total project area is 5.24 acres. Excavated soil would likely be replaced in the trench once the new pipeline is replaced; however, to be conservative, hauling was included in the analysis. Hauling emissions associated with asphalt removal were calculated assuming a total of 780 cubic yards of asphalt export (3.19 miles of paved road, 5 feet wide, and 3 inches deep). Hauling emissions associated with soil removal were calculated assuming half the excavated soil would be hauled, for a total of 21,218 cubic yards of soil export (4.34 miles long, 5 feet wide, and 10 feet deep). Asphalt hauling was modeled over the duration of the 1.8-month grubbing/land clear phase, and soil hauling was modeled over the duration of the 8.1-month grading/excavation phase. Modeled construction equipment is summarized in Table 5. This equipment was modeled during each phase of construction. Two signal boards, a water truck, dump trucks used for asphalt and soil

hauling, and employee vehicles were also included in the emission calculations. Based on RCEM default values, project construction would require up to 30 workers per day.

Table 5 Construction Equipment	
Equipment	Number
Backhoe/loader	1
Hydraulic excavator	1
Utility truck	1
Water truck	1
Compressor	1
Pick-up trucks	1
Concrete saw	1
Pavement breaker	1
Sweeper	1
Paver	1
Generator	1
NOTE: Each phase would also include vehicles associated with work commutes, a water truck, and dump trucks for hauling.	

The maximum daily construction emissions are summarized in Table 6,. Attachment 1 contains the RCEM calculations for this project. Attachment 1 also contains detailed calculations showing how the project size and hauling quantities were calculated. As shown in Table 6, maximum daily construction emissions would be less than the SCAQMD screening level thresholds.

Table 6 Maximum Daily Construction Emissions (pounds per day)						
	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Grubbing/Land Clearing	2.43	19.09	27.25	0.06	1.90	1.03
Grading/Excavation	2.52	20.24	28.67	0.07	2.00	1.07
Drainage/Utilities/Sub-Grade	2.39	18.01	27.84	0.06	1.86	0.97
Paving	2.32	17.41	27.43	0.06	0.80	0.72
Maximum Daily Emissions	**2.52**	**20.24**	**28.67**	**0.07**	**2.00**	**1.07**
SCAQMD Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No
ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns						

The total construction emissions for all phases over the 18-month construction period are summarized in Table 7. All required construction equipment was modeled 8 hours a day, 5 days per week over the entire 18 month construction period. To determine the maximum annual construction emissions for comparison to the General Conformity *de minimis* levels, total construction emissions were multiplied by a factor of ⅔ (12 months ÷ 18 months). As shown, total annual emissions would be less than the General Conformity *de minimis* levels.

Table 7 Total Construction Emissions						
	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Grubbing/Land Clearing (tons)	0.05	0.38	0.54	0.00	0.04	0.02
Grading/Excavation (tons)	0.22	1.80	2.55	0.01	0.18	0.10
Drainage/Utilities/Sub-Grade (tons)	0.14	1.07	1.65	0.00	0.11	0.06
Paving (tons)	0.07	0.52	0.81	0.00	0.02	0.02
Total Emissions (tons)	**0.48**	**3.77**	**5.56**	**0.01**	**0.35**	**0.19**
Total Annual Emissions (tons per year)	**0.32**	**2.51**	**3.71**	**0.01**	**0.23**	**0.13**
General Conformity de minimis level (tons per year)	*10*	*10*	*100*	--	*70*	--
Significant Impact?	No	No	No	No	No	No
ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns						

4.2 Localized Significance Thresholds

The project site is located within Temecula Valley SRA 26. LSTs apply to on-site air emissions of CO, NO_2, PM_{10}, and $PM_{2.5}$. Based on the SCAQMD's Fact Sheet for Applying CalEEMod to Localized Significance Thresholds (Fact Sheet), the appropriate methodology for determining localized impacts that could occur as a result of project-related construction, should follow these steps:

- Use CalEEMod to determine the maximum daily on-site emissions that will occur during construction activity.
- The SCAQMD's Fact Sheet is used to determine the maximum site acreage that is actively disturbed based on the construction equipment fleet and equipment hours as estimated in CalEEMod.
- If the total calculated acreage is less than or equal to five acres, then the SCAQMD's screening look-up tables may be utilized to determine the potential for significant impacts. The look-up tables establish a maximum daily emissions threshold in pounds per day to be directly compared to CalEEMod emission results.
- If the total acreage disturbed is greater than five acres per day, then the SCAQMD recommends dispersion modeling to be conducted to determine the actual pollutant concentrations for applicable LSTs.

Additionally, the LST Methodology (SCAQMD 2008) states that only on-site emissions should be compared to LSTs. Therefore, off-site emissions associated with worker travel, materials deliveries, and other mobile sources are not evaluated against LSTs.

The maximum on-site daily construction emissions for CO, NO_X, PM_{10}, and $PM_{2.5}$ are compared to the applicable screening thresholds based on construction site acreage and the distance to the closest sensitive receptor. Residential uses are located adjacent to the proposed alignment as close as approximately 50 feet from the pipeline. The project would disturb up to 80 linear feet per day with a work area width of 20 feet, for a total area of approximately 0.1 acre rounded up. The SCAQMD's LST look-up tables provide LSTs for one-, two-, and five-acre sites. The closest receptor distance in LST look-up tables is 25 meters. The LSTs for receptors located at 25 meters from a one-acre site were conservatively used.

The maximum daily localized emissions from project construction and LSTs are presented in Table 8. As shown in Table 8, the maximum localized construction emissions would not exceed any of the SCAQMD recommended localized screening thresholds.

Table 8
Localized Construction Emissions

	Pollutant			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Maximum On-Site Daily Emission	20.24	28.67	2.00	1.07
LST Threshold	162	750	4	3
Exceeds Threshold?	No	No	No	No

NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns

5.0 Air Quality Impact Analysis

5.1 CEQA

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

The SoCAB is designated as in attainment or unclassifiable attainment (expected to be meeting the standard despite a lack of monitoring data) for all federal air quality standards except for the 8-hour ozone and $PM_{2.5}$ standards. The SoCAB is also designated as in nonattainment for state air quality standards for 8-hour ozone and $PM_{2.5}$, and additionally is in nonattainment of state PM_{10} standards. The regional air quality plan, the 2022 AQMP, outlines measures to reduce emissions of ozone and $PM_{2.5}$. Whereas reducing PM concentrations is achieved by reducing emissions of $PM_{2.5}$ to the atmosphere, reducing ozone concentrations is achieved by reducing the precursors of photochemical formation of ozone, VOC, and NO_X.

The growth forecast for the 2022 AQMP is based in part on the land uses established by local general plans. Thus, if a project is consistent with land use as designated in the local general plan, it can normally be considered consistent with the 2022 AQMP. Projects that propose a different land use than is identified in the local general plan may also be considered consistent with the 2022 AQMP if the proposed land use is less intensive than buildout under the current designation. For projects that propose a land use that is more intensive than the current designation, analysis that is more detailed is required to assess conformance with the 2022 AQMP.

The project does not include growth-generating components, but rather would provide sewer service to existing development that is currently utilizing septic systems. As such, the project would be consistent with growth projections contained in the County's General Plan, the City's General Plan, and AQMP forecasts. Based on these considerations and pursuant to SCAQMD guidelines, project-related emissions are accounted for in the AQMP.

Another factor used to determine if a project would conflict with implementation of the 2022 AQMP is determining if the project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards (NAAQS and CAAQS) or interim emissions reductions specified in the 2022 AQMP. NAAQS and CAAQS violations could occur if project emissions exceed regional significance thresholds or LSTs. As shown in Tables 6 through 8, construction emissions would not exceed the regional significance thresholds, General Conformity *de minimis* levels, or the LSTs. After installation of the underground pipeline, there would be occasional inspection and maintenance trips. Routine sewer video inspection would occur approximately every three years, and cleaning would occur every five to ten years. These operational

activities would be conducted by existing District employees. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible. Therefore, the project would not conflict with or obstruct the implementation of the 2022 AQMP or applicable portions of the SIP, and impacts would be less than significant.

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

The SoCAB is designated as a nonattainment area for federal AAQS for the 8-hour ozone and $PM_{2.5}$ standards, and is in nonattainment area under state 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards. Ozone is not emitted directly but is a result of atmospheric activity on precursors. NO_X and ROG are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone.

Based on SCAQMD cumulative significance methodologies, the emissions-based thresholds shown in Table 3 are used to determine if a project's contribution to regional cumulative emissions is cumulatively considerable. These thresholds were used to assess the significance of the project-specific and cumulative air quality impacts. Air quality impacts are basin-wide, and air quality is affected by all pollutant sources in the SoCAB. As the individual project thresholds are designed to help achieve attainment with cumulative basin-wide standards, they are also appropriate for assessing the project's contribution to cumulative impacts.

As shown in Table 6, emissions of ozone precursors (ROG and NO_X), PM_{10}, and $PM_{2.5}$ during construction of the project would not exceed the SCAQMD's thresholds of significance. These thresholds are designed to provide limits below which project emissions from an individual project would not significantly affect regional air quality or the timely attainment of the NAAQS and CAAQS. Therefore, project construction would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

As discussed above, after installation of the underground pipeline, there would be occasional inspection and maintenance trips. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible. Therefore, project operation would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

3. *Would the project expose sensitive receptors to substantial pollutant concentration including air toxics such as diesel particulates?*

A sensitive receptor is a person in the population who is more susceptible to health effects due to exposure to an air contaminant than is the population at large. Examples of sensitive receptor locations in the community include residences, schools, playgrounds, childcare centers, churches, athletic facilities, retirement homes, and long-term health care facilities. The nearest sensitive receptors are the residential uses located as close as 60 feet from the proposed alignment.

The two primary emissions of concern regarding health effects for land development projects are DPM and CO. Projects that would site sensitive receptors near potential CO hotspots or would contribute vehicle traffic to local intersections where a CO hotspot could occur would be considered as having a potentially significant impact.

Diesel Particulate Matter – Construction

Construction of the pipeline would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. Construction of the pipeline would result in the generation of diesel exhaust DPM emissions from the use of off-road diesel equipment required for construction activities and on-road diesel equipment used to bring materials to and from the project site.

Generation of DPM from construction projects typically occurs in a single area for a short period. Construction is anticipated to last for approximately 18 months. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Although the alignment is located adjacent to residential uses, construction equipment would only be located adjacent to a particular sensitive receptor for a matter of days or weeks since work would move along the alignment at an average rate of 50 to 80 feet per day. Thus, the duration of proposed construction activities near any specific sensitive receptor would be minimal, and would be significantly less than the 30-year exposure period used in health risk assessments.

Additionally, with ongoing implementation of U.S. EPA and CARB requirements for cleaner fuels; off-road diesel engine retrofits; and new, low-emission diesel engine types, the DPM emissions of individual equipment would be reduced over time. All construction equipment is subject to the CARB In-Use Off-Road Diesel-Fueled Fleets Regulation, which limits unnecessary idling to 5 minutes, requires all construction fleets to be labeled and reported to CARB, bans Tier 0 equipment and phases out Tier 1 and 2 equipment (thereby replacing fleets with cleaner equipment), and requires that fleets comply with Best Available Control Technology requirements. Therefore, due to the limited duration of construction activities, the limited amount of time equipment would be located adjacent to any specific sensitive receptor, and implementation of the In-Use Off-Road Diesel-Fueled Fleets Regulation, DPM generated by project construction is not expected to create conditions where the probability is greater than 10 in 1 million of contracting cancer for the Maximally Exposed Individual, or to generate ground-level concentrations of non-carcinogenic TACs that exceed a Hazard Index greater than 1 for the Maximally Exposed Individual. Therefore, project construction would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant.

Carbon Monoxide Hot Spots

A CO hot spot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. CO hot spots have the potential to violate state and federal CO standards at intersections, even if the broader basin is in attainment for federal and state levels. CO hot spots occur nearly exclusively at signalized intersections operating at level of service (LOS) E or F. Due to increased requirements for cleaner vehicles, equipment, and fuels, CO levels in the state have dropped substantially. All air basins are attainment or maintenance areas for CO. Therefore, more recent screening procedures based on more current methodologies have been developed. The SMAQMD developed a screening threshold in 2011, which states that any project involving an intersection experiencing 31,600 vehicles per hour or more will require detailed analysis. In addition, the Bay Area Air Quality Management District developed a screening threshold in 2010 which states that any project involving an intersection experiencing 44,000 vehicles per hour would require detailed analysis.

Project construction would generate vehicle trips in the form of trucks and worker commute vehicles. Based on the RCEM emission calculations prepared for project construction, up to 30 daily worker trips would occur during peak construction activities. As discussed above, CO hot spots occur nearly exclusively at signalized intersections operating at LOS E or F. The only signalized intersection in the vicinity of the project site is the intersection of De Portola Road and Butterfield Stage Road. However, construction activities would occur just east of the intersection, and volumes at this intersection are well less than 31,600 vehicle per hour. The addition of 30 worker trips to other intersections used to access the project site would not cause an intersection to operate at a failing LOS and would not significantly

increase peak hourly volumes. Construction vehicle generation would also be temporary. Therefore, project construction would not generate CO hot spots, and impacts would be less than significant.

4. *Would the project result in other emissions, such as those leading to odors adversely affecting a substantial number of people?*

The potential for an odor impact is dependent on a number of variables, including the nature of the odor source, distance between the receptor and odor source, and local meteorological conditions. During construction, diesel equipment may generate some nuisance odors from equipment exhaust. Additionally, paving activities have the potential to generate odors while laying asphalt. Sensitive receptors near the project site/pipeline alignment include residential uses. However, exposure to odors associated with project construction would be short-term and temporary in nature. In addition, construction activities within the project site would be required to comply with SCAQMD Rule 402, which prohibits the discharge of odorous emissions that would create a public nuisance. Further, per CARB's Airborne Toxic Control Measures 13 (California Code of Regulations Chapter 10 Section 2485), the applicant shall not allow idling time to exceed five minutes unless more time is required per engine manufacturers' specifications or for safety reasons. Compliance with this regulation would reduce odors from equipment exhaust. Given the short-term nature of construction, compliance with SCAQMD Rule 402, and the distance to the nearest sensitive receptors, project construction would not generate odors that would affect a substantial number of people, and impacts would be less than significant.

The following list provides some common types of facilities that are known producers of objectionable odors (Bay Area Air Quality Management District 2017). This list of facilities is not meant to be all-inclusive.

- Wastewater Treatment Plant
- Wastewater Pumping Facilities
- Sanitary Landfill
- Transfer Station
- Composting Facility
- Petroleum Refinery
- Asphalt Batch Plant
- Chemical Manufacturing
- Fiberglass Manufacturing
- Painting/Coating Operations
- Rendering Plant
- Coffee Roaster
- Food Processing Facility
- Confined Animal Facility/Feed Lot/Dairy
- Green Waste and Recycling Operations
- Metal Smelting Plants

The project does not include any of these uses that are typically associated with odor complaints. There would be no operational source of odors associated with the project, as the sewer pipeline would be completely enclosed and underground. Therefore, project operation would not generate substantial amounts of odors adversely affecting a substantial number of people, and impacts would be less than significant.

5.2 NEPA

As described in Section 3.2 above, the General Conformity Rule requires that federal agencies demonstrate that actions would conform to the applicable SIP, by either determining that the action is exempt from the General Conformity Rule requirements or subject to a formal conformity determination. This requires analysis of the total direct and indirect emissions of criteria pollutants and their precursors for which an area is designated non-attainment or covered by a maintenance plan. The project site is located within the SoCAB, which is a federal non-attainment area for 8-hour ozone (extreme) and $PM_{2.5}$ (serious) as well as a maintenance area for CO. Therefore, the General Conformity Rule is applicable to the project emissions of CO and ozone precursors (ROG and NO_X). Furthermore. A NEPA air quality analysis differs from the General Conformity Rule analysis in that both attainment pollutant emissions and non-attainment pollutant emissions are considered in the analysis. Therefore, in addition to the non-attainment pollutant emissions, emissions of SO_X, and PM_{10} are included in the NEPA analysis, which utilizes the SCAQMD significance thresholds (see Table 3).

As shown in Table 6, construction emissions would not exceed the SCAQMD significance thresholds, and therefore would not result in exceedance of the applicable NEPA thresholds. As shown in Table 7, construction emissions would not exceed the General Conformity *de minimis* levels. After installation of the underground pipeline, there would be occasional inspection and maintenance trips. Routine sewer video inspection would occur approximately every three years, and cleaning would occur every five to ten years. These operational activities would be conducted by existing District employees. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible. Therefore, the project would not exceed applicable General Conformity *de minimis* levels and would conform to the applicable SIP. No further analysis would be required.

6.0 Conclusions

The project's potential to result in impacts to air quality was assessed in accordance with the guidelines, policies, and standards established by the County and the SCAQMD. The SCAQMD prepared the 2022 AQMP, which represents its contribution to the SIP, to outline the district's strategy for achieving attainment of federal and state AAQS. The 2022 AQMP provides an overview of air quality and sources of air pollution and identifies the pollution-control measures needed to meet clean air standards. As discussed in this analysis, the project does not include growth-generating components, but rather would provide sewer service to existing development that is currently utilizing septic systems. Therefore, the project would not result in an exceedance of the growth forecasting used to develop the 2022 AQMP. Additionally, the project would not result in an air quality violation. Therefore, the project would not conflict with or obstruct the implementation of the 2022 AQMP or applicable portions of the SIP, and impacts would be less than significant.

As shown in Tables 6 through 8 above, project construction would not exceed the SCAQMD's regional emissions thresholds of significance, the General Conformity *de minimis* levels, or the SCAQMD LSTs. After installation of the underground pipeline, there would be occasional inspection and maintenance trips. Routine sewer video inspection would occur approximately every three years, and cleaning would occur every five to ten years. These operational activities would be conducted by existing District employees. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible. Therefore, construction and operation of the project would not result in regional emissions that would exceed the NAAQS or CAAQS or contribute to existing violations, and impacts would be less than significant.

On-site emissions during construction would be less than the SCAQMD LSTs. Project construction would not result in the exposure of sensitive receptors to significant levels of DPM that could result in excess cancer risks. The project

would not result in the creation of a CO hot spot. Therefore, construction and operation of the project would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant.

During construction, potential odor sources would be associated with construction equipment; however, exposure to odors associated with project construction would be short term and temporary in nature. The operation of the project would not include any uses that would generate substantial odors. Therefore, construction and operation of the project would not generate odors adversely affecting a substantial number of people, and impacts would be less than significant.

If you have any questions about the results of this analysis, please contact me at jfleming@reconenvironmental.com or (619) 308-9333 extension 177.

Sincerely,

Jessica Fleming
Senior Air Quality Specialist

JLF:sh

Attachment

7.0 References Cited

Bay Area Air Quality Management District
2017 California Environmental Quality Act Air Quality Guidelines. May.

California Air Resources Board (CARB)
2000 Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. California Air Resources Board. Stationary Source Division, Mobile Source Control Division. October.

2005 Air Quality and Land Use Handbook: A Community Health Perspective. California Air Resources Board. April.

2016 Ambient Air Quality Standards. California Air Resources Board. October 1.

2023 California Air Quality Data Statistics. California Air Resources Board Internet Site. http://www.arb.ca.gov/adam/welcome.html. Accessed November 21, 2023.

Office of Environmental Health Hazard Assessment (OEHHA)
2015 Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments (Guidance Manual), February.

Riverside, County of
2015 General Plan. December.

Sacramento Metropolitan Air Quality Management District (SMAQMD)
2022 Road Construction Emissions Model, Version 9.0.1.

South Coast Air Quality Management District (SCAQMD)
1993 SCAQMD CEQA Air Handbook. November.

2008 Final Localized Significance Threshold Methodology. July.

2022 Air Quality Management Plan. December.

2023 SCAQMD Air Quality Significance Thresholds. Revision: March 2023.

Southern California Association of Governments (SCAG)
2020 Connect SoCal – The 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy.

Temecula, City of
2005 Temecula General Plan. Updated 2005.

Western Regional Climate Center
2023 Western U.S. Climate Historical Summaries. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2805.

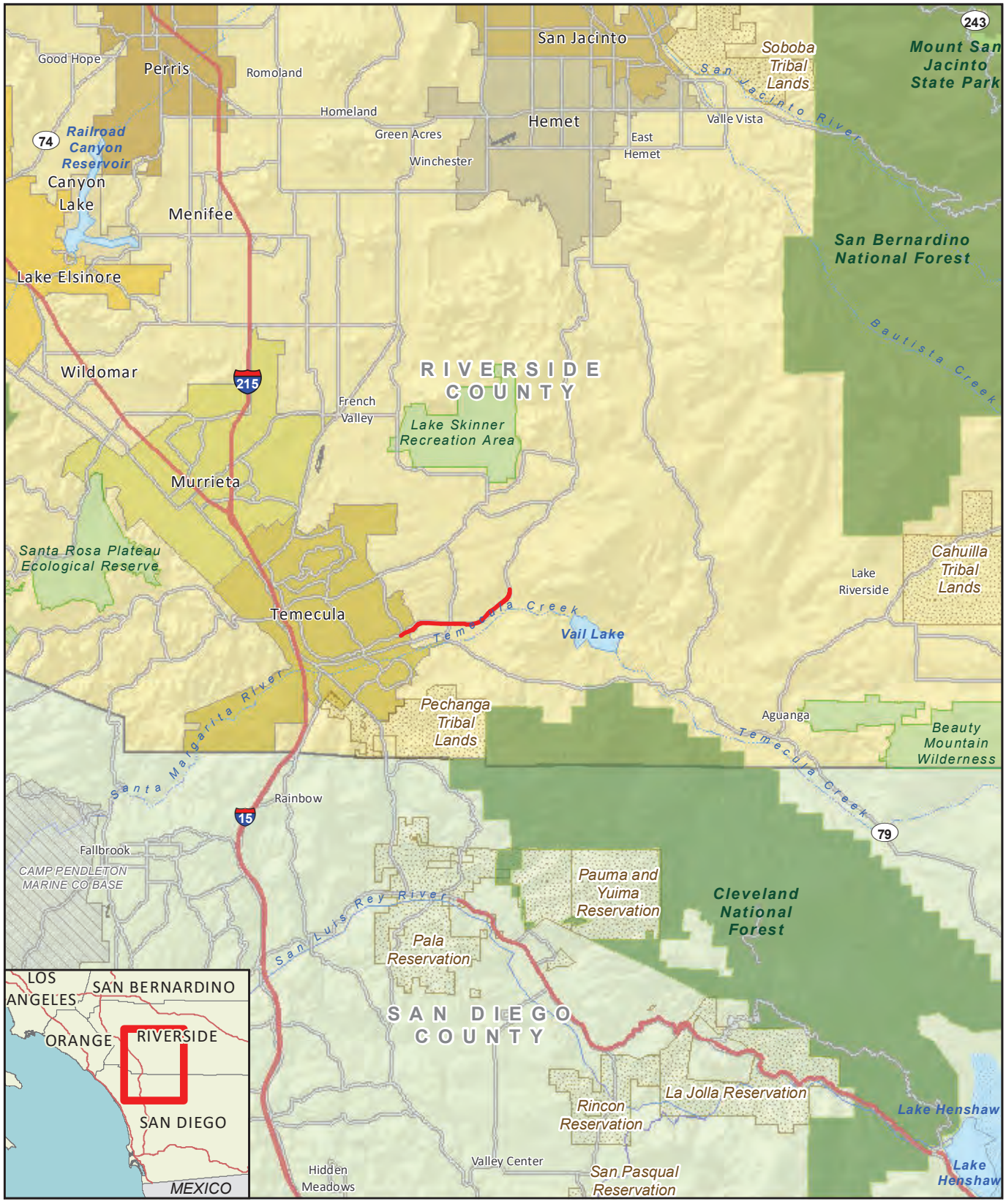

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FIGURE 1
Regional Location

Image Source: NearMap (flown September 2023)

FIGURE 2
Project Location on Aerial Photograph

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Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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FIGURE 3.1
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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FIGURE 3.2
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

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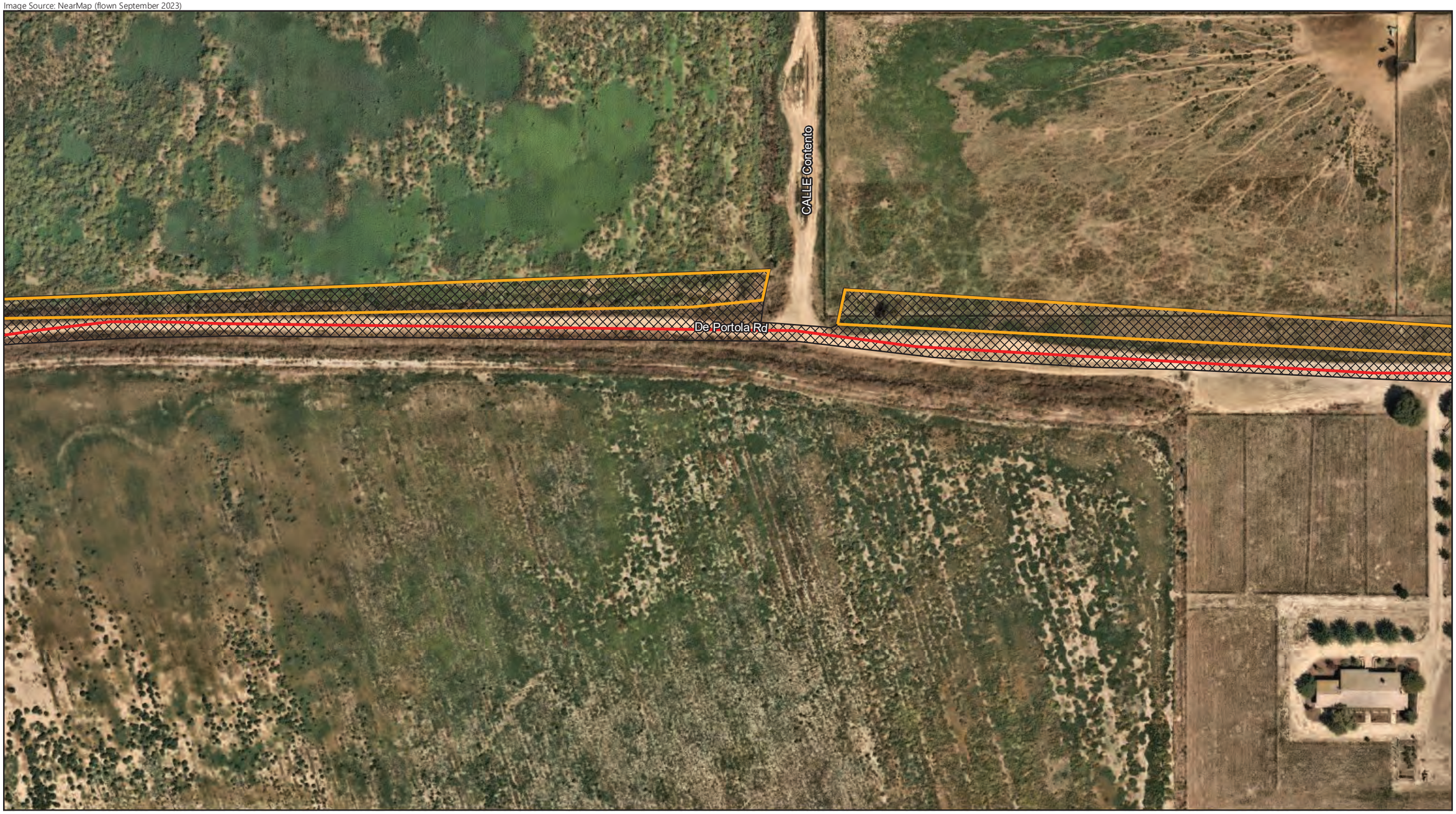
FIGURE 3.3
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)



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Project Alignment
Potential Staging Area
Area of Potential Effect

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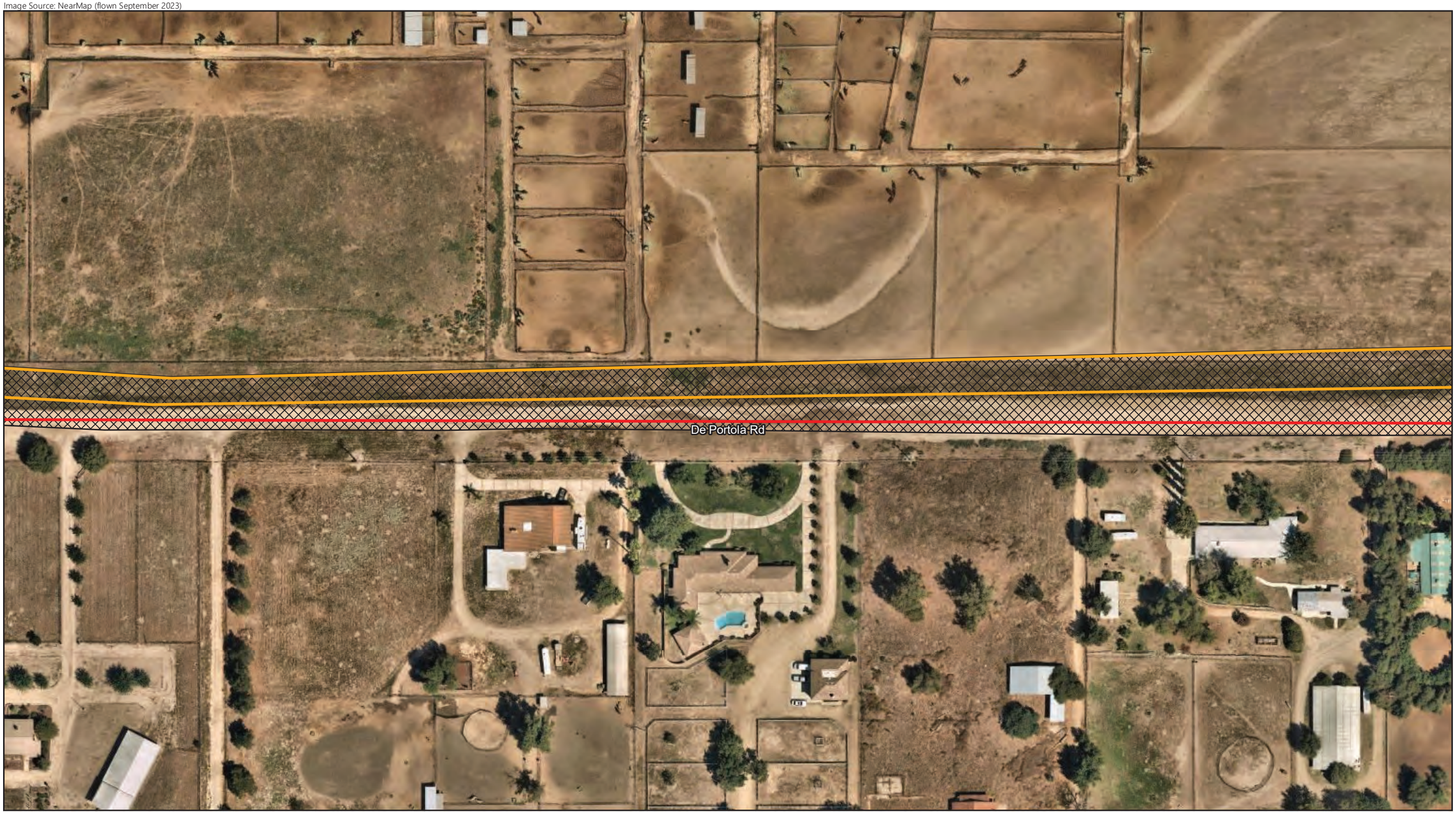
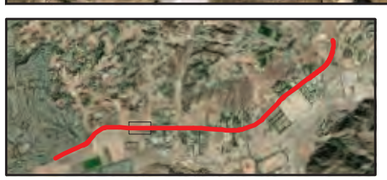
FIGURE 3.4
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)





Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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FIGURE 3.5
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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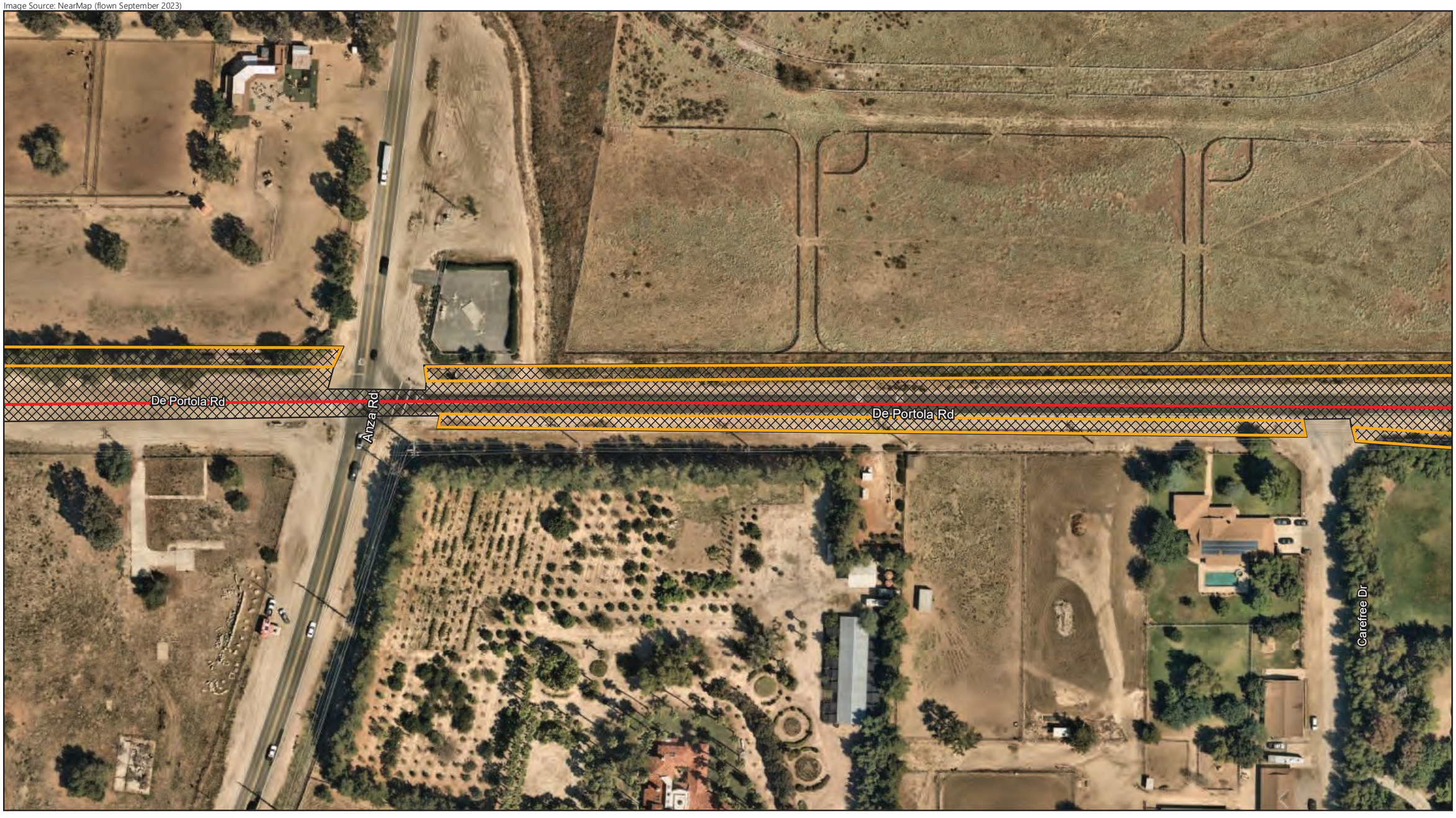
FIGURE 3.6
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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FIGURE 3.7
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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FIGURE 3.8
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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FIGURE 3.9
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

0 Feet 100

Project Alignment
Potential Staging Area
Area of Potential Effect

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FIGURE 3.10
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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FIGURE 3.11
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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FIGURE 3.12
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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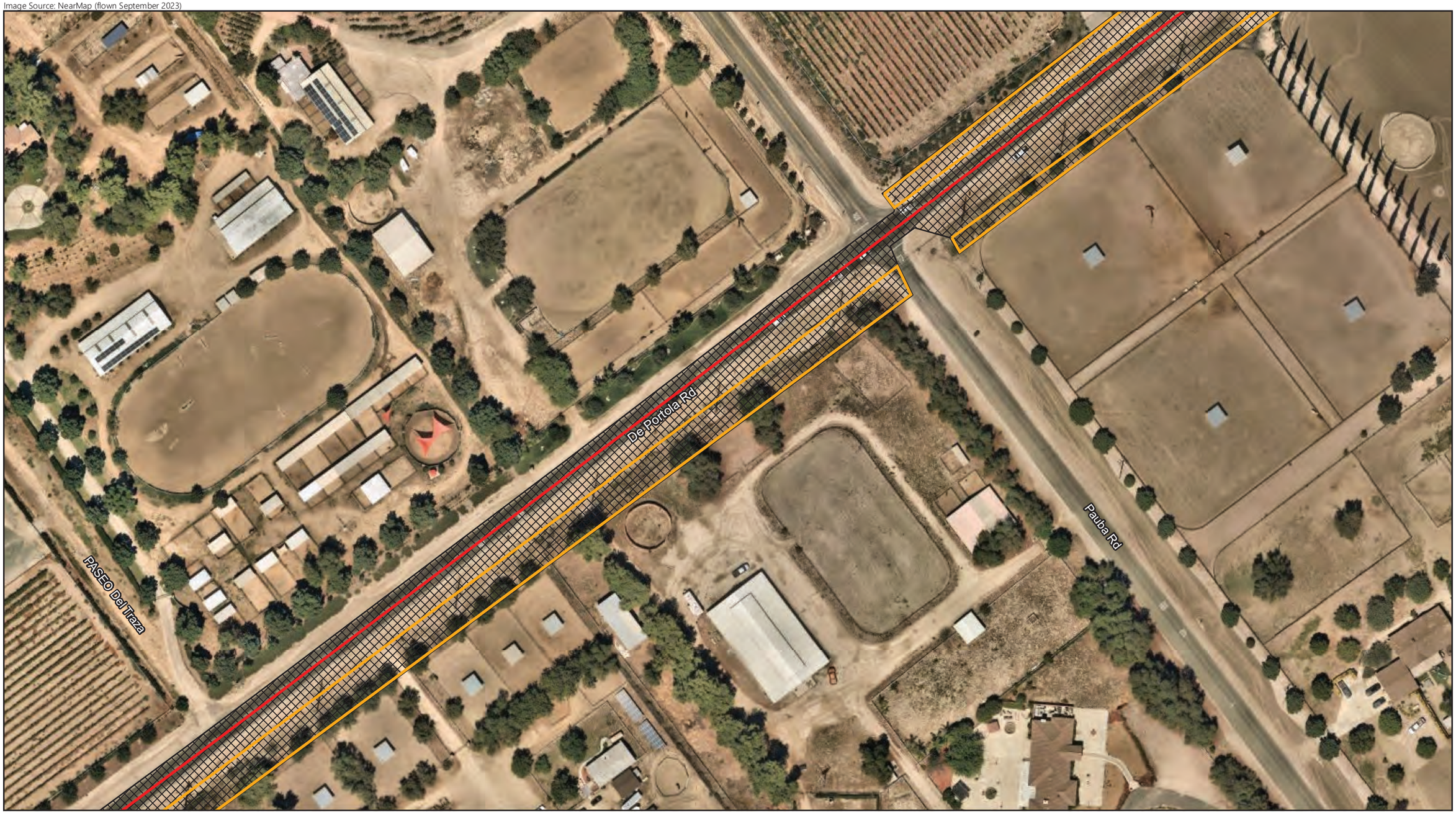
FIGURE 3.13
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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FIGURE 3.14
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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FIGURE 3.15
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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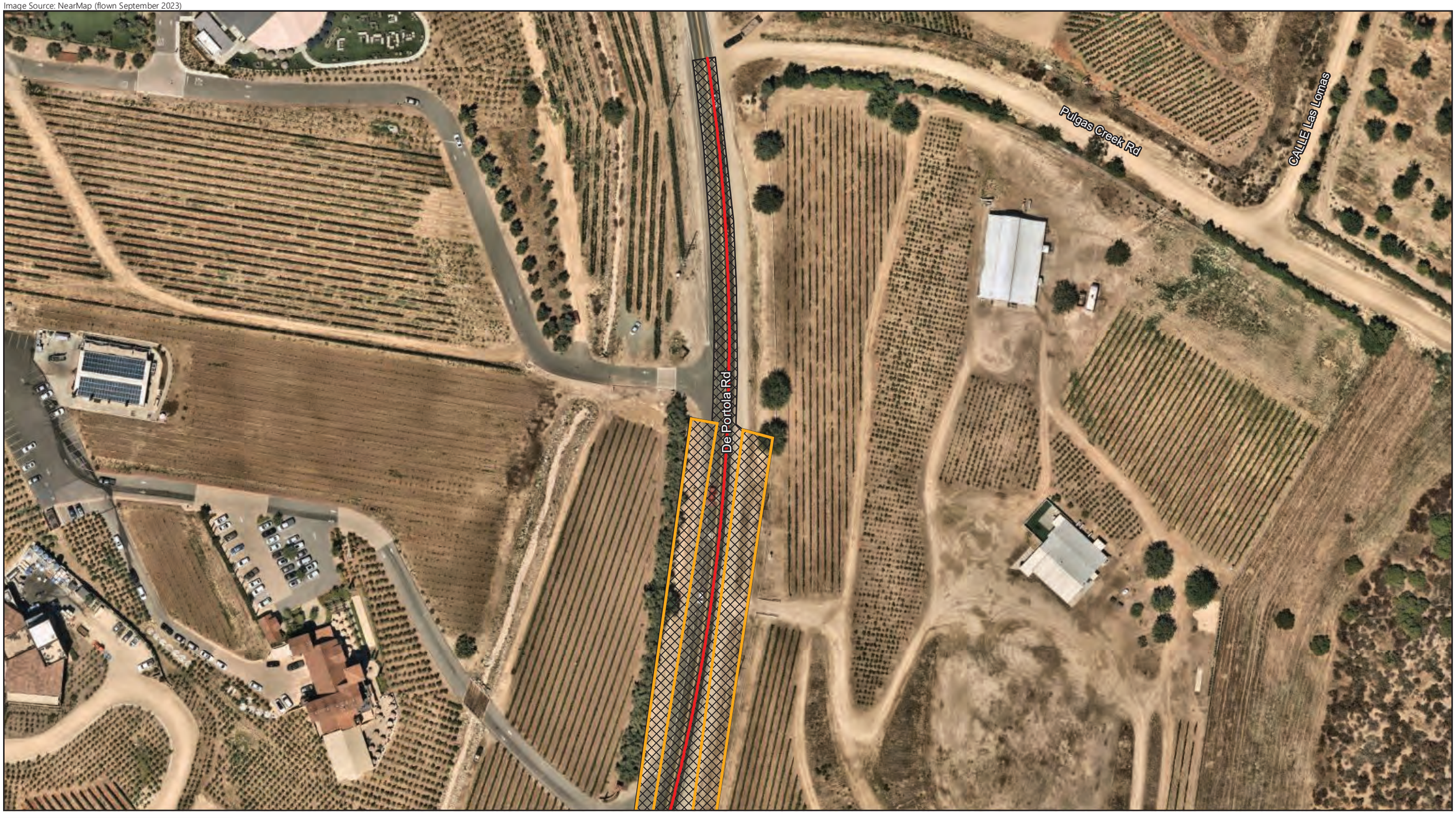
FIGURE 3.16
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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FIGURE 3.17
Area of Potential Effect on Aerial Photograph

ATTACHMENT 1

Road Construction Emissions Model Calculations

Wine Country Sewer - Southern Alignment
Calculation Details

Pipeline Length:

22,915	feet
5,280	feet/mile
4.34	miles

Unpaved Road:

1.15	miles
5,280	feet/mile
6,072	feet

Project Area:

5.24	acres

Area Disturbed per Day

80.00	linear feet per day
35.00	feet wide
2800.00	square feet
0.06	acres

Asphalt Export:

16,843	feet paved
5	feet wide
0.25	feet deep (3 inch asphalt depth)
21,054	cubic feet
27	cubic feet/cubic yard
779.78	cubic yards
20	cubic yard truck capacity
39	hauling trips (rounded up)
1.8	month grubbing/land clearing phase
22	work days/month
39.6	days
20	cubic yards/day (rounded up)

Soil Export

22,915	feet long
5	feet wide
10	feet deep
1,145,760	cubic feet
27	cubic feet/cubic yard
42,435.56	cubic yards
21,217.78	cubic yards hauled away (half)
20	cubic yard truck capacity
1061	hauling trips (rounded up)
8.1	month grading/excavation phase
22	work days/month
178.2	days
120	cubic yards/day (rounded up)

Road Construction Emissions Model, Version 9.0.1

Daily Emission Estimates for -> Wine Country Sewer - Southern Alignment

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	2.43	27.25	19.09	1.90	0.90	1.00	1.03	0.82	0.21	0.06	5,931.42	1.29	0.08	5,986.49
Grading/Excavation	2.52	28.67	20.24	2.00	1.00	1.00	1.07	0.86	0.21	0.07	6,901.52	1.30	0.17	6,985.97
Drainage/Utilities/Sub-Grade	2.39	27.84	18.01	1.86	0.86	1.00	0.97	0.77	0.21	0.06	6,050.62	1.29	0.06	6,101.99
Paving	2.32	27.43	17.41	0.80	0.80	0.00	0.72	0.72	0.00	0.06	5,935.91	1.29	0.06	5,986.31
Maximum (pounds/day)	2.52	28.67	20.24	2.00	1.00	1.00	1.07	0.86	0.21	0.07	6,901.52	1.30	0.17	6,985.97
Total (tons/construction project)	0.48	5.56	3.77	0.35	0.18	0.17	0.19	0.16	0.04	0.01	1,268.07	0.26	0.02	1,281.23

Notes:

Project Start Year ->	2024
Project Length (months) ->	18
Total Project Area (acres) ->	5
Maximum Area Disturbed/Day (acres) ->	0
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	20	0	30	600	5
Grading/Excavation	120	0	180	0	1,200	5
Drainage/Utilities/Sub-Grade	0	0	0	0	960	5
Paving	0	0	0	0	800	5

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Wine Country Sewer - Southern Alignment

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.05	0.54	0.38	0.04	0.02	0.02	0.02	0.02	0.00	0.00	117.44	0.03	0.00	107.53
Grading/Excavation	0.22	2.55	1.80	0.18	0.09	0.09	0.10	0.08	0.02	0.01	614.93	0.12	0.02	564.68
Drainage/Utilities/Sub-Grade	0.14	1.65	1.07	0.11	0.05	0.06	0.06	0.05	0.01	0.00	359.41	0.08	0.00	328.82
Paving	0.07	0.81	0.52	0.02	0.02	0.00	0.02	0.02	0.00	0.00	176.30	0.04	0.00	161.29
Maximum (tons/phase)	0.22	2.55	1.80	0.18	0.09	0.09	0.10	0.08	0.02	0.01	614.93	0.12	0.02	564.68
Total (tons/construction project)	0.48	5.56	3.77	0.35	0.18	0.17	0.19	0.16	0.04	0.01	1268.07	0.26	0.02	1,162.33

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Data Entry Worksheet

Version 9.0.1

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Wine Country Sewer - Southern Alignment	
Construction Start Year	2024	Enter a Year between 2014 and 2040 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	18.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	4.34	miles
Total Project Area	5.24	acres
Maximum Area Disturbed/Day	0.10	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County. NEW LINK 8-2-2022.

https://maps.conservation.ca.gov/cgs/gmc/

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation	20.00		120.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing	20.00		20.00
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			

Mitigation Options

On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation		Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		1.80		1/1/2024
Grading/Excavation		8.10		2/25/2024
Drainage/Utilities/Sub-Grade		5.40		10/29/2024
Paving		2.70		4/12/2025
Totals (Months)	18			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	30.00			0	0.00
Miles/round trip: Grading/Excavation	30.00			6	180.00
Miles/round trip: Drainage/Utilities/Sub-Grade	30.00			0	0.00
Miles/round trip: Paving	30.00			0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.05	0.11	0.05	0.02	1,680.81	0.00	0.26	1,759.58
Paving (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.88	0.00	0.26	1,751.28
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.01	0.16	1.26	0.04	0.02	0.01	672.06	0.00	0.11	703.55
Tons per const. Period - Grading/Excavation	0.00	0.01	0.11	0.00	0.00	0.00	59.88	0.00	0.01	62.69
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.01	0.11	0.00	0.00	0.00	59.88	0.00	0.01	62.69

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	30.00			1	30.00
Miles/round trip: Grading/Excavation	30.00			0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade	30.00			0	0.00
Miles/round trip: Paving	30.00			0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.05	0.11	0.05	0.02	1,680.81	0.00	0.26	1,759.58
Paving (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.88	0.00	0.26	1,751.28
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.03	0.21	0.01	0.00	0.00	112.01	0.00	0.02	117.26
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.00	0.00	2.32
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.00	0.00	2.32

Note: Worker commute default values can be overridden in cells D121 through D126.

Worker Commute Emissions	User Override of Worker			
User Input	Commute Default Values	Default Values		
Miles/ one-way trip	20		Calculated	Calculated
One-way trips/day	2		Daily Trips	Daily VMT
No. of employees: Grubbing/Land Clearing	15		30	600.00
No. of employees: Grading/Excavation	30		60	1,200.00
No. of employees: Drainage/Utilities/Sub-Grade	24		48	960.00
No. of employees: Paving	20		40	800.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Grading/Excavation (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Draining/Utilities/Sub-Grade (grams/mile)	0.01	0.80	0.06	0.05	0.02	0.00	300.00	0.00	0.01	301.75
Paving (grams/mile)	0.01	0.78	0.06	0.05	0.02	0.00	295.84	0.00	0.01	297.52
Grubbing/Land Clearing (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Grading/Excavation (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Draining/Utilities/Sub-Grade (grams/trip)	0.95	2.60	0.25	0.00	0.00	0.00	64.60	0.06	0.03	74.86
Paving (grams/trip)	0.93	2.56	0.25	0.00	0.00	0.00	63.73	0.06	0.03	73.77
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.08	1.29	0.10	0.06	0.03	0.00	410.06	0.01	0.01	413.20
Tons per const. Period - Grubbing/Land Clearing	0.00	0.03	0.00	0.00	0.00	0.00	8.12	0.00	0.00	8.18
Pounds per day - Grading/Excavation	0.17	2.57	0.20	0.12	0.05	0.01	820.12	0.02	0.02	826.39
Tons per const. Period - Grading/Excavation	0.01	0.23	0.02	0.01	0.00	0.00	73.07	0.00	0.00	73.63
Pounds per day - Drainage/Utilities/Sub-Grade	0.13	1.97	0.15	0.10	0.04	0.01	641.77	0.01	0.01	646.55
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.01	0.12	0.01	0.01	0.00	0.00	38.12	0.00	0.00	38.41
Pounds per day - Paving	0.10	1.59	0.12	0.08	0.03	0.01	527.39	0.01	0.01	531.24
Tons per const. Period - Paving	0.00	0.05	0.00	0.00	0.00	0.00	15.66	0.00	0.00	15.78
Total tons per construction project	0.03	0.42	0.03	0.02	0.01	0.00	134.98	0.00	0.00	136.00

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated	User Override of	Default Values	Calculated
User Input	Default # Water Trucks	Number of Water Trucks	Round Trips/Vehicle/Day	Round Trips/Vehicle/Day	Trips/day	Miles/Round Trip	Miles/Round Trip	Daily VMT
Grubbing/Land Clearing - Exhaust	1		1.00			5.00		5.00
Grading/Excavation - Exhaust	1		1.00			5.00		5.00
Drainage/Utilities/Subgrade	1		1.00			5.00		5.00
Paving	1		1.00			5.00		5.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.05	0.11	0.05	0.02	1,680.81	0.00	0.26	1,759.58
Paving (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.88	0.00	0.26	1,751.28
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.04	0.00	0.00	0.00	18.67	0.00	0.00	19.54
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.39
Pounds per day - Grading/Excavation	0.00	0.00	0.04	0.00	0.00	0.00	18.67	0.00	0.00	19.54
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	1.66	0.00	0.00	1.74
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.04	0.00	0.00	0.00	18.53	0.00	0.00	19.40
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.00	0.00	1.15
Pounds per day - Paving	0.00	0.00	0.04	0.00	0.00	0.00	18.44	0.00	0.00	19.30
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0.57
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	3.68	0.00	0.00	3.85

Note: Fugitive dust default values can be overridden in cells D183 through D185.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing			1.00	0.02	0.21	0.00
Fugitive Dust - Grading/Excavation			1.00	0.09	0.21	0.02
Fugitive Dust - Drainage/Utilities/Subgrade			1.00	0.06	0.21	0.01

Values in cells D195 through D228, D246 through D279, D297 through D330, and D348 through D381 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.24	2.41	1.63	0.08	0.08	0.00	375.26	0.02	0.00	376.63
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.90	0.06	0.06	0.01	917.36	0.30	0.01	927.26
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.31	3.65	2.41	0.11	0.11	0.01	592.67	0.03	0.00	594.70
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.18	3.27	1.40	0.07	0.06	0.01	500.27	0.16	0.00	505.66
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.29	3.66	2.54	0.11	0.11	0.01	623.04	0.03	0.00	625.06
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.50	3.25	3.33	0.12	0.11	0.01	1,280.35	0.41	0.01	1,294.14
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.74	0.08	0.07	0.00	455.16	0.15	0.00	460.07
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.17	1.92	1.61	0.10	0.09	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.24	1.45	0.07	0.06	0.00	301.77	0.10	0.00	305.01
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles		Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing		pounds per day	2.34	25.93	18.73	0.83	0.79	0.06	5,390.68	1.28	0.05	5,436.49
	Grubbing/Land Clearing		tons per phase	0.05	0.51	0.37	0.02	0.02	0.00	106.74	0.03	0.00	107.64

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.24	2.41	1.63	0.08	0.08	0.00	375.26	0.02	0.00	376.63
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.90	0.06	0.06	0.01	917.36	0.30	0.01	927.26
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.31	3.65	2.41	0.11	0.11	0.01	592.67	0.03	0.00	594.70
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.18	3.27	1.40	0.07	0.06	0.01	500.27	0.16	0.00	505.66
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.29	3.66	2.54	0.11	0.11	0.01	623.04	0.03	0.00	625.06
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.50	3.25	3.33	0.12	0.11	0.01	1,280.35	0.41	0.01	1,294.14
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.74	0.08	0.07	0.00	455.16	0.15	0.00	460.07
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.17	1.92	1.61	0.10	0.09	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.24	1.45	0.07	0.06	0.00	301.77	0.10	0.00	305.01
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	2.34	25.93	18.73	0.83	0.79	0.06	5,390.68	1.28	0.05	5,436.49
Grading/Excavation	tons per phase	0.21	2.31	1.67	0.07	0.07	0.01	480.31	0.11	0.00	484.39

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.23	2.41	1.56	0.07	0.07	0.00	375.26	0.02	0.00	376.62
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.88	0.06	0.06	0.01	917.29	0.30	0.01	927.19
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.30	3.65	2.32	0.10	0.10	0.01	592.67	0.03	0.00	594.67
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.17	3.26	1.29	0.06	0.06	0.01	500.31	0.16	0.00	505.70
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.27	3.66	2.45	0.10	0.10	0.01	623.04	0.02	0.00	625.03
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.49	3.21	3.04	0.11	0.10	0.01	1,279.94	0.41	0.01	1,293.72
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.64	0.08	0.07	0.00	455.06	0.15	0.00	459.96
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.16	1.91	1.52	0.09	0.08	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.23	1.38	0.06	0.05	0.00	301.95	0.10	0.00	305.19
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	2.27	25.87	17.82	0.76	0.72	0.06	5,390.31	1.28	0.05	5,436.04
Drainage/Utilities/Sub-Grade	tons per phase	0.13	1.54	1.06	0.05	0.04	0.00	320.18	0.08	0.00	322.90

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.23	2.41	1.53	0.07	0.07	0.00	375.26	0.02	0.00	376.62
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.87	0.06	0.06	0.01	917.25	0.30	0.01	927.15
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.30	3.64	2.27	0.09	0.09	0.01	592.67	0.03	0.00	594.65
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.17	3.26	1.22	0.06	0.06	0.01	500.34	0.16	0.00	505.73
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.27	3.66	2.40	0.10	0.10	0.01	623.04	0.02	0.00	625.01
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.48	3.19	2.87	0.10	0.09	0.01	1,279.68	0.41	0.01	1,293.45
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.17	2.90	1.58	0.07	0.07	0.00	454.99	0.15	0.00	459.90
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.16	1.90	1.46	0.08	0.08	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.13	2.23	1.34	0.05	0.05	0.00	302.06	0.10	0.00	305.30
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Paving	pounds per day	2.22	25.83	17.25	0.72	0.68	0.06	5,390.08	1.28	0.05	5,435.76
Paving	tons per phase	0.07	0.77	0.51	0.02	0.02	0.00	160.09	0.04	0.00	161.44
Total Emissions all Phases (tons per construction period) =>		0.46	5.13	3.61	0.16	0.15	0.01	1,067.32	0.25	0.01	1,076.38

Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		221		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		231		8
Crawler Tractors		212		8
Crushing/Proc. Equipment		85		8
Excavators		158		8
Forklifts		89		8
Generator Sets		84		8
Graders		187		8
Off-Highway Tractors		124		8
Off-Highway Trucks		402		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		168		8
Pavers		130		8
Paving Equipment		132		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		80		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		247		8
Rubber Tired Loaders		203		8
Scrapers		367		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		263		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		97		8
Trenchers		78		8
Welders		46		8

END OF DATA ENTRY SHEET

APPENDIX B-1

Biological Technical Report for the Wine Country Sewer Project, Northern Alignment

Biological Technical Report for the Wine Country Sewer Project, Northern Alignment Unincorporated Riverside County, California

Prepared for
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RECON Number 9878-21
February 23, 2024

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ATTACHMENTS

1. Results of 2023 Least Bell's Vireo Focused Surveys
2. Results of 2023 Coastal California Gnatcatcher Focused Surveys
3: Plant Species Observed
4: Wildlife Species Observed
5: Sensitive Plant Species Observed or with the Potential to Occur
6: Sensitive Wildlife Species Occurring or with the Potential to Occur

Acronyms and Abbreviations

amsl	above mean sea level
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
District	Eastern Municipal Water District
FESA	Federal Endangered Species Act
iPaC	Information for Planning and Consultation Database
MBTA	Migratory Bird Treaty Act
MSHCP	Multiple Species Habitat Conservation Program
OHWM	ordinary high water mark
project	Wine Country Sewer Project, Northern Alignment
RECON	RECON Environmental Consultants, Inc.
RWQCB	Regional Water Quality Control Board
ROW	right-of-way
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WRCRCA	Western Riverside County Regional Conservation Authority

1.0 Introduction

This report describes the results of the biological resource surveys conducted for the Wine Country Sewer Project, Northern Alignment (project). The Eastern Municipal Water District (District) is proposing to construct a new sewer transmission line and associated laterals that would provide sewer service to an area within unincorporated Riverside County that is currently utilizing septic systems (Figure 1). Regional access to the project is provided via Interstate 15, located approximately 7.5 miles to the west, and local access is provided via Rancho California Road. The survey area is located within the Pauba Land Grant on U.S. Geological Survey (USGS) Bachelor Mountain quadrangle, Township 07 South, Range 02 West (USGS 1978; Figure 2). The biological surveys occurred within a 33.13-acre survey area, which consists of 2.74 miles of proposed sewer transmission lines, plus a surrounding 50-foot buffer, within unincorporated Riverside County, California (see Figure 1). The project site is located within the rights-of-way (ROW) of the following roadway segments, which are presented in Figure 3:

- Rancho California Road, Lomo Ventoso Lane to Buck Road
- Glenoaks Road, Rancho California Road to Camino del Vino
- Buck Road, Rancho California Road to Otis Street
- Warren Road, Otis Street to East Benton Road
- East Benton Road, Warren Road to Bella Vista Road

The project is generally bounded by residential developments, agricultural land, and disturbed land, with sparse native habitats occurring along the project alignment.

Figure 4 presents the location of the proposed sewer transmission lines, which would be constructed within the ROW of paved roadways. The approximate locations of the sewer transmission lines are shown with a red line, and the aboveground work areas, including trenching and potential construction staging areas, are shown in black cross-hatching. The sewer transmission lines would be constructed primarily with open trench construction, and culvert crossings would be protected in place with supports that allow for undercrossing. Laterals for future connections would be constructed to adjacent property lines. Potential construction staging areas would be located in disturbed land within the ROW adjacent to the roadway, subject to access agreements with private property owners. Roadways impacted during construction would be returned to original grade, and adjacent natural soils impacted during construction would be revegetated with hydroseeding. No night work would occur, nor would temporary/permanent lighting be used. The project would not construct any above-ground structures.

It is anticipated that the District would implement the project. This report provides the necessary biological data and background information required for environmental analysis of the project subject to the California Environmental Quality Act (CEQA).

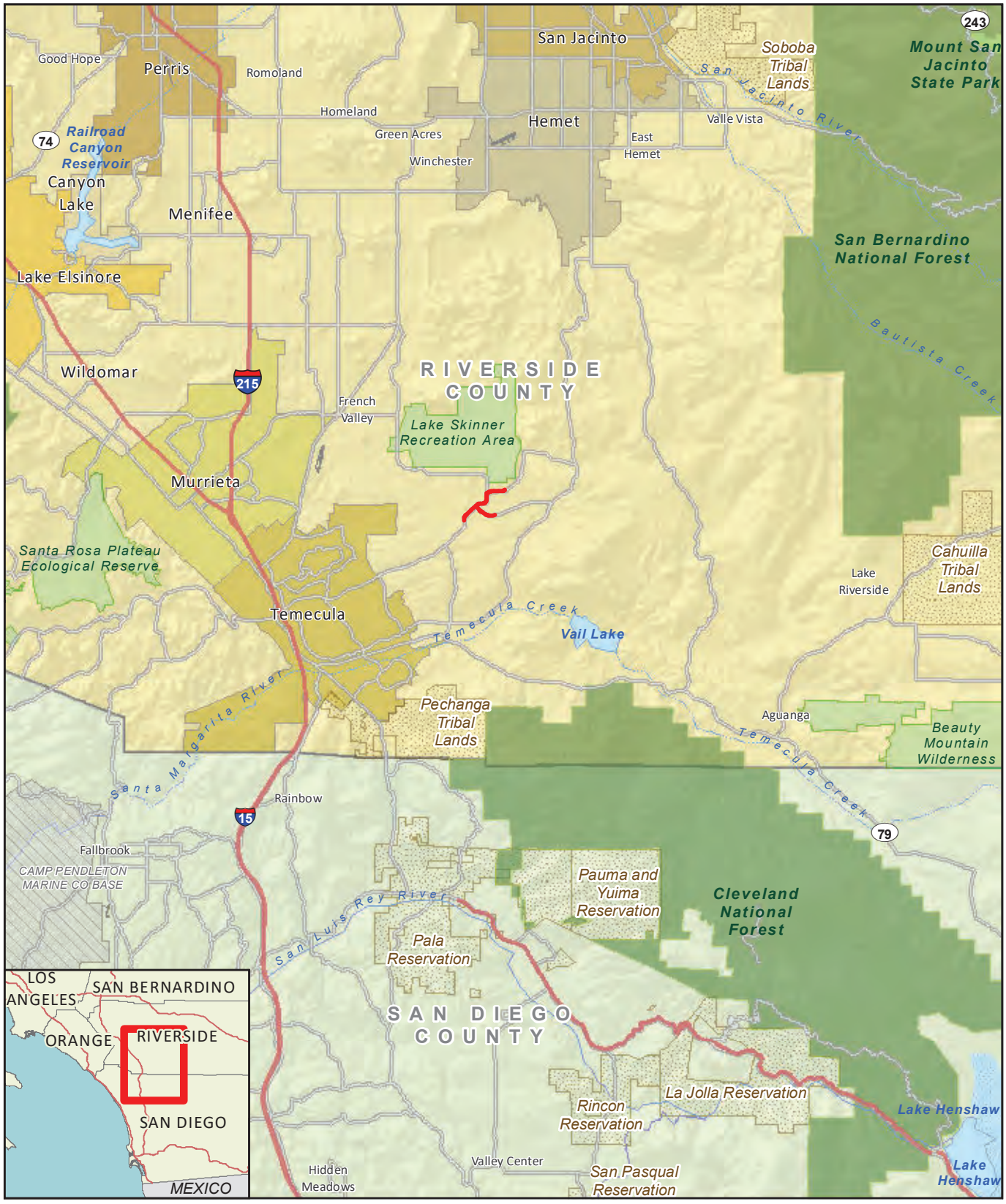

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FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, Bachelor Mtn. quadrangle, 1978, Pauba Land Grant / T07S R02W

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FIGURE 2
Project Location on USGS Map

Image Source: NearMap (flown September 2023)

Project Location

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FIGURE 3
Project Location on Aerial Photograph

Image Source: NearMap (flown September 2023)

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- Project Alignment
- Survey Area
- Project Impact Area
- Potential Burrowing Owl Burrow
- Downy Woodpecker (*Dryobates pubescens*) Detected Visually and Audibly

Vegetation Community

- Southern Cottonwood/Willow Riparian
- Disturbed Riversidean Sage Scrub
- Ornamental
- Disturbed Land
- Urban/Developed

0 Feet 100

FIGURE 4.1
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area
Least Bell's Vireo (*Vireo bellii pusillis*) Detected Audibly

Vegetation Community
- Southern Cottonwood/Willow Riparian
- Disturbed Southern Cottonwood/Willow Riparian
- Riversidean Sage Scrub
- Disturbed Riversidean Sage Scrub
- Ornamental
- Disturbed Land
- Urban/Developed

0 Feet 100

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FIGURE 4.2
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

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FIGURE 4.3
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Potential Staging Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

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FIGURE 4.4
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

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FIGURE 4.5
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Potential Staging Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

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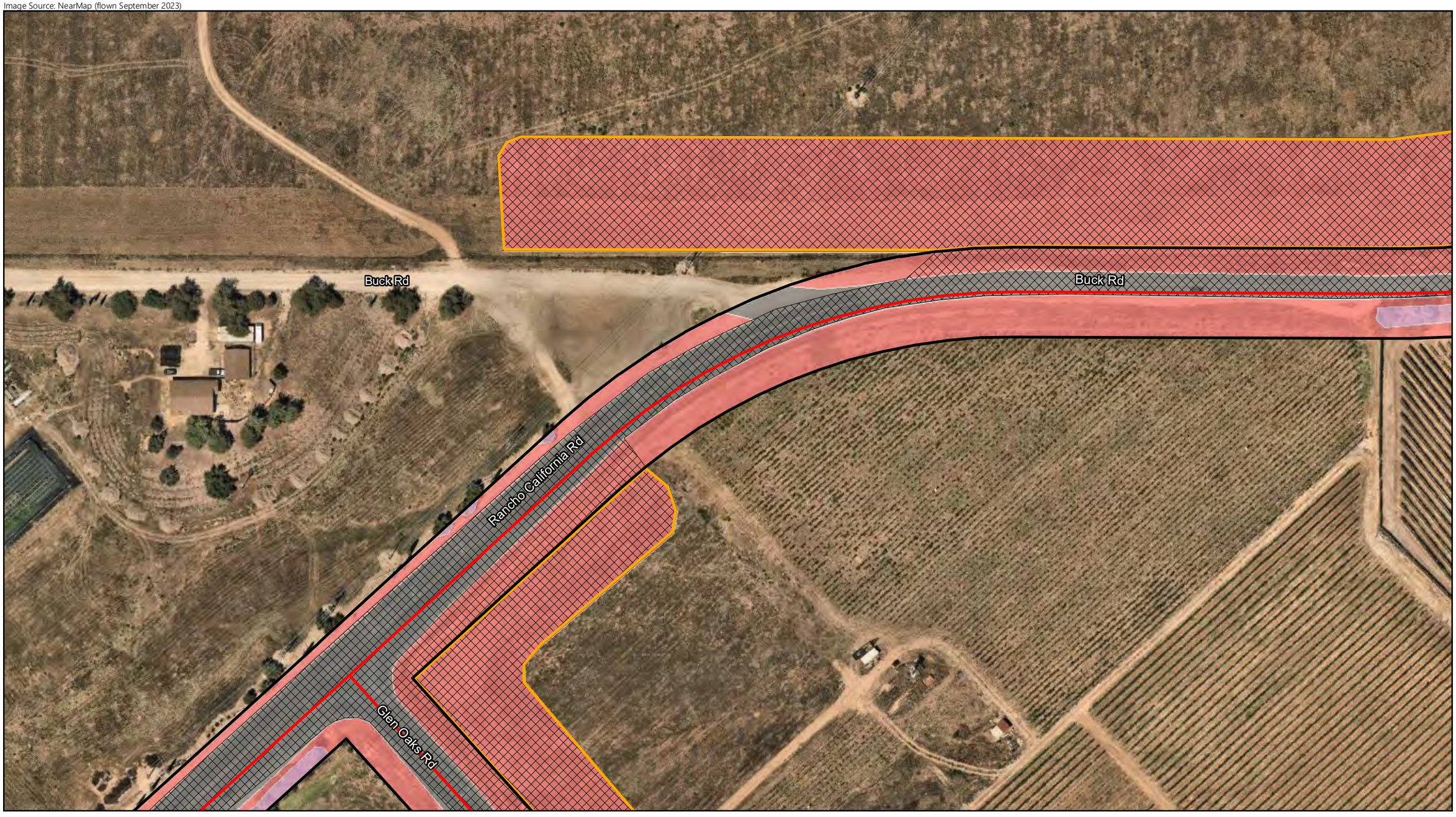
FIGURE 4.6
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Survey Area
Potential Staging Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

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FIGURE 4.7
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Potential Staging Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

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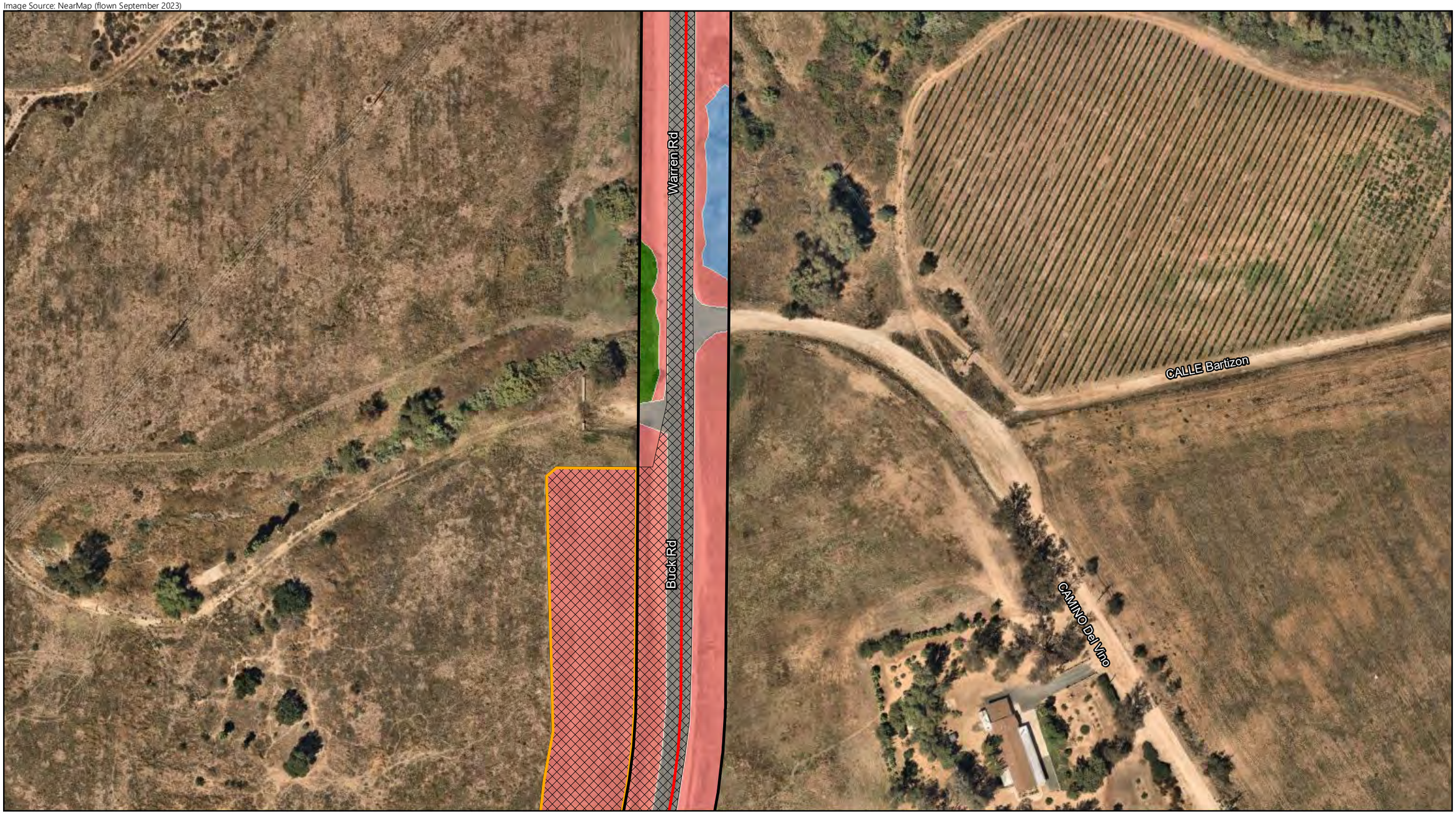
FIGURE 4.8
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Survey Area
Potential Staging Area
Project Impact Area

Vegetation Community
Tamarisk Scrub
Disturbed Southern Cottonwood/Willow Riparian
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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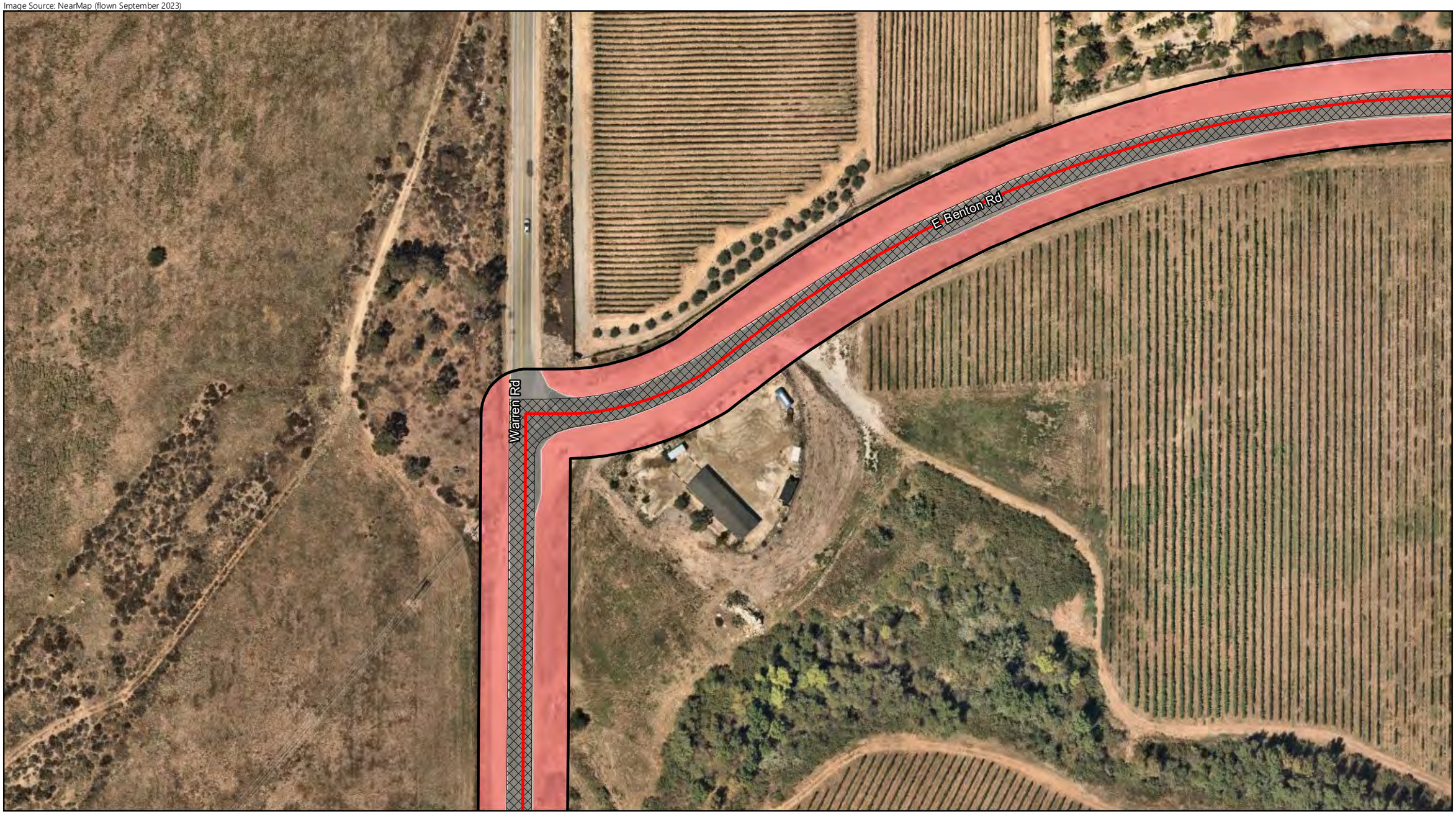
FIGURE 4.9
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Survey Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 4.10
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 4.11
Existing Biological Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area

Vegetation Community
Southern Cottonwood/Willow Riparian
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 4.12
Existing Biological Resources within Northern Alignment

2.0 Survey Methodology

2.1 Literature Review

RECON conducted a search of existing biological data for the project site, including database queries for sensitive plant and animal species reported within one mile of the project site, and a review of the site's physical characteristics (e.g., location, elevation, soils/substrate, topography). Prior to conducting surveys, the assessor parcel numbers for the survey area were entered into the Multiple Species Habitat Conservation Program (MSHCP) Informational Map, provided on the Western Riverside County Regional Conservation Authority (WRCRCA) website, to identify the potentially occurring sensitive species on-site. Additional supplemental data sources included the California Natural Diversity Database (CNDDB; California Department of Fish and Wildlife [CDFW] 2023a-e), the Information for Planning and Consultation Database (IPaC; USFWS 2023a), the All Species Occurrences Database (U.S. Fish and Wildlife Service [USFWS] 2023b), the California Native Plant Society (CNPS) Online database (CNPS 2023), and the U.S. Department of Agriculture (USDA) Soil Conservation Service maps and descriptions (USDA 1971 and 2023).

2.2 Biological Surveys

2.2.1 General Biological Survey

RECON Environmental, Inc. (RECON) biologists Alex Fromer and Chris Thomson conducted a general biological survey within the project's northern alignment and surrounding 50-foot buffer (herein referred to as the survey area), on December 30, 2022. The survey area consisted of the project alignments within Rancho California Road, Glenoaks Road, Buck Road, Warren Road, and East Benton Road.

Most portions of the survey area were covered on foot. However, private property adjacent to the public ROW was surveyed from accessible viewpoints with the aid of binoculars and high-resolution aerial imagery. During the general biological surveys, RECON biologists mapped vegetation communities and aquatic resources, recorded vegetation and habitat characteristics, and noted wildlife and plant species apparent at the time of the survey. Vegetation communities and aquatic resources were mapped in the field on a digital map of the survey area. Plants were visually identified in the field and wildlife species were identified visually with the aid of binoculars or based on identification of calls, scat, tracks, or burrows. Based on findings during the general biology survey, it was determined that the aquatic resources on-site would not be significantly impacted by project activities and thus a formal aquatic resource delineation was not conducted.

Nomenclature in this report follows the Jepson Online Interchange (Jepson Flora Project 2023) and Rebman and Simpson (2014), for common plants, *Sunset Western Garden Book* (Brenzel 2001) for ornamental species, CNDDB (CDFW 2023a) for sensitive plant species, San Diego Natural History Museum (2002) for moths and butterflies, Crother et al. (2017) for amphibians and reptiles, Chesser et al. (2023) for birds, and Bradley et al. (2014) and Baker et al. (2003) for mammals.

2.2.2 Least Bell's Vireo Focused Surveys

RECON biologists Alex Fromer and Chelsea Polevy, assisted by Julia Gaudio, conducted eight focused surveys for least Bell's vireo (*Vireo bellii pusillus*) between May and July 2023 in accordance with the USFWS survey guidelines/protocol (USFWS 2001). The surveys were focused within the 1.21 acres of suitable riparian habitat within a 100-foot buffer of the project alignment. Adjacent scrub areas along the edge of the riparian habitats were also surveyed to encompass potentially suitable foraging habitat. The least Bell's vireo surveys were conducted at least 10 days apart, in accordance with the current USFWS survey guidelines/protocol (USFWS 2001). The survey visit dates, personnel, times, and weather conditions are provided in Attachment 1. All bird species observed during the surveys were noted. Surveys were not conducted during excessive heat, wind, rain, fog, or other inclement weather. Additional details regarding the protocol least Bell's vireo surveys can be found in the post-survey report (see Attachment 1).

2.2.3 Coastal California Gnatcatcher Focused Surveys

RECON biologist Alex Fromer, assisted by Julia Gaudio and Danelle Gadia, conducted focused surveys for coastal California gnatcatcher (*Polioptila californica californica*) in May and June 2023 under the USFWS 10(a)(1)(A) Endangered/Threatened Species Permit TE-797665. Before surveys were conducted, a 15-day notification letter was submitted via email to the USFWS stating the intent to conduct coastal California gnatcatcher surveys. The surveys were focused within the 0.42 acre of suitable scrub habitat within a 100-foot buffer of the project alignment. The protocol surveys were conducted in six site visits at least one week apart in accordance with the most current presence/absence survey protocol prepared by the USFWS (1997) for non-Natural Communities Conservation Plan/Habitat Conservation Plan participants. Surveys were not conducted during excessive heat, wind, rain, fog, or other inclement weather. All bird species observed during the surveys were noted. In accordance with the protocol survey guidelines (USFWS 1997), RECON biologists walked all portions of suitable habitat and periodically used recorded vocalizations in an attempt to elicit initial calls. Recorded vocalizations were not used in the vicinity of predators such as California scrub-jay (*Aphelocoma californica*), red-tailed hawk (*Buteo jamaicensis*), or northern mockingbird (*Mimus polyglottos*). Additional details regarding the protocol coastal California gnatcatcher surveys can be found in the post-survey report (Attachment 2).

3.0 Existing Conditions

3.1 Site Topography and Soils

The northern alignment survey area consists of paved roads generally surrounded by residential developments, agricultural land, disturbed land, and sparse pockets of native habitats. Elevations in the survey area range from approximately 1,420 feet above mean sea level (amsl) to 1,620 feet amsl. The survey area contains almost exclusively sandy loams, with primarily fine sandy loam, with some areas of coarse sandy loam throughout. A few small areas of other loam-type soils and riverwash can also be found within the survey area.

3.2 Botanical Resources

The survey area supports eight vegetation communities and land cover types: Riversidean sage scrub, disturbed Riversidean sage scrub, southern cottonwood/willow riparian, disturbed southern cottonwood/willow riparian, ornamental, tamarisk scrub, disturbed land, and urban/developed (Table 1; see Figure 4). A total of 41 plant species were identified within the survey area (Attachment 3). Of this total, 23 (56 percent) are native species and 18 (44 percent) are non-native.

Sensitive plant species and their potential for occurrence are discussed in Section 4.0.

Table 1
Vegetation Communities within the Survey Area (acres)

Vegetation Community	Total Survey Area	Area of Potential Effect
Riversidean sage scrub	0.15	0
Disturbed Riversidean sage scrub	0.27	0
Southern cottonwood/willow riparian	1.22	0
Disturbed Southern cottonwood/willow riparian	0.17	0
Tamarisk scrub	0.08	0
Ornamental	1.97	0
Disturbed land	23.77	9.21*
Urban/developed	12.67	10.78
TOTAL	**40.3**	**19.99**

*Includes acreage of potential staging areas outside of ROW.

3.2.1 Riversidean Sage Scrub

Riversidean sage scrub occurs in one small, isolated patch within the survey area, adjacent to the southwestern portion of Rancho California Road (Photograph 1). The Riversidean sage scrub is dominated by native California buckwheat (*Eriogonum fasciculatum*) and contains additional native sage scrub species such as California sagebrush (*Artemisia californica*) and deerweed (*Acmispon glaber*).

3.2.2 Disturbed Riversidean Sage Scrub

Disturbed Riversidean sage scrub occurs in two small, isolated patches adjacent to Rancho California Road (Photograph 2). These patches generally appear to have been mowed, grazed, or subject to some other form of disturbance, as they have low, sparse native sage scrub species, interspersed with non-native grasses and forbs. The disturbed Riversidean sage scrub has low to moderate vegetation cover and is dominated by native California buckwheat and non-native species such as tumbleweed (*Salsola* sp.) and shortpod mustard (*Hirschfeldia incana*).

PHOTOGRAPH 1
View of Riversidean Sage Scrub East of Rancho California Road, Facing East

PHOTOGRAPH 2
View of Disturbed Riversidean Sage Scrub along a Segment of Rancho California Road, Facing Southeast

3.2.3 Southern Cottonwood/Willow Riparian

Southern cottonwood/willow riparian habitat is found in isolated segments within the survey area, adjacent to Rancho California Road and East Benton Road (Photograph 3). This vegetation community is dominated by narrow-leaved willow (*Salix exigua*), red willow (*Salix laevigata*), and Fremont cottonwood (*Populus fremontii*), and contains a moderately vegetated understory comprised of mule fat (*Baccharis salicifolia*).

3.2.4 Disturbed Southern Cottonwood/Willow Riparian

Disturbed southern cottonwood/willow riparian habitat is found in isolated segments within the survey area, adjacent to Rancho California Road and Warren Road (Photograph 4). Disturbed southern cottonwood/willow riparian habitat within the survey area occurs adjacent to the central portion of the roadway. This vegetation community contains native riparian tree species, such as narrow-leaved willow, red willow, and Fremont cottonwood, but also contains non-native and ornamental species, such as Brazilian pepper tree (*Schinus terebinthifolius*) and Peruvian pepper tree (*Schinus molle*).

3.2.5 Tamarisk Scrub

Tamarisk scrub is found in a small, isolated patch within the survey area, adjacent to Warren Road (Photograph 5). Tamarisk scrub within the survey area occurs adjacent to the central portion of the roadway. This vegetation community is dominated by salt cedar (*Tamarix ramosissima*).

3.2.6 Ornamental

Ornamental trees and shrubs are found throughout the survey area, adjacent to roadways and developments (Photograph 6). This vegetation community contains non-native tree and shrub species, including non-native rose (*Rosa* sp.), French lavender (*Lavandula stoechas*), gum tree (*Eucalyptus* sp.), Brazilian pepper tree, and Peruvian pepper tree.

3.2.7 Disturbed Land

Disturbed land is found throughout the survey area, adjacent to paved roadways and residential developments (Photograph 7). Disturbed land within the survey area occurs as bare ground or previously disturbed soils dominated by non-native species, such as tumbleweed, redstem filaree (*Erodium cicutarium*), and big heron bill (*Erodium botrys*). Some areas within this habitat type appear to be associated with fallow agricultural fields or former agricultural use.

3.2.8 Urban/Developed

Urban/developed accounts for the majority of the survey area and occurs primarily as paved roadways with occasional unpaved roadways and driveways interspersed throughout the survey area (Photograph 8). This land cover type contains no vegetative cover.

PHOTOGRAPH 3
View of Southern Cottonwood/Willow Riparian Vegetation along a Segment of Rancho California Road, Facing South

PHOTOGRAPH 4
View of Disturbed Southern Cottonwood/Willow Riparian Vegetation along a Segment of Rancho California Road, Facing Northeast

PHOTOGRAPH 5
View of Tamarisk Scrub along a Segment of Buck Road, Facing Southwest

PHOTOGRAPH 6
View of Ornamental Vegetation along a Segment of Rancho California Road, Facing Southwest

PHOTOGRAPH 7
View of Disturbed Land along a Segment of Buck Road, Facing Northeast

PHOTOGRAPH 8
View of Urban/Developed Land along a Segment of Rancho California Road, Facing South

3.3 Zoological Resources

A total of 44 wildlife species were identified during the biological survey (Attachment 4). Most of the species observed were riparian or urban-adapted species typical of disturbed land. Section 4.0 addresses sensitive wildlife species and their potential to occur.

3.4 Jurisdictional Resources

Several culverted drainage channels travel under Rancho California Road, Warren Road, East Benton Road, and De Portola Road (Figure 5). The culverted drainage channels are associated with ephemeral drainages and riparian habitat adjacent to these roadways with the survey area (see Figure 5). The culverted drainage channels underlying the roadways and ephemeral drainages adjacent to the roadways would likely be considered waters of the state under Regional Water Quality Control Board (RWQCB) and CDFW jurisdiction, as well as MSHCP riverine resources.

Several riparian areas associated with ephemeral drainages occur in the northern survey area adjacent to Rancho California Road, Warren Road, and East Benton Road (see Figure 4). The riparian areas and ephemeral drainages adjacent to the roadways would likely be considered waters of the state under RWQCB and CDFW jurisdiction. As mentioned above, a formal aquatic resources delineation was not conducted because it was determined that project activities would not significantly affect the aquatic resources observed on-site during the general biological survey.

4.0 Sensitive Biological Resources

4.1 Sensitivity Criteria/Regulatory Setting

For purposes of this report, species will be considered sensitive if they are (1) listed or proposed to be listed by state or federal agencies as threatened or endangered (CDFW 2023a-e); (2) on California Rare Plant Rank (CRPR) 1B (considered endangered throughout its range), CRPR 2 (considered endangered in California but more common elsewhere), CRPR 3 (more information about the plant's distribution and rarity needed), and CRPR 4 (plants of limited distribution) of the CNPS Inventory of Rare and Endangered Vascular Plants of California (2023); or covered species under the Western Riverside County Multiple Species Habitat Conservation Plan (Western Riverside County Regional Conservation Authority [WRCRCA] 2003).

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area
Culvert

Aquatic Resources
Wetland
Culverted Non-vegetated Drainage
Drainage

0 Feet 100

RECON

M:\JOBS5\9878.21\common_gis\MXD\fig5_North_bio.mxd 11/10/2023 bma

FIGURE 5.1
Existing Aquatic Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area
Culvert

Aquatic Resources
Wetland
Disturbed Wetland
Culverted Non-vegetated Drainage
Drainage

0 Feet 100

RECON

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FIGURE 5.2
Existing Aquatic Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Potential Staging Area
Project Impact Area
Culvert

Aquatic Resources
Wetland
Disturbed Wetland
Culverted Non-vegetated Drainage
Drainage

0 Feet 100

RECON

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FIGURE 5.3
Existing Aquatic Resources within Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Survey Area
Project Impact Area
Culvert

Aquatic Resources
Wetland
Culverted Non-vegetated Drainage
Drainage

0 Feet 100

RECON

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FIGURE 5.4
Existing Aquatic Resources within Northern Alignment

4.1.1 Federal Regulations

4.1.1.1 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act of 1918 (MBTA) was established to provide protection to the breeding activities of migratory birds throughout the U.S. The MBTA, which is enforced by USFWS, makes it unlawful "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird, or attempt such actions, except as permitted by regulation. The take, possession, import, export, transport, sale, purchase, barter, or offering of these activities is prohibited, except under a valid permit or as permitted in the implementing regulations.

4.1.1.2 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) (16 United States Code 1531 et seq.) is implemented by the USFWS through a program that identifies and provides for protection of various species of fish, wildlife, and plants deemed to be in danger of or threatened with extinction. As part of this regulatory act, the FESA provides for designation of critical habitat, defined in FESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features "essential to the conservation of the species" are found and that "may require special management considerations or protection." Critical habitat may also include areas outside the current geographical area occupied by the species that are nonetheless "essential for the conservation of the species." There is no USFWS critical habitat within the project area (USFWS 2023c).

4.1.1.3 Clean Water Act

Under the Clean Water Act Section 404, the U.S. Army Corps of Engineers (USACE) is authorized to regulate waters of the U.S. The currently accepted regulations defining waters of the U.S. follow the September 8, 2023 publishment of the final rule: *Revised Definition of "Waters of the U.S.", Conforming*. Notably, this new rule provides a new interpretation of the term "adjacent" whereas wetlands must contain a surface hydrologic connection to other waters of the U.S. to be considered adjacent waters of the U.S. Additionally, this new rule eliminates the applicability of the significant nexus standard for "non-relatively permanent waters", so ephemeral features are no longer likely to be considered waters of the U.S.

4.1.2 State Regulations

4.1.2.1 California Endangered Species Act

The CDFW administers the California Endangered Species Act (CESA) (California Fish and Game Code [CFGC] Section 2050 et seq.), which prohibits the take of plant and animal species designated by the California Fish and Game Commission as endangered or threatened in California. Under CESA Section 86, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA Section 2053 stipulates that state agencies may not approve projects that will "jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species,

if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy."

4.1.2.2 California Fish and Game Code

The CFGC regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as natural resources such as wetlands and waters of the State. It includes the CESA (Sections 2050-2115) and Streambed Alteration Agreement regulations (Sections 1600-1616), as well as provisions for legal hunting and fishing, and tribal agreements for activities involving take of native wildlife. The CFGC also includes protection of birds (Sections 3500 et seq.) and the Native Plant Protection Act (Sections 1900-1913), which directed CDFW to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State."

Pursuant to Section 1602 of the CFGC, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. A Streambed Alteration Agreement (CFGC Section 1602 et seq.) is required for impacts on jurisdictional resources, including streambeds and associated riparian habitat.

In addition, the CDFW affords protection over the destruction of nests or eggs of native bird species (CFGC Section 3503), and it states that no birds in the orders of Falconiformes or Strigiformes (birds of prey) can be taken, possessed, or destroyed (CFGC Section 3503.5). The project is designed to comply with Sections 3503 and 3503.3 which precludes direct impacts to nesting birds and raptors.

4.1.3 Local Regulations

4.1.3.1 Multiple Species Habitat Conservation Plan

The project is located within the MSHCP area (WRCRCA 2003; see Figures 1–3). The MSHCP was designed to conserve approximately 500,000 acres of habitat, including 347,000 acres of existing conservation on public and quasi-public land and 153,000 acres of conservation on privately-owned lands. Areas of privately-owned lands considered for potential conservation are identified as Criteria Cells, which are intended to facilitate assessment of conservation potential under the MSHCP. In this way, the MSHCP directs future conservation efforts to occur within these Criteria Cells.

The portions of the project along Rancho California Road and Glenoaks Road are not located within or adjacent to any Criteria Cells. However, portions of the project along East Benton Road, Buck Road, and Warren Road are located in the vicinity of Criteria Cells 6154, 6083, and 6088 identified by the MSHCP. Criteria cells occur approximately 0.4 mile to the north and 0.6 mile to the west of the project site and it is anticipated that no project work will occur within Criteria Cells.

Additionally, portions of the potential staging areas for the project are located within the survey area for western burrowing owl (*Athene cunicularia hypugaea*), as identified in the MSHCP (County of Riverside 2003). The project does not fall within the MSHCP survey areas for Criteria Area plant species, narrow endemic plant species, amphibians, mammals, or Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*).

4.2 Sensitive Vegetation Communities

The CDFW considers Riversidean sage scrub and disturbed Riversidean sage scrub to be a sensitive upland vegetation community prioritized for conservation per the Natural Communities Conservation Planning Act. In addition, cottonwood/willow riparian and disturbed cottonwood/willow riparian are considered sensitive wetland vegetation communities. Any impacts to these vegetation communities would be considered significant under CEQA and require mitigation.

4.3 Sensitive Plants

One sensitive plant species, ashy spike-moss (*Selaginella cinerascens*), was observed within the survey area during the biological survey and is discussed in more detail below. No other sensitive plants were observed within or adjacent to the survey during the biological survey and none have a moderate or high potential to occur. Most portions of the survey area contain urban/developed land and disturbed land and are not suitable to support sensitive plant species. Sensitive plant species known to occur within one mile of the survey area, based on a database review, are presented in Attachment 5 and evaluated for potential to occur.

Ashy Spike-moss. This species was observed in the Riversidean sage scrub habitat within the survey area. This species is given a CRPR 4.1 by CNPS (CNPS 2023. It occurs in scrub and chaparral habitats on a wide range of soil types (Baldwin et al. 2012, Reiser 2001).

4.4 Sensitive Wildlife

One sensitive wildlife species, least Bell's vireo, was detected during a focused survey. One other sensitive wildlife species, downy woodpecker (*Dryobates [=Picoides] pubescens*), was detected during the general biological survey. Six other sensitive wildlife species were determined to have a moderate potential to occur in the survey area: burrowing owl, ferruginous hawk (*Buteo regalis*), northern harrier (*Circus hudsonius*), Stephens' kangaroo rat (*Dipodomys stephensi*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and California glossy snake (*Arizona elegans occidentalis*). In addition, focused surveys were conducted for coastal California gnatcatcher to determine species presence/absence. These species are evaluated for potential to occur below and presented in Attachment 6.

Least Bell's Vireo. The least Bell's vireo is federally and state listed as endangered, and an MSHCP covered species (CDFW 2023e; WRCRCA 2003). One least Bell's vireo was detected within southern cottonwood/willow riparian habitat adjacent to Rancho California Road (see Figure 4; see Attachment 1). Based on the survey results, least Bell's vireo is assumed to be present in all southern cottonwood/willow riparian and disturbed southern cottonwood/willow riparian adjacent to the project site, outside of the project impact area.

Downy Woodpecker. The downy woodpecker is a MSHCP covered species (WRCRCA 2003). This species was detected visually and audibly during the general biological survey within the cottonwood/willow riparian habitat adjacent to Rancho California Road (see Figure 4). As such,

downy woodpecker is assumed to be present in all southern cottonwood/willow riparian and disturbed southern cottonwood/willow riparian adjacent to the project site, outside of the project impact area.

Coastal California Gnatcatcher. The coastal California gnatcatcher is federally listed as threatened, a CDFW species of special concern, and an MSHCP covered species (CDFW 2023e; WRCRCA 2023). This species is not expected to occur within the project site and was not observed within the Riversidean sage scrub adjacent to the project site during protocol surveys in 2023 (see Attachment 2). The scrub habitat adjacent to the project site is limited to small, isolated patches bounded by urban/developed land and lacks connectivity to open space areas with suitable habitats.

Burrowing Owl. The burrowing owl is a CDFW species of special concern and an MSHCP covered species (CDFW 2023e; WRCRCA 2023). No burrowing owl, burrows or sign were noted within the project site; however, the disturbed land in the potential staging areas contains suitable foraging habitat. In addition, one suitable burrow was noted adjacent to Rancho California Road, outside the project impact area.

Ferruginous Hawk. The ferruginous hawk is a CDFW watch list species and an MSHCP covered species (CDFW 2023e; WRCRCA 2023). This species was not observed during surveys and it is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to forage in the disturbed land within the potential staging areas of the project site due to the presence of suitable habitat. This species is a winter migrant and is not known to nest in southern California.

Northern Harrier. The northern harrier is a CDFW species of special concern and an MSHCP covered species (CDFW 2023e; WRCRCA 2003). This species was not observed during surveys and it is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to occur in the disturbed land within the potential staging areas of the project site due to the presence of suitable foraging habitat.

Stephens' Kangaroo Rat. The Stephens' kangaroo rat is a federally listed endangered, a state listed threatened species, and an MSHCP and Stephens' Kangaroo Rat Habitat Conservation Program covered species (CDFW 2023e; WRCRCA 20023). No Stephens' kangaroo rat or signs of the species were observed during surveys and this species is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to occur within the disturbed land in the potential staging areas. These areas are typified by dense non-native grasses and forbs that lack suitable open areas for this species; however, they appear to be subject to periodic mowing and/or tilling and may contain suitable open, low-lying vegetation for portions of the year.

San Diego Black-tailed Jackrabbit. The San Diego black-tailed jackrabbit is an MSHCP covered species (WRCRCA 2003). This species was not observed during surveys and it is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to occur in the disturbed land within the potential staging areas.

California Glossy Snake. The California glossy snake is a CDFW species of special concern (CDFW 2023e). This species was not observed during surveys and it is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to occur within

the potential staging areas for the project site due to the presence of suitable disturbed habitat with loose soils.

Migratory and Nesting Birds. The majority of the project site and adjacent vegetation communities and land cover types have potential to support migratory and nesting bird species. Urban-adapted species have been known to nest within ornamental vegetation or the eaves of houses or openings in structures. Ground nesting species have the potential to nest within the disturbed land and open areas found within the urban/developed land within and adjacent to the project site.

4.5 Wildlife Movement Corridors

Wildlife movement corridors are defined as areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors for wildlife travel. Wildlife movement corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations (Beier and Loe 1992). Wildlife movement corridors are considered sensitive by resource and conservation agencies.

The project site is located on major thoroughfares that are primarily surrounded by a mosaic of agricultural and rural-residential development interspersed with unimproved lots. Open space to the northeast may support wildlife movement; however, any movement from this area through the project site is ultimately restricted by Rancho California/Buck Road and rural-residential development to the north, east, and south. Thus, the project site as a whole is not anticipated to provide a throughway for regional wildlife movement. Also, the project site is unlikely to support wildlife nursery sites or large roosting or breeding colonies due to the disturbed and developed nature of the project site.

5.0 Avoidance, Minimization, and Mitigation for Project Impacts

5.1 Vegetation Communities and Land Cover Types

Project impacts are detailed in Table 2 and illustrated on Figure 4. The project is anticipated to directly impact urban/developed land within existing roadways and disturbed land adjacent to roadways. Urban/developed land and disturbed land are not considered sensitive and thus would not require mitigation for impacts.

Table 2 Impacts to Vegetation Communities	
Land Cover Types	Impacts (acres)
Disturbed land	9.21*
Urban/developed	10.78
TOTAL	19.99
*Includes acreage of potential staging areas outside of ROW.	

5.2 Sensitive Plant Species

There are no expected indirect or direct impacts to sensitive plant species. As construction activities will mainly occur within existing roads and road rights-of-way, the majority of the project area constitutes urban/developed land or disturbed land and is not suitable to support sensitive plant species such as ashy spike-moss. Therefore, no mitigation for sensitive plant species is required.

5.3 Sensitive Wildlife Species

Least Bell's Vireo. This species is known to occur on the project site and is assumed to be present in all southern cottonwood/willow riparian and disturbed southern cottonwood/willow riparian adjacent to the project site, outside of the project impact area. As such, direct impacts to least Bell's vireo are not anticipated as the project would be limited to the developed roadway and the project would avoid removal of suitable riparian habitat. However, due to the proximity of potentially suitable riparian habitat to work areas, indirect impacts as a result of construction noise during the breeding season (March 15 through September 15) could result if this species were to nest adjacent to the project site. Construction during the breeding season adjacent to occupied habitat would require the following measures to avoid impacts to least Bell's vireo.

AMM-BIO-1: Least Bell's Vireo

a. Between March 15 and September 15, no construction activities shall occur within any portion of the project site where construction activities would result in noise levels exceeding 60 A-weighted decibels [dB(A)] hourly average (or ambient, whichever is higher) at the edge of occupied least Bell's vireo habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(A) hourly average at the edge of occupied habitat must be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the District at least two weeks prior to the commencement of construction activities. Prior to the commencement of construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist.

Burrowing Owl. The project has the potential to result in direct impacts to burrowing owl as a result of vegetation removal and construction activities in the disturbed land within the potential staging areas. Direct impacts to this species would be considered significant and require mitigation as outlined in the MSHCP and detailed in AMM-BIO-2 below.

AMM-BIO-2: Burrowing Owl

Conduct a pre-construction take avoidance survey in suitable disturbed land within the project footprint, plus 500 feet. Per the Staff Report on Burrowing Owl Mitigation (CDFW 2012), take avoidance surveys require an initial survey no less than 14 days prior to the start of ground disturbance activities and a final survey conducted within 24 hours of ground disturbance. If burrowing owls are detected, the CDFW must be notified within 48 hours and avoidance measures and/or mitigation would be required.

If active burrowing owl burrows are identified within the potential impact area, the project shall avoid disturbing active burrowing owl burrows (nesting sites) and burrowing owl individuals. Buffers shall be established around occupied burrows in accordance with guidance provided in the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012) based on the proposed level of disturbance. For low disturbance projects, initial setback distances for avoidance of active burrows shall be 200 meters (approximately 656 feet) from April 1 to October 15 and 50 meters (164 feet) from October 16 to March 31. Exceptions can be made to the avoidance distance for areas with natural (hills, trees) or artificial (buildings, walls) barriers in place. The final avoidance buffer shall be at the discretion of the biologist. If, after consideration of a reduced buffer, an adequate avoidance buffer cannot be provided between an occupied burrow and required ground-disturbing activities, then passive relocation activities during the non-breeding season (September 1 through January 31) may be authorized in consultation with CDFW, which would include preparation, approval, and implementation of a Burrowing Owl Exclusion Plan in accordance with protocol described in the CDFW Staff Report on Burrowing Owl Mitigation.

Stephens' Kangaroo Rat. The project has potential to result in direct impacts to Stephens' kangaroo rat through incidental mortality from vegetation removal and construction activities in the disturbed land within the potential staging areas. Measures to avoid impacts to Stephens' kangaroo rat are described below.

AMM-BIO-3: Stephens' Kangaroo Rat

Conduct a pre-construction take avoidance survey within the potential staging areas. The take avoidance surveys would require a focused habitat assessment survey within 14 days prior to the start of ground disturbance activities to determine whether the potential staging area contains suitable habitat with potential Stephens' kangaroo rat sign, tracks, or burrows. If no evidence of Stephens' kangaroo rat is present, then the staging area will be fenced with silt fencing to the roadway to prevent occupation by this species during construction. If evidence of Stephens' kangaroo rat is present, potential staging areas will avoid suitable disturbed land and be limited to unsuitable areas of disturbed land and/or the developed roadway.

San Diego Black-tailed Jackrabbit. The project has potential to result in direct impacts to San Diego black-tailed jackrabbit through incidental mortality from vegetation removal and construction activities in the disturbed land within the potential staging areas. However, this species if present likely occurs on-site in low numbers, and the project would be expected to result in the loss of very few individuals, if any. The potential loss of these individuals would not reduce the population to less than self-sustaining. Therefore, potential impacts would be considered less than significant and no mitigation is required.

California Glossy Snake. The project has potential to result in direct impacts to California glossy snake through incidental mortality from vegetation removal and construction activities in the disturbed land within the potential staging areas. However, this species if present likely occurs on-site in low numbers, and the project would be expected to result in the loss of very few individuals, if any. The potential loss of these individuals would not reduce the population to less than self-sustaining. Therefore, potential impacts would be considered less than significant and no mitigation is required.

Migratory and Nesting Birds. Potential direct and indirect impacts could result to nesting and migratory birds, including downy woodpecker and northern harrier, should construction activities occur during the general avian and raptor breeding season (January 1 through August 31). Potential direct impacts could result from vegetation removal and construction activities in the disturbed land within the proposed staging areas. Indirect noise impacts may also occur to migratory and nesting birds if they are nesting in the adjacent habitat. These species are protected by the CFGC Section 3503.5 and impacts to nesting individuals would need to be avoided. Measures to avoid impacts to nesting and migratory birds are described in AMM-BIO-4 below.

AMM-BIO-4: Migratory and Nesting Birds

Construction should be conducted outside the avian and raptor breeding season, which is generally defined as January 1 to August 31. If construction must take place during the nesting season, a qualified biologist shall perform a pre-construction survey for nesting birds within the project site, including a 500-foot buffer. The nesting bird survey shall occur no more than seven days prior to the start of construction. If active bird nests are confirmed to be present during the pre-construction survey, a buffer zone will be established by a qualified biologist until a qualified biologist has verified that the young have fledged or the nest has otherwise become inactive.

5.4 Aquatic Resources

The project would avoid direct impacts to potentially jurisdictional non-wetland waters by using jack and bore and/or trenchless techniques. However, the project has potential to result in indirect impacts to potential jurisdictional resources occurring adjacent to the project site. Measures to avoid indirect impacts to potential jurisdictional resources are described below.

AMM-BIO-5: Aquatic Resources

To avoid indirect impacts to potentially jurisdictional features, best management practices, such as the use of silt fences, fiber rolls, and/or gravel bags, should be implemented. No equipment maintenance or fueling should be performed within or near the drainage channels where petroleum products or other pollutants from the equipment may enter this area.

6.0 References Cited

American Society of Mammalogists
2021 Mammalian Species (online). http://www.mammalsociety.org/publications/mammalian-species.

Baker, R., L. C. Bradley, R. D. Bradley, J. W. Dragoo, M. D. Engstrom, R. S. Hoffman, C. A. Jones, F. Reid, D. W. Rice, and C. Jones
2003 *Revised Checklist of North American Mammals North of Mexico*. Occasional Papers, Museum of Texas Tech University, Number 173. December 19.

Baldwin, B.G., S. Boyd, B.J. Ertter, R.W. Patterson, T.J. Rosatti, D.H. Wilken, eds.
2002a *The Jepson desert manual: Vascular plants of southeastern California*. University of California, Berkeley and Los Angeles.

Beier, P., and S. Loe
1992 A Checklist for Evaluating Impacts to Wildlife Movement Corridors. *Wildlife Society Bulletin* 20: 434-440.

Bradley, Robert D., Loren K. Ammerman, Robert J. Baker, Lisa C. Bradley, Joseph A. Cook, Robert C. Dowler, Clyde Jones, David J. Schmidly, Frederick B. Stangl, Jr., Ronald A. Van Den Bussche, and Bernd Würsig
2014 Revised Checklist of North American Mammals North of Mexico, 2014. Occasional Papers, Museum of Texas Tech University No. 327. October 2.

Brenzel, K. N. (editor)
2001 *Sunset Western Garden Book*. Sunset Publishing Corporation, Menlo Park, CA.

California Department of Fish and Wildlife (CDFW)
2012 Staff Report on Burrowing Owl Mitigation. March 7.

2023a Natural Diversity Database. Nongame-Heritage Program, California Department of Fish and Wildlife, Sacramento. Accessed March. RareFind Version 5.2.14.

2023b Special Vascular Plants, Bryophytes, and Lichens List. Quarterly Publication. 140 pp. January.

2023c State and Federally Listed Endangered and Threatened Plants of California. Natural Diversity Data Base. Department of Fish and Game.

2023d Special Animals List. Periodic Publication. 51 pp. Natural Diversity Database.

2023e State and Federally Listed Endangered and Threatened Animals of California. Natural Diversity Data Base. Department of Fish and Game.

California Native Plant Society (CNPS)
2023 Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). http://www.rareplants.cnps.org. Accessed October.

Chesser, R. T., S. M. Billerman, K. J. Burns, C. Cicero, J. L. Dunn, B. E. Hernández-Baños, R. A. Jiménez, A. W. Kratter, N. A. Mason, P. C. Rasmussen, J. V. Remsen, Jr., D. F. Stotz, and K. Winker
2023 Check-list of North American Birds (online). American Ornithological Society. https://checklist.americanornithology.org/taxa/.

Crother, B. I., Rondald M. Bonett, Jeff Boundy, Frank T. Burbrink, Kevin de Queiroz, Darrel R. Frost, Richard Highton, John B. Iverson, Elizabeth L Jockusch, Fred Kraus, Kenneth L. Krysko, Adam D. Leaché, Emilly Moriarty Lemmon, Roy W. McDiarmid, Joseph R. Mendelson III, Peter A. Meylan, Tod W. Reeder, Sara Ruane, Michael E. Seidel
2017 Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding. Eighth Edition. Society for the Study of Amphibians and Reptiles Herpetological Circular 43.

Eriksen, Clyde, and Denton Belk
1999 *Fairy Shrimp of California's Puddles, Pools, and Playas.* Mad River Press, Eureka.

Evans, Arthur V.
2008 *Field Guide to Insects and Spiders of North America.* Sterling Publishing Company, New York.

Harvey, M. J., J. S. Altenbach, and T. L. Best
2011 *Bats of the United States and Canada*. The Johns Hopkins University Press, Baltimore.

Integrated Taxonomic Information System (ITIS)
2022 ITIS Website. Accessed on December 28, 2022. https://www.itis.gov/.

Jennings, M. R., and M. P. Hayes
1994 Amphibian and Reptile Species of Special Concern in California. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA. Contract number 8023.

Jepson Flora Project (Editors)
2023 Jepson eFlora, http://ucjeps.berkeley.edu/eflora/. Accessed October, 2023.

Nature Festivals of San Diego County
2002 Checklist of Butterflies of San Diego County. Revised September. https://www.sdnhm.org/science/entomology/projects/checklist-of-butterflies-of-san-diego-county/.

NatureServe
2023 NatureServe Explorer. https://www.natureserve.org/.

Rebman, J. P., and M. G. Simpson
2014 *Checklist of the Vascular Plants of San Diego County*, 5th edition. San Diego Natural History Museum.

Reiser, Craig
2001 *Rare Plants of San Diego County*. Aquafir Press.

Riverside, County of
2003 Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Prepared by Dudek and Associates. Approved June 17. https://www.wrc-rca.org/Permit_Docs/MSHCP/MSHCP-Volume%201.pdf.

San Diego Natural History Museum
2002 Butterflies of San Diego County, prepared by Michael Klein. Revised September 2002. http://www.sdnhm.org/science/entomology/projects/checklist-of-butterflies-of-san-diego-county/.

Tremor, S., D. Stokes, W. Spencer, J. Diffendorfer, H. Thomas, S. Chivers, and P. Unitt, eds.
2017 *San Diego County Mammal Atlas*. San Diego Natural History Museum.

United States Department of Agriculture (USDA)
1971 Soil Survey, Western Riverside Area, California. Edited by Arnold A. Knecht. Soil Conservation Service. November.

2021 PLANTS Database. Plant List of Accepted Nomenclature, Taxonomy, and Symbols. National Plant Data Team, Greensboro, North Carolina, USA. https://plants.usda.gov/home.

2023 Natural Resources Conservation Service, Soil Survey Staff. Official Soil Series Descriptions. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed October.

United States Fish and Wildlife Service (USFWS)
1997 Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Protocol. July.

2001 Least Bell's Vireo Survey Guidelines. January 19.

2023a Information for Planning and Consultation (IPaC) Database. Accessed October.

2023b All Species Occurrences GIS Database. Carlsbad Fish and Wildlife Office. Accessed October.

2023c Critical Habitat and Occurrence Data"[map]. http://www.fws.gov/data. Accessed October.

United States Geological Survey (USGS)
1978 Bachelor Mountain Quadrangle 7.5-Minute Topographic Map.

Unitt, P. A.
2004 San Diego County Bird Atlas. Proceedings of the San Diego Society of Natural History, No. 39. San Diego Natural History Museum.

Urban Forest Ecosystems Institute at Cal Poly (UFEI)
2022 SelecTree. Accessed on December 28, 2022. https://selectree.calpoly.edu/.

Western Riverside County Regional Conservation Authority (WRCRCA)
2003 Western Riverside County Multiple Species Habitat Conservation Plan. https://rctlma.org/Portals/0/mshcp/volume3/Exhibit_C.html; https://rctlma.org/Portals/0/mshcp/volume3/Exhibit_E.html; https://rctlma.org/Portals/0/mshcp/volume1/table9-2.html.

ATTACHMENTS

ATTACHMENT 1

Results of 2023 Least Bell's Vireo Focused Surveys

RECON

An Employee-Owned Company

September 5, 2023

Ms. Stacey Love
U.S. Fish and Wildlife Service
Carlsbad Field Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

Reference: Results of the 2023 Least Bell's Vireo Surveys for the Eastern Municipal Water District's Wine Country Sewer Project, Temecula, California (RECON Number 9878-15)

Dear Ms. Love:

This letter is to notify the U.S. Fish and Wildlife Service (USFWS) of the results of our focused surveys for the federally listed endangered least Bell's vireo (*Vireo bellii pusillus*; hereinafter "vireo") conducted for Eastern Municipal Water District's Wine Country Sewer Project (project). The project is located in the city of Temecula, California (Figures 1 and 2). Regional access to the project is provided via Interstate 15, located approximately 3.6 and 7.5 miles to the east, and local access is provided via State Route 79 and Rancho California Road. The project is in the U.S. Geological Survey (USGS) Bachelor Mountain and Pechanga quadrangles, Township 07 and 08 South, Range 01 and 02 West (USGS 1978 and 1997; see Figure 2). Focused surveys were located within the northern segment of the project area and within the road right-of-way.

The project involves the installation of a sewer transmission main and laterals within existing city streets. The estimated total distance covered by the proposed Wine Country Sewer main is approximately 7.2 miles. An additional potential Alternative Southern Alignment segment of approximately 2.0 miles is also being evaluated. It is anticipated that sewer main segments and work areas would primarily occur within existing paved and unpaved roadways and roadsides, and laterals would provide connections to existing development. Indirect impacts to vireo in suitable habitat adjacent to the project could potentially occur as a result of noise from construction activities.

Methods

RECON Environmental, Inc. (RECON) biologists Alex Fromer or Chelsea Polevy, assisted by Julia Gaudio, conducted eight focused surveys for vireo between May and July 2023 in accordance with the USFWS survey guidelines/protocol (USFWS 2001). The surveys were focused within the 1.21 acres of suitable riparian habitat within a 100-foot buffer of the project alignment (herein referred to as the survey area; Figure 3). Adjacent scrub areas along the edge of the riparian habitats were also surveyed to encompass potentially suitable foraging habitat. The vireo surveys were conducted at least 10 days apart, in accordance with the current USFWS survey guidelines/protocol (USFWS 2001). The survey visit dates, personnel, times, and weather conditions are provided in Table 1. All bird species observed during the surveys were noted. Surveys were not conducted during excessive heat, wind, rain, fog, or other inclement weather.

Table 1
Survey Dates, Personnel, Times, and Conditions

Date	Survey Number	Surveyor	Beginning Conditions	Ending Conditions	Acres Surveyed/ Hour	Results
5/9/2023	1	Alex Fromer	9:30 a.m.; 58°F; winds 2-4 mph; 100% cloud cover	11:00 a.m.; 59°F; winds 1-3 mph; 25% cloud cover	0.9	No vireo observed
5/22/2023	2	Chelsea Polevy	7:15 a.m.; 61°F; winds 0-2 mph; 100% cloud cover	9:00 a.m.; 64°F; winds 0-2 mph; 100% cloud cover	0.8	No vireo observed
6/2/2023	3	Alex Fromer	9:45 a.m.; 65°F; winds 1-2 mph; 100% cloud cover	11:00 a.m.; 65°F; winds 1-3 mph; 15% cloud cover	1.1	No vireo observed
6/12/2023	4	Chelsea Polevy	8:00 a.m.; 59°F; winds 0–3 mph; 100% cloud cover	10:15 a.m.; 61°F; winds 0-3 mph; 95% cloud cover	0.6	No vireo observed
6/23/2023	5	Alex Fromer, Julia Gaudio*	9:30 a.m.; 60°F; winds 0–2 mph; 0% cloud cover	10:30 a.m.; 66°F; winds 0-1 mph; 0% cloud cover	1.4	1 vireo observed, vocals only (central portion of survey area)
7/3/2023	6	Chelsea Polevy	9:15 a.m.; 78°F; winds 0-1 mph; 15% cloud cover	10:45 a.m.; 84°F; winds 0-2 mph; 15% cloud cover	0.9	No vireo observed
7/13/2023	7	Chelsea Polevy	8:00 a.m.; 79°F; winds 0-1 mph; 5% cloud cover	9:45 a.m.; 84°F; winds 2-5 mph; 5% cloud cover	0.8	No vireo observed
7/23/2023	8	Chelsea Polevy	9:10 a.m.; 75°F; winds 0–1 mph; 100% cloud cover	10:35 a.m.; 78°F; winds 2-5 mph; 100% cloud cover	0.9	No vireo observed

°F = degrees Fahrenheit; mph = miles per hour; % = percent; *=under supervision

Existing Conditions

A total of 1.21 acres within the 100-foot corridor surrounding the project area were identified as supporting suitable habitat for vireo and survey efforts were focused on these areas (see Figure 3). Suitable nesting habitat found within the survey area includes southern riparian forest and southern willow scrub. Vegetation communities and land cover types that were not considered suitable for nesting were primarily excluded from the survey area. These areas included Riversidean sage scrub, tamarisk scrub, ornamental habitat, disturbed land, and urban/developed land, due to a lack of suitable cover of willows or other riparian tree or shrub species to support vireo.

Patches of suitable riparian habitat are found within the northern portion of the survey area, adjacent to the southwestern portion of Rancho California Road and the northeastern portion of East Benton Road. Suitable least Bell's vireo habitat within the survey area is primarily composed of Goodding's black willow (*Salix gooddingii*), red willow (*Salix laevigata*), and Fremont cottonwood (*Populus fremontii*), and contains additional native plant species suitable for nesting, such as mule fat (*Baccharis salicifolia*). Riparian habitats within the survey area also contain low cover of ornamental and non-native plant species, such as pepper trees (*Schinus* spp.), due to the edge effects of adjacent roadways and surrounding development. The suitable riparian habitat is considered low to moderate quality and varies from sparsely to densely vegetated with varying amounts of native and non-native trees, shrubs, and other herbaceous vegetation. The survey area does not contain any areas mapped as Critical Habitat for vireo.

Results

One vireo was detected within suitable riparian habitat in the central portion of the survey area on June 23, 2023 during the fifth focused survey (see Figure 3). The vireo was identified vocally and no visual observations of vireo were made. No other vireo was detected during any other surveys and no other federally listed avian species were detected during protocol surveys.

If you have any questions concerning the contents of this letter, please contact me at jgaudio@reconenvironmental.com or (619) 308-9333 extension 150.

Sincerely,

Julia Gaudio
Biologist

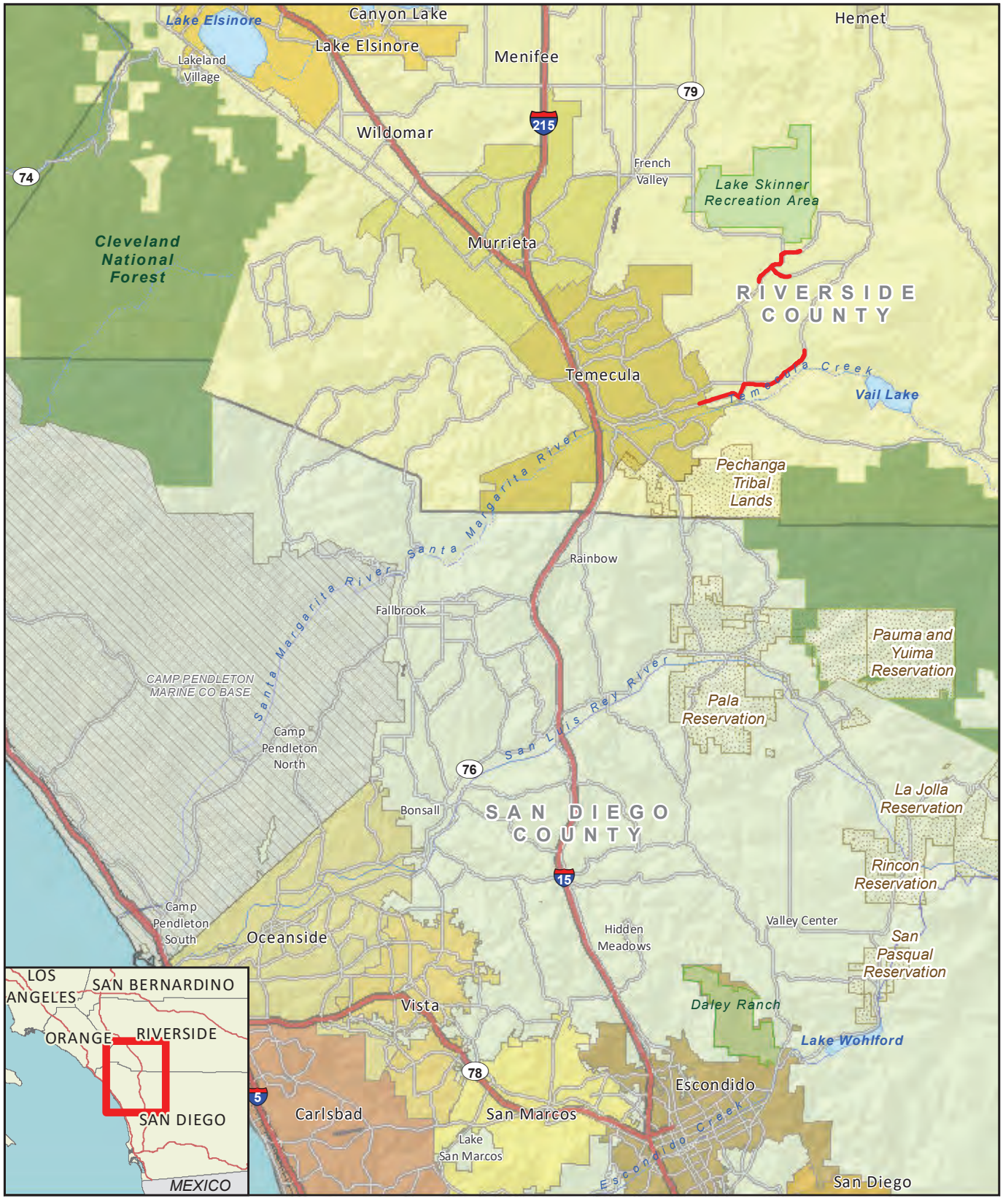
JRG:sh

References Cited

U.S. Fish and Wildlife Service (USFWS)
2001 Least Bell's Vireo Survey Guidelines. January 19.

U.S. Geological Survey
1978 7.5 minute topographic map series, Bachelor Mtn. quadrangle.

1997 7.5 minute topographic map series, Pechanga quadrangle.



Project Location

RECON

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FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, Bachelor Mtn. (1978) and Pechanga (1997) quadrangles, Pauba Land Grant/T07S R02W

Project Location

RECON

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FIGURE 2
Project Location on USGS Map

Image Source: NearMap (flown January 2023)

0 Feet 150

Project Location
Survey Area
Least Bell's Vireo Suitable Habitat

Least Bell's Vireo
(*Vireo bellii pusillis*)
Detected Audibly

RECON

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FIGURE 3a
Least Bell's Vireo Survey Results

Image Source: NearMap (flown January 2023)

Project Location

Survey Area

Least Bell's Vireo Suitable Habitat

RECON

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FIGURE 3b

Least Bell's Vireo Survey Results

ATTACHMENT 2

Results of 2023 Coastal California Gnatcatcher Focused Surveys

RECON

An Employee-Owned Company

August 14, 2023

Ms. Stacey Love
U.S. Fish and Wildlife Service
Carlsbad Field Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

Reference: Results of the 2023 Coastal California Gnatcatcher Surveys for the Eastern Municipal Water District's Wine Country Sewer Project, Temecula, California (RECON Number 9878-15)

Dear Ms. Love:

This letter is to notify the U.S. Fish and Wildlife Service (USFWS) of the results of our focused surveys for the federally-listed threatened coastal California gnatcatcher (*Polioptila californica californica*) conducted for the Eastern Municipal Water District's Wine Country Sewer Project (project). The project is located in the city of Temecula, California (Figures 1 and 2). Regional access to the project is provided via Interstate 15, located approximately 3.6 and 7.5 miles to the east, and local access is provided via State Route 79 and Rancho California Road. The project is in the U.S. Geological Survey (USGS) Bachelor Mountain and Pechanga quadrangles, Township 07 and 08 South, Range 01 and 02 West (USGS 1978 and 1997; see Figure 2). Focused surveys were located within the northern segment of the project area and within the road right-of-way.

The project involves the installation of a sewer transmission main and laterals within existing city streets. The estimated total distance covered by the proposed Wine Country sewer main is approximately 7.2 miles. An additional potential Alternative Southern Alignment segment of approximately 2.0 miles is also being evaluated. It is anticipated that sewer main segments and work areas would primarily occur within existing paved and unpaved roadways and roadsides, and laterals would provide connections to existing development. Indirect impacts to coastal California gnatcatcher in suitable habitat adjacent to the project could potentially occur as a result of noise from construction activities.

Methods

RECON Environmental, Inc. (RECON) biologist Alex Fromer, assisted by RECON biologists Julia Gaudio and Danelle Gadia, conducted focused surveys within the project area for coastal California gnatcatcher in May and June 2023 under the USFWS 10(a)(1)(A) Endangered/Threatened Species Permit TE-797665. Before surveys were conducted, a 15-day notification letter was submitted via email to the USFWS stating the intent to conduct coastal California gnatcatcher surveys. The protocol surveys were conducted in six site visits at least one week apart in accordance with the most current presence/absence survey protocol prepared by the USFWS (1997) for non-Natural Communities Conservation Plan/Habitat Conservation Plan participants. The survey visit dates, personnel, times, and weather conditions are provided in Table 1. Surveys were not conducted during excessive heat, wind, rain, fog, or other inclement weather. All bird species observed during the surveys were noted. In accordance with the protocol survey guidelines (USFWS 1997), RECON biologists walked all portions of suitable habitat and periodically used recorded vocalizations in an attempt to elicit initial calls. Recorded vocalizations were not used in the vicinity of predators such as California scrub-jay (*Aphelocoma californica*), red-tailed hawk (*Buteo jamaicensis*), or northern mockingbird (*Mimus polyglottos*).

Table 1
Survey Dates, Personnel, Times, and Conditions

Date	Survey No.	Surveyor(s)	Beginning Conditions	Ending Conditions	Acres Surveyed/ Hour	Results
5/26/2023	1	Alex Fromer	9:45 a.m.; 62°F; winds 0-2 mph; 75% cloud cover	11:00 a.m.; 64°F; winds 0-1 mph; 35% cloud cover	0.34	No coastal California gnatcatcher observed
6/2/2023	2	Alex Fromer	11:00 a.m.; 65°F; winds 1–3 mph; 15% cloud cover	12:00 p.m.; 69°F; winds 1 mph; 0% cloud cover	0.42	No coastal California gnatcatcher observed
6/9/2023	3	Alex Fromer	11:00 a.m.; 69°F; winds 1-2 mph; <5% cloud cover	12:00 p.m.; 71°F; winds 0-2 mph; <5% cloud cover	0.42	No coastal California gnatcatcher observed
6/16/2023	4	Alex Fromer	9:20 a.m.; 68°F; winds 1-2 mph; 100% cloud cover	10:20 a.m.; 69°F; winds 0-1 mph; <10% cloud cover	0.42	No coastal California gnatcatcher observed
6/23/2023	5	Alex Fromer, Julia Gaudio*	10:30 a.m.; 66°F; winds 0-1 mph; 0% cloud cover	11:30 a.m.; 69°F; winds 0-1 mph; 0% cloud cover	0.42	No coastal California gnatcatcher observed
6/30/2023	6	Alex Fromer, Danelle Gadia*	10:10 a.m.; 78°F; winds 0-2 mph; 0% cloud cover	11:20 a.m.; 82°F; winds 0-2 mph; 0% cloud cover	0.36	No coastal California gnatcatcher observed

°F = degrees Fahrenheit; mph = miles per hour; % = percent; * = under supervision

Exisiting Conditions

A total of 0.42 acre within the 100-foot corridor surrounding the project area was identified as supporting suitable habitat for the coastal California gnatcatcher and survey efforts were focused on these areas (Figure 3). Additional habitat outside of this corridor was also evaluated to the greatest extent possible from the edge of the easement/right-of-way. The northern portion of the survey area, adjacent to Rancho California Road, contains small patches of disturbed Riversidean sage scrub habitat capable of supporting this species. The dominant species consists of native California sagebrush (*Artemisia californica*), native California buckwheat (*Eriogonum fasciculatum*), and non-native species such as tumbleweed (*Salsola* sp.) and shortpod mustard (*Hirschfeldia incana*). The disturbed Riversidean sage scrub is considered low quality, with low to moderate vegetation cover occurring as two small, isolated patches.

Results

No coastal California gnatcatcher were vocally or visually detected within or adjacent to the survey area during the protocol surveys and no coastal California gnatcatcher use areas exist within the survey area.

One federally listed bird species—least Bell's vireo (*Vireo bellii pusillus*)—was vocally detected during protocol surveys of adjacent riparian habitat within the project survey area. A separate report documenting the least Bell's vireo surveys is in preparation and will be submitted to USFWS by September 6, 2023.

If you have any questions concerning the contents of this results letter, please contact me by e-mail or phone at jgaudio@reconenvironmental.com or (619) 308-9333 extension 150.

Sincerely,

Julia Gaudio
Biologist

JRG:sh

References Cited

U.S. Fish and Wildlife Service (USFWS)
1997 Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Protocol. July.

U.S. Geological Survey
1978 7.5 minute topographic map series, Bachelor Mtn. quadrangle.

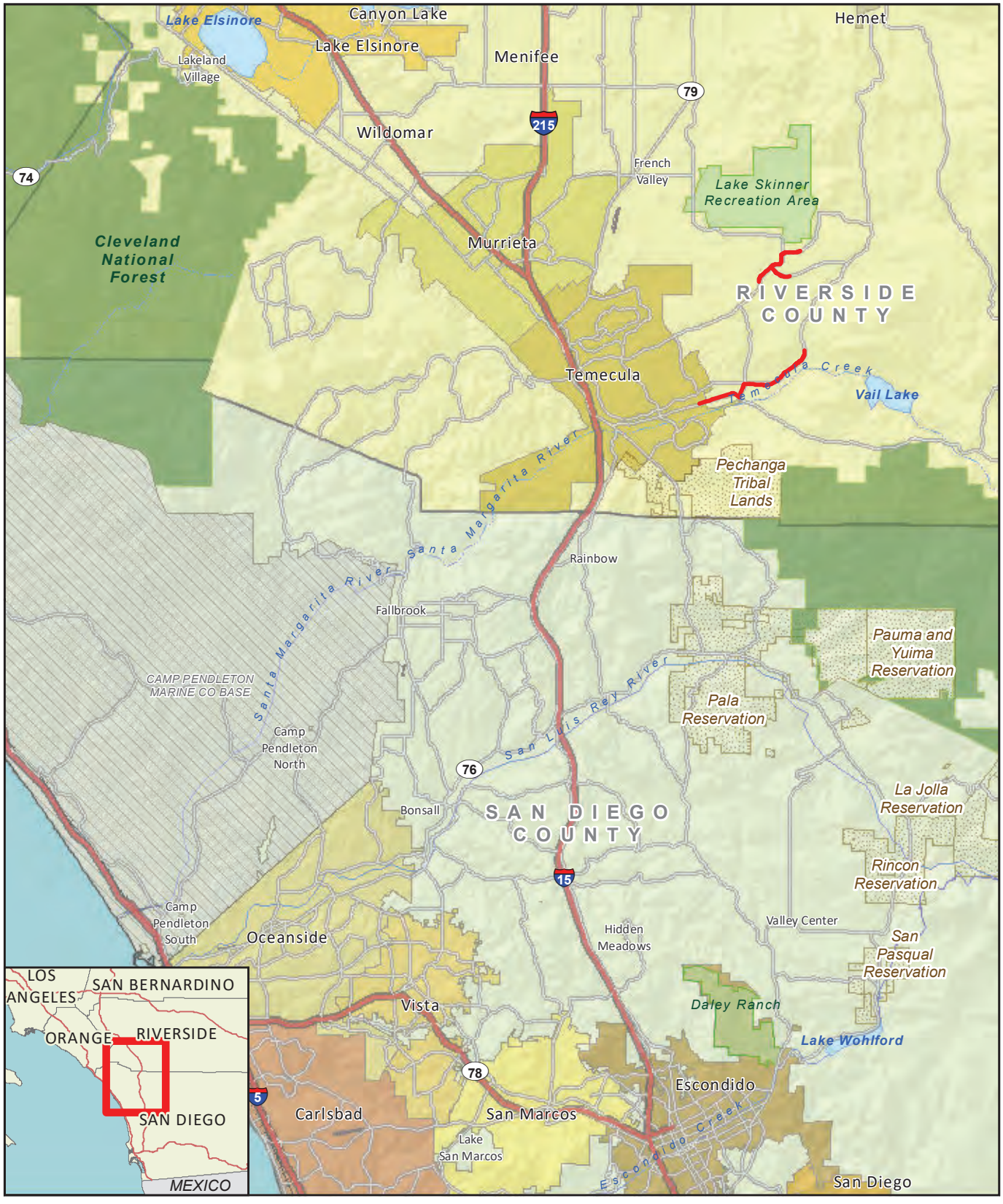
1997 7.5 minute topographic map series, Pechanga quadrangle.

Certification

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Alex Fromer
Permit Number TE-797665

August 14, 2023
Date



Project Location

RECON

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FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, Bachelor Mtn. (1978) and Pechanga (1997) quadrangles, Pauba Land Grant/T07S R02W

Project Location

RECON

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FIGURE 2
Project Location on USGS Map

Image Source: NearMap (flown January 2023)

Project Location
Survey Area
Coastal California Gnatcatcher Suitable Habitat

RECON

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FIGURE 3
Coastal California Gnatcatcher Survey Results

ATTACHMENT 3

Plant Species Observed

Attachment 3 Plant Species Observed			
Major Plant Group	Family	Scientific Name / Common Name	Origin
Angiosperms: Monocots	Poaceae (Gramineae) / Grass Family	*Avena* sp. / oats	I
	Poaceae (Gramineae) / Grass Family	*Bromus rubens* [=*Bromus madritensis* ssp. *rubens*] / red brome	I
	Poaceae (Gramineae) / Grass Family	*Distichlis spicata* / salt grass	N
	Poaceae (Gramineae) / Grass Family	*Stipa* sp. [=*Nassella* sp.] / needle grass	N
	Arecaceae / Palm Family	*Washingtonia robusta* / Mexican fan palm	I
Angiosperms: Eudicots	Fabaceae (Leguminosae) / Legume Family	*Acmispon glaber* [=*Lotus scoparius*] / deerweed, California broom	N
	Asteraceae / Sunflower Family	*Ambrosia psilostachya* / western ragweed	N
	Boraginaceae / Borage Family	*Amsinckia* sp. / fiddleneck	N
	Asteraceae / Sunflower Family	*Artemisia californica* / California sagebrush	N
	Chenopodiaceae / Goosefoot Family	*Atriplex semibaccata* / Australian saltbush	I
	Asteraceae / Sunflower Family	*Baccharis salicifolia* ssp. *salicifolia* / mule fat, seep-willow	N
	Chenopodiaceae / Goosefoot Family	*Chenopodium album* / lamb's quarters, pigweed	I
	Apiaceae (Umbelliferae) / Carrot Family	*Conium maculatum* / common poison hemlock	I
	Convolvulaceae / Morning-Glory Family	*Cuscuta* sp. / dodder	N
	Solanaceae / Nightshade Family	*Datura wrightii* / western Jimson weed	N
	Asteraceae / Sunflower Family	*Erigeron canadensis* [=*Conyza canadensis*] / horseweed	N
	Polygonaceae / Buckwheat Family	*Eriogonum fasciculatum* / California buckwheat	N
	Geraniaceae / Geranium Family	*Erodium botrys* / long-beak filaree	I
	Geraniaceae / Geranium Family	*Erodium cicutarium* / redstem filaree	I
	Myrtaceae / Myrtle Family	*Eucalyptus* sp. / gum tree	I
	Brassicaceae (Cruciferae) / Mustard Family	*Hirschfeldia incana* / short-pod mustard	I
	Plantaginaceae / Plantain Family	*Keckiella antirrhinoides* var. *antirrhinoides* / yellow bush penstemon	N
	Asteraceae / Sunflower Family	*Logfia filaginoides* [=*Filago californica*] / California cottonrose	N
	Malvaceae / Mallow Family	*Malva parviflora* / cheeseweed, little mallow	I
	Oleaceae / Olive Family	*Olea europaea* / olive	I
	Viscaceae / Mistletoe Family	*Phoradendron bolleanum* / fir mistletoe	N
	Salicaceae / Willow Family	*Populus fremontii* ssp. *fremontii* / Fremont cottonwood, alamo	N
	Fagaceae / Oak Family	*Quercus agrifolia* / coast live oak, encina	N
	Polygonaceae / Buckwheat Family	*Rumex crispus* / curly dock	I
	Salicaceae / Willow Family	*Salix exigua* / narrow-leaf willow	N
	Salicaceae / Willow Family	*Salix laevigata* / red willow	N
	Chenopodiaceae / Goosefoot Family	*Salsola australis* / Australian tumbleweed	I
	Viburnaceae / Muskroot Family	*Sambucus mexicana* [=*Sambucus nigra* ssp. *caerulea*] / blue elderberry	N
	Anacardiaceae / Sumac or Cashew Family	*Schinus molle* / Peruvian pepper tree	I
	Anacardiaceae / Sumac or Cashew Family	*Schinus terebinthifolius* / Brazilian pepper tree	I

Attachment 3 Plant Species Observed			
Major Plant Group	Family	Scientific Name / Common Name	Origin
Angiosperms: Eudicots	Brassicaceae (Cruciferae) / Mustard Family	*Sisymbrium officinale* / hedge mustard	I
	Tamaricaceae / Tamarisk Family	*Tamarix ramosissima* / saltcedar	I
	Urticaceae / Nettle Family	*Urtica dioica* ssp. *holosericea* / hoary nettle	N
	Asteraceae / Sunflower Family	*Xanthium strumarium* / cocklebur	N
Angiosperms: Magnoliids-Piperales	Saururaceae / Lizard's Tail Family	*Anemopsis californica* / yerba mansa	N
Lycophytes [=Lycopods]	Selaginellaceae / Spike Moss Family	*Selaginella cinerascens* / ashy spike-moss	N

NOTE: Scientific and common names were primarily derived from Jepson eFlora (Jepson Flora Project 2020). In instances where common names were not provided in this resource, common names were obtained from Rebman and Simpson (2014). Additional common names were obtained from the USDA maintained database (USDA 2021) or the *Sunset Western Garden Book* (Brenzel 2001), the Integrated Taxonomic Information System database (ITIS 2022), or SelecTree (Urban Forest Ecosystems Institute at Cal Poly 2022) for ornamental/horticultural plants. Common names denoted with ** are from Western Riverside County Regional Conservation Authority 2003. Federal and state listing status is based on California Department of Fish and Wildlife, Natural Diversity Database (CDFW) 2023a.

ORIGIN

N =Native to locality.

I = Introduced species from outside locality.

ATTACHMENT 4

Wildlife Species Observed

Attachment 4 Wildlife Species Observed			
Major Wildlife Group	Family	Scientific / Common Name	Origin
Invertebrates	Nymphalidae / Brush-footed Butterflies	*Nymphalis antiopa* / mourning cloak	N
Birds	Odontophoridae / New World Quail	*Callipepla californica* / California quail	N
	Cathartidae / New World Vultures	*Cathartes aura* / turkey vulture	N
	Accipitridae / Hawks, Kites, & Eagles	*Buteo jamaicensis* / red-tailed hawk	N
	Accipitridae / Hawks, Kites, & Eagles	*Buteo lineatus* / red-shouldered hawk	N
	Falconidae / Falcons	*Falco sparverius* / American kestrel	N
	Charadriidae / Lapwings & Plovers	*Charadrius semipalmatus* / semipalmated plover	N
	Columbidae / Pigeons & Doves	*Columba livia* / rock dove	I
	Columbidae / Pigeons & Doves	*Streptopelia decaocto* / Eurasian collared-dove	I
	Trochilidae / Hummingbirds	*Calypte anna* / Anna's hummingbird	N
	Picidae / Woodpeckers & Sapsuckers	*Dryobates* [=*Picoides*] *nuttallii* / Nuttall's woodpecker	N
	Picidae / Woodpeckers & Sapsuckers	*Dryobates* [=*Picoides*] *pubescens* / downy woodpecker	N
	Tyrannidae / Tyrant Flycatchers	*Myiarchus cinerascens* / ash-throated flycatcher	N
	Tyrannidae / Tyrant Flycatchers	*Sayornis nigricans* / black phoebe	N
	Tyrannidae / Tyrant Flycatchers	*Sayornis saya* / Say's phoebe	N
	Tyrannidae / Tyrant Flycatchers	*Tyrannus vociferans* / Cassin's kingbird	N
	Corvidae / Crows, Jays, & Magpies	*Aphelocoma californica* / California [=western] scrub-jay	N
	Corvidae / Crows, Jays, & Magpies	*Corvus brachyrhynchos* / American crow	N
	Corvidae / Crows, Jays, & Magpies	*Corvus corax* / common raven	N
	Paridae / Chickadees & Titmice	*Baeolophus inornatus* / oak titmouse	N
	Aegithalidae / Bushtit	*Psaltriparus minimus* / bushtit	N
	Sittidae / Nuthatches	*Sitta carolinensis* / white-breasted nuthatch	N
	Sittidae / Nuthatches	*Sitta pygmaea* / pygmy nuthatch	N
	Troglodytidae / Wrens	*Thryomanes bewickii* / Bewick's wren	N
	Troglodytidae / Wrens	*Troglodytes aedon* / house wren	N
	Turdidae / Thrushes	*Sialia mexicana* / western bluebird	N
	Turdidae / Thrushes	*Turdus migratorius* / American robin	N
	Mimidae / Mockingbirds & Thrashers	*Mimus polyglottos* / northern mockingbird	N
	Sturnidae / Starlings & Mynas	*Sturnus vulgaris* / European starling	I
	Bombycillidae / Waxwings	*Bombycilla cedrorum* / cedar waxwing	N
	Parulidae / Wood Warblers	*Setophaga* [=*Dendroica*] *coronata* / yellow-rumped warbler	N
	Parulidae / Wood Warblers	*Geothlypis trichas* / common yellowthroat	N
	Passerellidae / New World Passerines	*Melospiza melodia* / song sparrow	N
	Passerellidae / New World Passerines	*Melozone* [=*Pipilo*] *crissalis* / California towhee	N

Attachment 4 Wildlife Species Observed			
Major Wildlife Group	Family	Scientific / Common Name	Origin
Birds	Passerellidae / New World Passerines	*Pipilo maculatus* / spotted towhee	N
	Passerellidae / New World Passerines	*Zonotrichia leucophrys* / white-crowned sparrow	N
	Cardinalidae / Cardinals & Grosbeaks	*Passerina amoena* / lazuli bunting	N
	Cardinalidae / Cardinals & Grosbeaks	*Pheucticus melanocephalus* / black-headed grosbeak	N
	Icteridae / Blackbirds & New World Orioles	*Icterus cucullatus* / hooded oriole	N
	Icteridae / Blackbirds & New World Orioles	*Sturnella neglecta* / western meadowlark	N
	Fringillidae / Finches	*Haemorhous* [=*Carpodacus*] *mexicanus* / house finch	N
	Fringillidae / Finches	*Spinus* [=*Carduelis*] *psaltria* / lesser goldfinch	N
	Fringillidae / Finches	*Spinus* [=*Carduelis*] *tristis* / American goldfinch	N
	Estrildidae / Weaver-Finches	*Lonchura punctulata* / scaly-breasted munia [=nutmeg manikin]	I

NOTE: Zoological nomenclature for invertebrates is in accordance with the NatureServe 2021 and Evans 2008; for reptiles and amphibians with Crother et. al (2017); for birds with Chesser et al. 2023; for mammals with Bradley et al. (2014), American Society of Mammalogists 2021. Determination of the potential occurrence for listed, sensitive, or noteworthy species is based upon known ranges and habitat preferences for species follows Eriksen and Belk 1999, Nature Festivals of San Diego County 2002, Evans 2008, Jennings and Hayes 1994, Unitt 2004, Tremor et. al. 2017, and Harvey et. al 2011. Federal and state listing status is based on California Department of Fish and Wildlife, Natural Diversity Database (CDFW) 2023a.

ORIGIN

N =Native to locality.

I = Introduced species from outside locality.

ATTACHMENT 5

Sensitive Plant Species Observed or with the Potential to Occur

Attachment 5 Sensitive Plant Species Observed or with the Potential to Occur									
Major Plant Group	Family	Scientific Name / Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Angiosperms: Monocots	Alliaceae / Onion Family	*Allium munzii* / Munz's onion	FE	ST	1B.1	NE, MSHCP, 6.1.3	Perennial herb (bulbiferous); chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland; blooms March-May; elevation between 975 and 3,500 feet.	U	This species is not expected to occur within the project site due to lack of suitable chaparral, woodland, scrub or grassland habitat with clay soils.
Angiosperms: Eudicots	Asteraceae / Sunflower Family	*Ambrosia pumila* / San Diego ambrosia	FE		1B.1	NE, MSHCP, 6.1.3	Perennial herb (rhizomatous); chaparral, coastal sage scrub, valley and foothill grasslands, creek beds, vernal pools, often in disturbed areas; blooms April–October; elevation less than 1,400 feet. Many occurrences extirpated in San Diego County.	U	This species is not expected to occur within the project site due to lack of suitable floodplain terraces, vernal pools, or alkali playas with sparse vegetation. In addition, the disturbed land on-site lacks suitable mesic conditions and contains dense vegetation that appears to be subject to repeated disturbed from mowing and agricultural operations.
Angiosperms: Monocots	Themidaceae / Brodiaea Family	*Brodiaea filifolia* / thread-leaved brodiaea	FT	SE	1B.1	MSHCP, 6.3.2	Perennial herb (bulbiferous); cismontane woodland, coastal sage scrub, playas, valley and foothill grassland, vernal pools; often clay soils; blooms March–June; elevation less than 2,85080-3,675 feet. California endemic. Known from San Diego, Riverside, Orange, Los Angeles, and San Bernardino counties.	U	This species is not expected to occur within the project site due to lack of suitable clay or alkaline silty-clay soils.
Angiosperms: Eudicots	Polygonaceae / Buckwheat Family	*Chorizanthe parryi* var. *parryi* / Parry's spineflower, Parry's spine flower**			1B.1	MSHCP	Annual herb; chaparral, cismontane woodland, coastal scrub, valley and foothill grassland; openings, rocky (sometimes), sandy (sometimes); blooms April-June; elevation between 900 and 4,000 feet.	U	This species is not expected to occur within the project site. The species has low potential to occur in Riversidean sage scrub habitat adjacent to the project site, outside of the impact areas, due to the high density of thatch and lack of suitable openings.

Attachment 5 Sensitive Plant Species Observed or with the Potential to Occur									
Major Plant Group	Family	Scientific Name / Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Angiosperms: Eudicots	Polygonaceae / Buckwheat Family	*Chorizanthe polygonoides* var. *longispina* / long-spined spineflower, long-spined spine flower**			1B.2	MSHCP	Annual herb; clay soils; openings in chaparral, coastal sage scrub, near vernal pools and montane meadows, April–July; elevation 100–5,000 feet.	U	This species is not expected to occur within the project site due to lack of suitable chaparral, scrub, vernal pool, or meadow habitat with clay soils.
Angiosperms: Eudicots	Polygonaceae / Buckwheat Family	*Dodecahema leptoceras* / slender-horned spineflower, slender-horned spine flower**	FE	SE	1B.1	NE, MSHCP, 6.1.3	Annual herb; chaparral, cismontane woodland, coastal sage scrub, alluvial fans, and sandy areas; blooms April-June; elevation 600-2,500 feet.	U	This species is not expected to occur within the project site due to lack of alluvial scrub maintained by periodic flooding and sediment transport.
Angiosperms: Eudicots	Boraginaceae / Borage Family	*Harpagonella palmeri* / Palmer's grapplinghook			4.2	MSHCP	Annual herb; chaparral, coastal sage scrub, valley and foothill grasslands; clay soils; blooms March–May; elevation less than 3,200 feet. Inconspicuous and easily overlooked.	U	This species is not expected to occur within the project site due to lack of suitable chaparral, scrub or grassland habitat with clay soils.
Angiosperms: Eudicots	Brassicaceae (Cruciferae) / Mustard Family	*Lepidium virginicum* var. *robinsonii* / Robinson's peppergrass			4.3		Annual herb; coastal sage scrub, chaparral; blooms January–July; elevation less than 2,900 feet.	U	This species is not expected to occur within the project site. The species has low potential to occur in Riversidean sage scrub habitat adjacent to the project site, outside of the impact areas, due to the high density of thatch and lack of suitable openings.
Angiosperms: Eudicots	Polemoniaceae / Phlox Family	*Navarretia fossalis* / spreading navarretia	FT		1B.1	NE, MSHCP, 6.1.3	Annual herb; vernal pools, marshes and swamps, chenopod scrub; blooms April–June; elevation 100–4,300 feet.	U	This species is not expected to occur within the project site due to lack of suitable vernal pool, marsh, swamp or chenopod scrub habitat.
Angiosperms: Monocots	Poaceae (Gramineae) / Grass Family	*Orcuttia californica* / California Orcutt grass	FE	SE	1B.1	NE, MSHCP, 6.1.3	Annual herb; vernal pools; blooms April–August; elevation 50–2,200 feet.	U	This species is not expected to occur within the project site due to lack of suitable vernal pool habitat.
Lycophytes [=Lycopods]	Selaginellaceae / Spike Moss Family	*Selaginella cinerascens* / ashy spike-moss			4.1		Perennial rhizomatous herb; chaparral, coastal scrub; elevation 65–2,100 feet.	Observed (off-site)	This species was observed within the Riversidean sage scrub adjacent to the project site, outside the project impact area.

Attachment 5 Sensitive Plant Species Observed or with the Potential to Occur									
Major Plant Group	Family	Scientific Name / Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Lichens	Caliciaceae / Pin Lichen Family	*Texosporium sancti-jacobi* / woven-spored lichen			3		Crustose lichen; arid to semiarid shrub steppe, grassland, and savannahs (dominated by native plants); non-saline and non-calcareous soils; elevation less than 3,300 feet.	U	This species is not expected to occur within the project site due to lack of suitable shrub steppe, grassland and savannah habitat.

NOTE: Scientific and common names were primarily derived from Jepson eFlora (Jepson Flora Project 2020). In instances where common names were not provided in this resource, common names were obtained from Rebman and Simpson (2014). Additional common names were obtained from the USDA maintained database (USDA 2021) or the Sunset Western Garden Book (Brenzel 2001), the Integrated Taxonomic Information System database (ITIS 2022), or SelecTree (Urban Forest Ecosystems Institute at Cal Poly 2022) for ornamental/horticultural plants. Common names denoted with ** are from Western Riverside County Regional Conservation Authority 2003. Federal and state listing status is based on California Department of Fish and Wildlife, Natural Diversity Database (CDFW) 2023a.

STATUS CODES

Federal Status

FE = Listed as endangered by the federal government

FT = Listed as threatened by the federal government

State Status

SE = Listed as endangered by the state of California

ST = Listed as threatened by the state of California

California Native Plant Society (CNPS): California Rare Plant Ranks (CRPR)

1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.

4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations.

0.1 = Species seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat).

0.2 = Species fairly threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat).

0.3 = Species not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known).

Western Riverside

MSHCP = Western Riverside County Multiple Species Habitat Conservation Plan covered species.

6.1.3 = Species subject to survey requirements and avoidance measures in Section 6.1.3, Protection of Narrow Endemic Plant Species.

6.3.2 = Species subject to survey requirements and avoidance measures in Section 6.3.2, Additional Survey Needs and Procedures of the MSHCP.

NE = Plant species that are highly restricted by their habitat affinities, edaphic requirements or other ecological factors, and for which specific conservation measures have been identified in Section 6.1.3 of the MSHCP.

POTENTIAL TO OCCUR ON-SITE

U = Not expected

ATTACHMENT 6

Sensitive Wildlife Species Occurring or with the Potential to Occur

Attachment 6 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Invertebrates	Branchinectidae / Fairy Shrimp	*Branchinecta lynchi* / vernal pool fairy shrimp	FT		MSHCP, 6.1.2	Vernal pools.	U	This species is not expected to occur within or adjacent to the project site due to lack of suitable vernal pool habitat or ponding areas.
Invertebrates	Streptocephalidae / Fairy Shrimp	*Streptocephalus woottoni* / Riverside fairy shrimp	FE		MSHCP, 6.1.2	Deep lowland vernal pools and ponds greater than 12 inches in depth, and lacking marine or riverine hydrology.	U	This species is not expected to occur within or adjacent to the project site due to lack of suitable vernal pool habitat or ponding areas.
Invertebrates	Nymphalidae / Brush-footed Butterflies	*Danaus plexippus* / monarch	FC			Wide variety of habitats, including urban areas. Host plant is milkweed *(Asclepias* sp.).	U	This species is not expected to occur within or adjacent to the project site due to lack of suitable wintering habitat (stands of eucalyptus) and/or nectaring habitat (milkweed).
Invertebrates	Nymphalidae / Brush-footed Butterflies	*Euphydryas editha quino* / Quino checkerspot	FE		MSHCP	Open, dry areas in foothills, mesas, lake margins. Larval host plant *Plantago erecta.* Adult emergence mid-January through April.	U	This species is not expected to occur within or adjacent to the project site due to lack of suitable, open native habitats. The disturbed land within the potential staging areas has been subject to repeated clearing and disturbance and consists of dense thatch that lacks suitable openings with host or nectar plants to support this species.
Amphibians	Pelobatidae / Spadefoot Toads	*Spea hammondii* / western spadefoot		SSC	MSHCP	Vernal pools, floodplains, and alkali flats within areas of open vegetation.	U	This species is not expected to occur within or adjacent to the project site due to lack of suitable vernal pools, floodplains, or alkali flats. Furthermore, the riparian habitat adjacent to the project site is densely vegetated and lacks suitable open

Attachment 6 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
								areas with gravelly, friable, or sandy soils to support this species.
Reptiles	Gekkonidae / Geckos	*Coleonyx variegatus abbotti* / San Diego banded gecko		SSC	MSHCP	Granite and rocky outcrops in coastal sage scrub and chaparral.	U	This species is not expected to occur within or adjacent to the project site. The Riversidean sage scrub adjacent to the project site lacks suitable outcrops and is limited to small, isolated patches bounded by urban/developed land and lacks connectivity to open space areas with suitable habitat to support this species.
Reptiles	Phrynosomatidae / Spiny Lizards	*Phrynosoma blainvillii [= P. coronatum coastal population], Phrynosoma coronatum blainvillei* / Blainville's horned lizard, coast horned lizard, San Diego horned lizard		SSC	MSHCP	Chaparral, coastal sage scrub with fine, loose soil. Partially dependent on harvester ants for forage.	U	This species is not expected to occur within the project site and has low potential to occur in Riversidean sage scrub habitat adjacent to the project site, outside of the impact areas. The scrub habitat is limited to small, isolated patches bounded by urban/developed land and lacks connectivity to open space areas with suitable habitats.
Reptiles	Teiidae / Whiptail Lizards	*Aspidoscelis hyperythra beldingi* [=*Cnemidophorus hyperythrus*] / Belding's orange-throated whiptail		WL	MSHCP	Chaparral, coastal sage scrub with coarse sandy soils and scattered brush.	U	This species is not expected to occur within the project site and has low potential to occur in Riversidean sage scrub habitat adjacent to the project site, outside of the impact areas. The scrub habitat is limited to small, isolated patches bounded by urban/developed land and lacks connectivity to open space areas with suitable habitats.

Attachment 6 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Reptiles	Teiidae / Whiptail Lizards	*Aspidoscelis tigris stejnegeri* / San Diegan tiger whiptail		SSC		Coastal sage scrub, chaparral, woodlands, and streamsides where plants are sparsely distributed.	U	This species is not expected to occur within the project site and has low potential to occur in Riversidean sage scrub habitat adjacent to the project site, outside of the impact areas. The scrub habitat is limited to small, isolated patches bounded by urban/developed land and lacks connectivity to open space areas with suitable habitats.
Reptiles	Colubridae / Colubrid Snakes	*Arizona elegans occidentalis* / California glossy snake		SSC		Scrub and grassland habitats, often with loose or sandy soils.	M	This species has a moderate potential to occur within the potential staging areas for the project site due to the presence of suitable disturbed habitat with loose soils. Suitable habitat within the project site is limited to the disturbed habitat in the potential staging areas, and does not include the developed roadway.
Birds	Accipitridae / Hawks, Kites, & Eagles	*Buteo regalis* / ferruginous hawk		WL	MSHCP	Require large foraging areas. Grasslands, agricultural fields. Uncommon winter resident.	M	This species has a moderate potential to forage within the potential staging areas for the project site due to the presence of suitable foraging habitat, but is not expected to nest as it is a winter migrant that is not known to nest in southern California.. These disturbed lands are part of a rural agricultural system with open space connectivity to the northeast, which contains more expansive foraging habitat for this species. Suitable foraging habitat within the project

Attachment 6 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
								site is limited to the disturbed habitat in the potential staging areas, and does not include the developed roadway.
Birds	Accipitridae / Hawks, Kites, & Eagles	*Circus hudsonius* / northern harrier		SSC	MSHCP	Coastal lowland, marshes, grassland, agricultural fields. Migrant and winter resident, rare summer resident.	M	This species has a moderate potential to occur within the potential staging areas for the project site due to the presence of suitable foraging habitat These disturbed lands are part of a rural agricultural system with open space connectivity to the northeast, which contains more expansive foraging habitat for this species. Suitable habitat within the project site is limited to the disturbed habitat in the potential staging areas, and does not include the developed roadway.
Birds	Strigidae / Typical Owls	*Athene cunicularia* / burrowing owl		SSC	MSHCP, 6.3.2	Grassland, agricultural land, coastal dunes. Require rodent burrows. Declining resident.	M	This species has a moderate potential to occur within the potential staging areas for the project site due to the presence of suitable foraging habitat. No burrows or sign were observed within the project site; however, one suitable burrow was noted adjacent to Rancho California Road, outside the project impact area. Suitable habitat within the project site is limited to the disturbed habitat in the potential staging areas, and does not include the developed roadway.

Attachment 6 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Birds	Picidae / Woodpeckers & Sapsuckers	*Dryobates [=Picoides] pubescens / downy woodpecker*			MSHCP		Observed	This species was observed in riparian habitat within the survey area adjacent to the project site. As such, this species is expected to be present in riparian habitat adjacent to the project site, outside the project impact area.
Birds	Tyrannidae / Tyrant Flycatchers	*Empidonax traillii extimus* / southwestern willow flycatcher	FE	SCE	MSHCP, 6.1.2	Nesting restricted to willow thickets. Also occupies other woodlands. Rare spring and fall migrant, rare summer resident. Extremely localized breeding.	U	This species is not expected to occur within or adjacent to the project site is a smaller, linear corridor with generally sparse and immature and lacks connectivity to suitable expansive riparian woodland habitat for nesting. Additionally, there are no historical observations of this species within 1 mile of the project site.
Birds	Vireonidae / Vireos	*Vireo bellii pusillus* / least Bell's vireo	FE	SCE	MSHCP, 6.1.2	Willow riparian woodlands. Summer resident.	Observed	This species was observed in riparian habitat within the survey area adjacent to the project site. As such, this species is expected to be present in riparian habitat adjacent to the project site, outside the project impact area.
Birds	Polioptilidae / Gnatcatchers	*Polioptila californica californica* / coastal California gnatcatcher	FT	SSC	MSHCP	Coastal sage scrub, maritime succulent scrub. Resident.	U	This species is not expected to occur within the project site and was not observed within the Riversidean sage scrub adjacent to the project site during protocol surveys in 2023. The scrub habitat adjacent to the project site is limited to small, isolated patches bounded by urban/developed land and lacks

Attachment 6 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
								connectivity to open space areas with suitable habitats.
Birds	Passerellidae / New World Passerines	*Aimophila ruficeps canescens* / southern California rufous-crowned sparrow		WL	MSHCP	Coastal sage scrub, chaparral, grassland. Resident.	U	This species is not expected to occur within the project site and has low potential to occur in Riversidean sage scrub habitat adjacent to the project site, outside of the impact areas. The scrub habitat is limited to small, isolated patches bounded by urban/developed land and lacks connectivity to open space areas with suitable habitats.
Birds	Passerellidae / New World Passerines	*Artemisiospiza* [=*Amphispiza*] *belli belli* / Bell's sage sparrow		WL	MSHCP	Chaparral, coastal sage scrub. Localized resident.	U	This species is not expected to occur within the project site and has low potential to occur in Riversidean sage scrub habitat adjacent to the project site, outside of the impact areas. The scrub habitat is limited to small, isolated patches bounded by urban/developed land and lacks connectivity to open space areas with suitable habitats.
Mammals	Leporidae / Rabbits & Hares	*Lepus californicus bennettii* / San Diego black-tailed jackrabbit			MSHCP	Open areas of scrub, grasslands, agricultural fields.	M	This species has a moderate potential to occur within the potential staging areas for the project site. Suitable habitat is limited to the disturbed habitat in the potential staging areas, and does not include the developed roadway.
Mammals	Heteromyidae / Pocket Mice & Kangaroo Rats	*Dipodomys stephensi* / Stephens' kangaroo rat	FT	ST	MSHCP, SKRHCP	Grassland, open areas.	M	This species has a moderate potential to occur within the potential staging areas for the project site. The

Attachment 6 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
								disturbed land in the potential staging areas contain dense non-native grasses and forbs that lack suitable open areas for this species; however, these areas appear to be subject to periodic mowing and/or tilling and may contain low-lying vegetation suitable for this species for portions of the year. Suitable habitat is limited to the disturbed habitat in the potential staging areas and does not include the developed roadway.
Mammals	Heteromyidae / Pocket Mice & Kangaroo Rats	*Perognathus longimembris internationalis* / Jacumba pocket mouse		SSC		Desert riparian, desert scrub, desert wash, coastal scrub, and sagebrush.	U	This species is not expected to occur within the project site, and has a low potential to occur within the scrub or riparian habitats adjacent to the project site, outside the impact area. The riparian and scrub habitat adjacent to the project site is densely vegetated and lacks suitable open areas with alluvial floodplain terraces or substrate to support this species.
Mammals	Muridae / Mice & Rats	*Neotoma lepida intermedia* / San Diego desert woodrat		SSC	MSHCP	Coastal sage scrub and chaparral.	U	This species is not expected to occur within the project site and has a low potential to occur within the Riversidean sage scrub adjacent to the project site, outside of impact areas. The scrub habitat is limited to small, isolated patches bounded by urban/developed land and lacks connectivity to open space areas with suitable habitats.

Attachment 6
Sensitive Wildlife Species Observed or with the Potential to Occur

NOTE: Zoological nomenclature for invertebrates is in accordance with the NatureServe 2021 and Evans 2008; for reptiles and amphibians with Crother et. al (2017); for birds with Chesser et al. 2023; for mammals with Bradley et al. (2014), American Society of Mammalogists 2021. Determination of the potential occurrence for listed, sensitive, or noteworthy species is based upon known ranges and habitat preferences for species follows Eriksen and Belk 1999, Nature Festivals of San Diego County 2002, Evans 2008, Jennings and Hayes 1994, Unitt 2004, Tremor et. al. 2017, and Harvey et. al 2011. Federal and state listing status is based on California Department of Fish and Wildlife, Natural Diversity Database (CDFW) 2023a.

STATUS CODES

Federal Status

FE = Listed as endangered by the federal government

FT = Listed as threatened by the federal government

FC = Federal candidate for listing (taxa for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support proposals to list as endangered or threatened; development and publication of proposed rules for these taxa are anticipated)

State Status

ST = Listed as threatened by the state of California

SCE = State candidate for listing as Endangered

SSC = California Department of Fish and Wildlife species of special concern

WL = California Department of Fish and Wildlife watch list species

Western Riverside

MSHCP = Western Riverside County Multiple Species Habitat Conservation Prlan covered species

6.1.2 = Species subject to survey requirements and avoidance and minimization measures in Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools of the MSHCP

6.3.2 = Species subject to survey requirements and avoidance measures in Section 6.3.2, Additional Survey Needs and Procedures of the MSHCP

SKR HCP = Stephens' Kangaroo Rate Habitat Conservation Program covered species

POTENTIAL TO OCCUR ON-SITE

M = Medium

U = Not expected

APPENDIX B-2

Biological Technical Report for the Wine Country Sewer Project, Southern Alignment

Biological Technical Report for the Wine Country Sewer Project, Southern Alignment Temecula, California

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4: Sensitive Plant Species Observed or with the Potential to Occur
5: Sensitive Wildlife Species Occurring or with the Potential to Occur

Acronyms and Abbreviations

amsl	above mean sea level
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
District	Eastern Municipal Water District
FESA	Federal Endangered Species Act
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
MSHCP	Multiple Species Habitat Conservation Program
project	Wine Country Sewer Project, Southern Alignment
RECON	RECON Environmental, Inc.
ROW	right-of-way
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WRCRCA	Western Riverside County Regional Conservation Authority

1.0 Introduction

This report describes the results of the biological resource surveys conducted for the Wine Country Sewer Project, Southern Alignment (project). The Eastern Municipal Water District (District) is proposing to construct a new sewer transmission line and associated laterals that would provide sewer service to an area of unincorporated Riverside County and the city of Temecula that is currently utilizing septic systems (Figure 1). Regional access to the project is provided via Interstate 15, located approximately 3.6 miles to the west, and local access is provided via State Route 79. The survey area is located within the Pauba Land Grant on U.S. Geological Survey (USGS) Pechenga quadrangle, Township 08 South, Range 01 West (USGS 1997; Figure 2). The biological surveys occurred within a 55.09-acre survey area, which consists of a 4.34-mile-long sewer transmission line, plus a surrounding 50-foot buffer, and potential staging areas. The project is located within De Portola Road, beginning at the intersection with Butterfield Stage Road and extending eastward to the intersection with Pulgas Creek Road (Figure 3). The project is generally bounded by residential development, agricultural land, and disturbed land, with sparce native habitats occurring along the project alignment.

Figure 4 presents the location of the proposed sewer transmission line within De Portola Road. The sewer transmission line would be constructed primarily within the rights-of-way (ROW) of paved roadways, with the exception of an approximately 1.15mile segment of De Portola Road that is unpaved. The approximate location of the sewer transmission line is shown with a red line, and the aboveground work areas, including trenching and potential construction staging areas, are shown in black cross-hatching. The sewer transmission lines would be constructed primarily with open trench construction, and culvert crossings would be protected in place with supports that allow for undercrossing. Laterals for future connections would be constructed to adjacent property lines. Potential construction staging areas would be located within disturbed land within ROW adjacent to the roadway, subject to access agreements with private property owners. Roadways impacted during construction would be returned to original grade, and adjacent natural soils impacted during construction would be revegetated with hydroseeding. No night work would occur, nor would temporary/permanent lighting be used. The project would not construct any aboveground structures.

It is anticipated that the District would implement the project. This report provides the necessary biological data and background information required for environmental analysis of the project subject to the California Environmental Quality Act (CEQA).

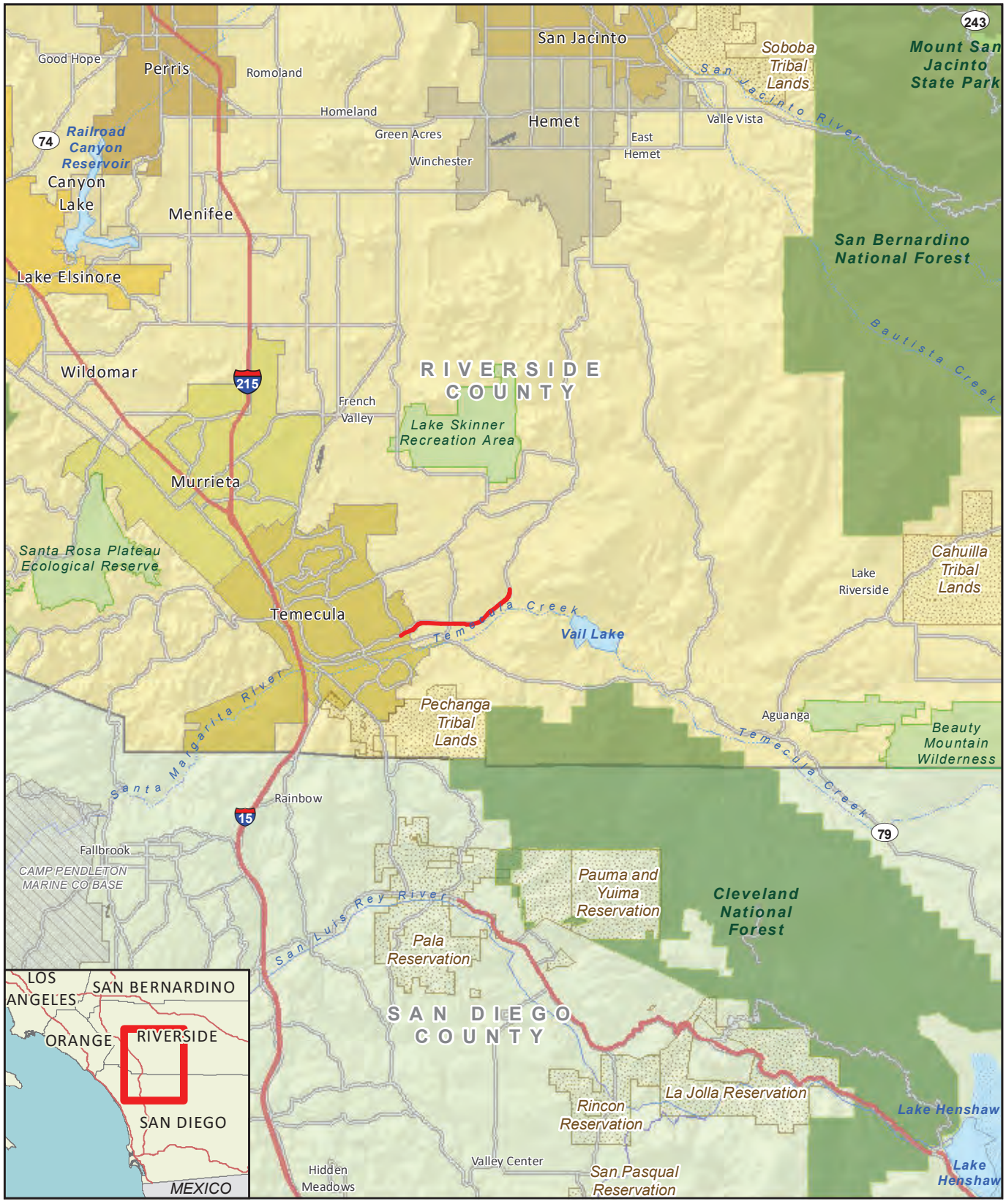

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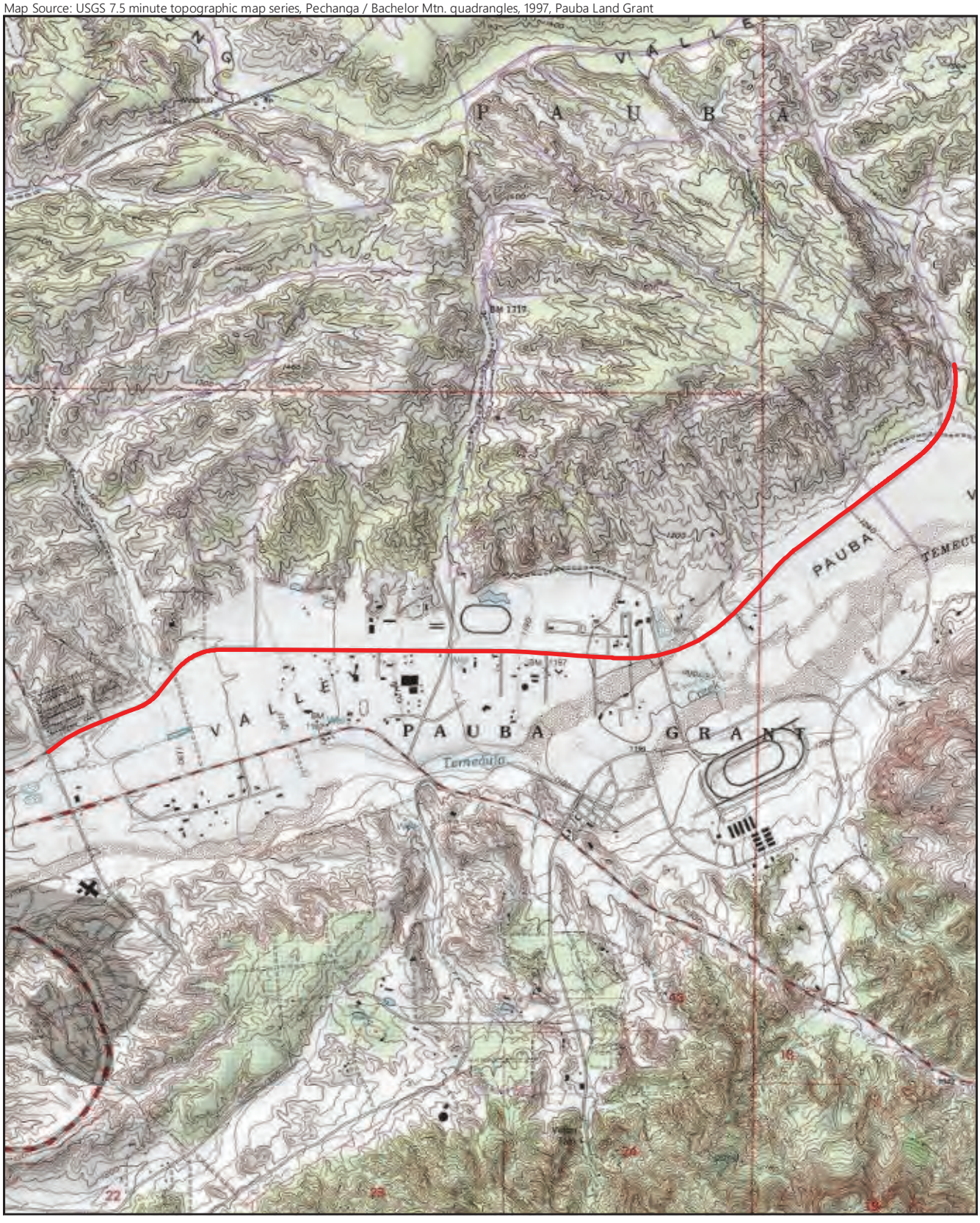
FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, Pechanga / Bachelor Mtn. quadrangles, 1997, Pauba Land Grant



Project Location

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FIGURE 2
Project Location on USGS Map

Image Source: NearMap (flown September 2023)

FIGURE 3
Project Location on Aerial Photograph

RECON

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Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 4.1
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 4.2
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area
Agricultural Ditch

Vegetation Community
Agriculture
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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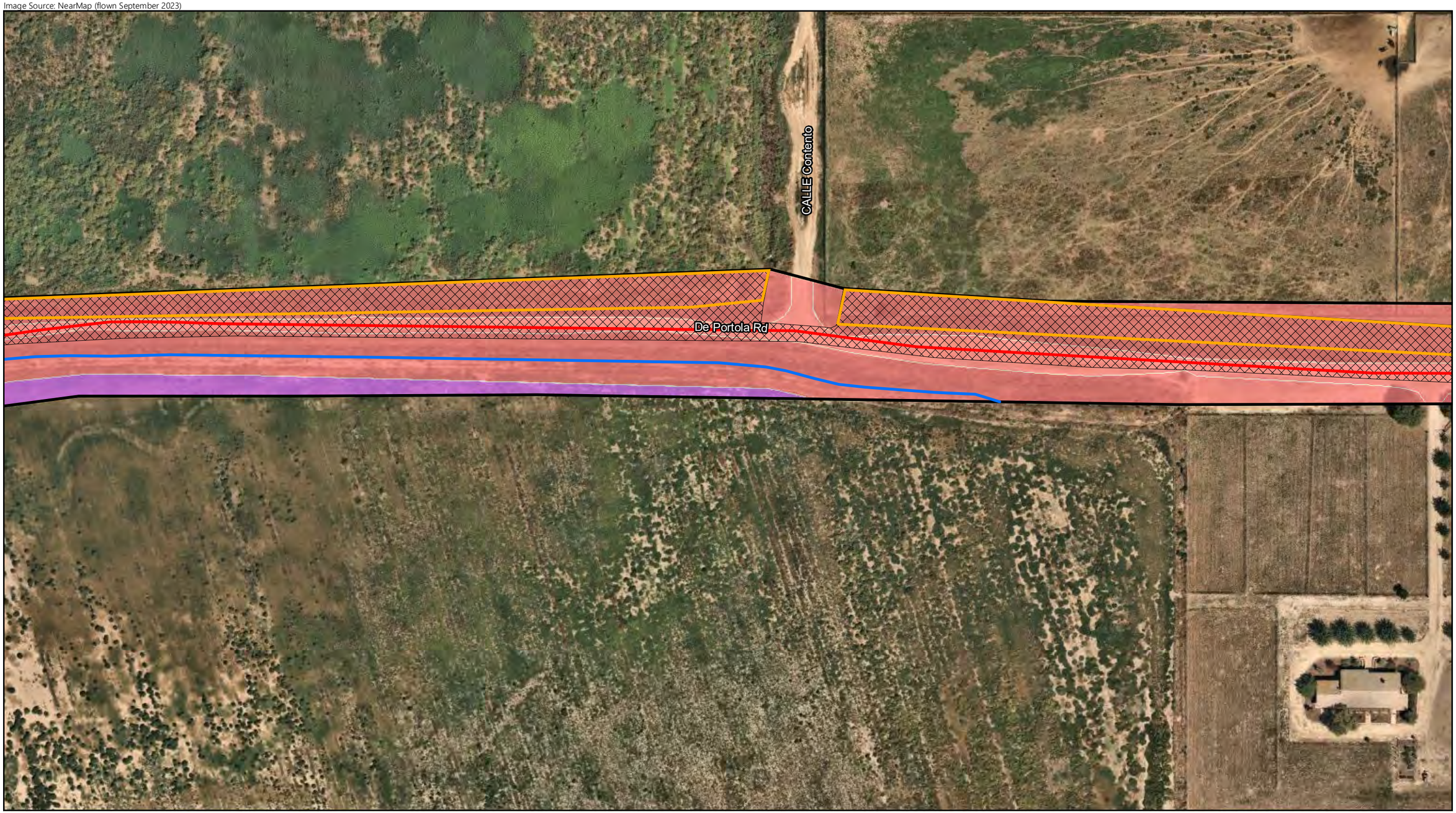
FIGURE 4.3
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area
Agricultural Ditch

Vegetation Community
Agriculture
Disturbed Land

0 Feet 100

RECON

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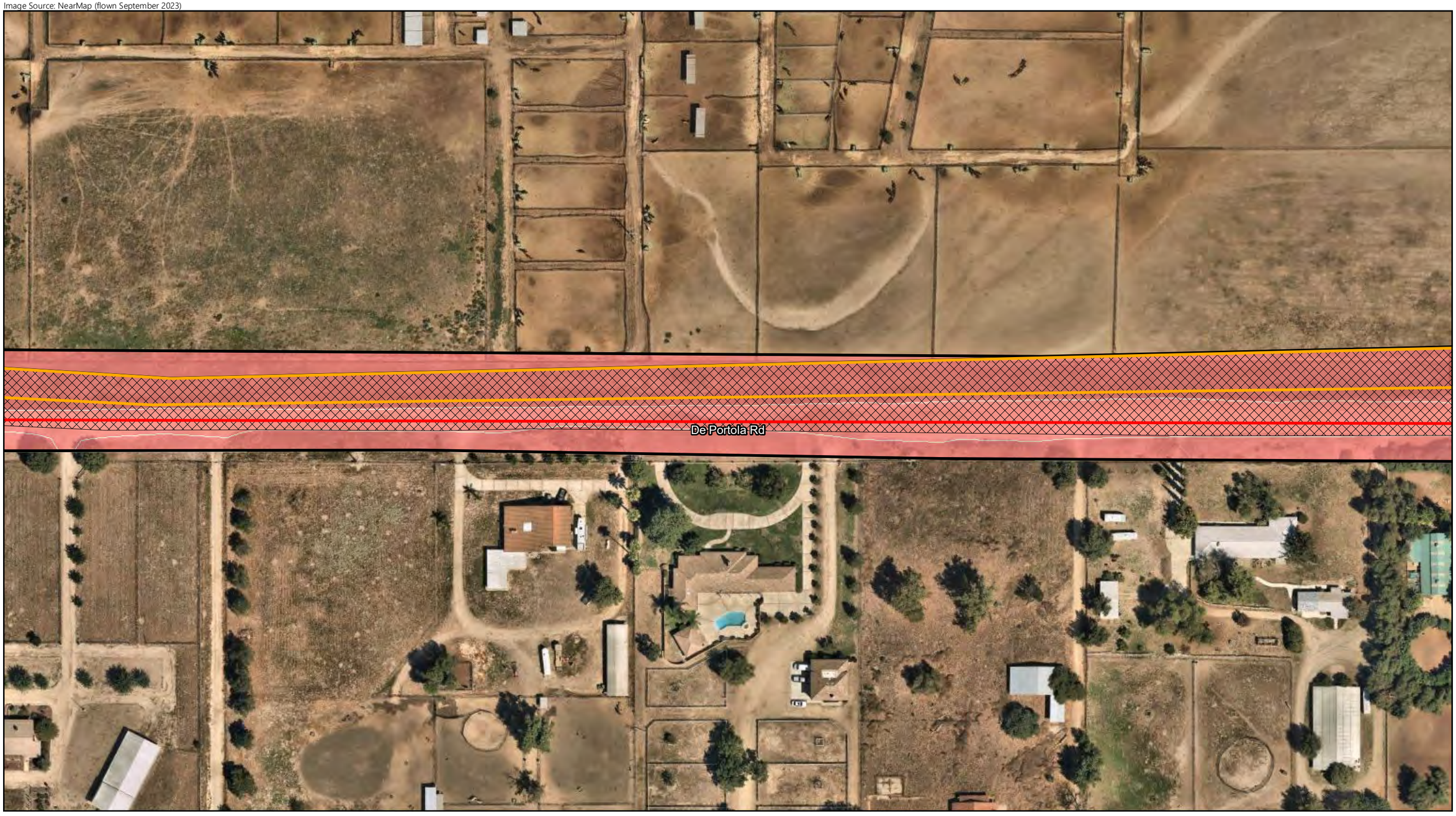
FIGURE 4.4
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Disturbed Land

0 Feet 100

RECON

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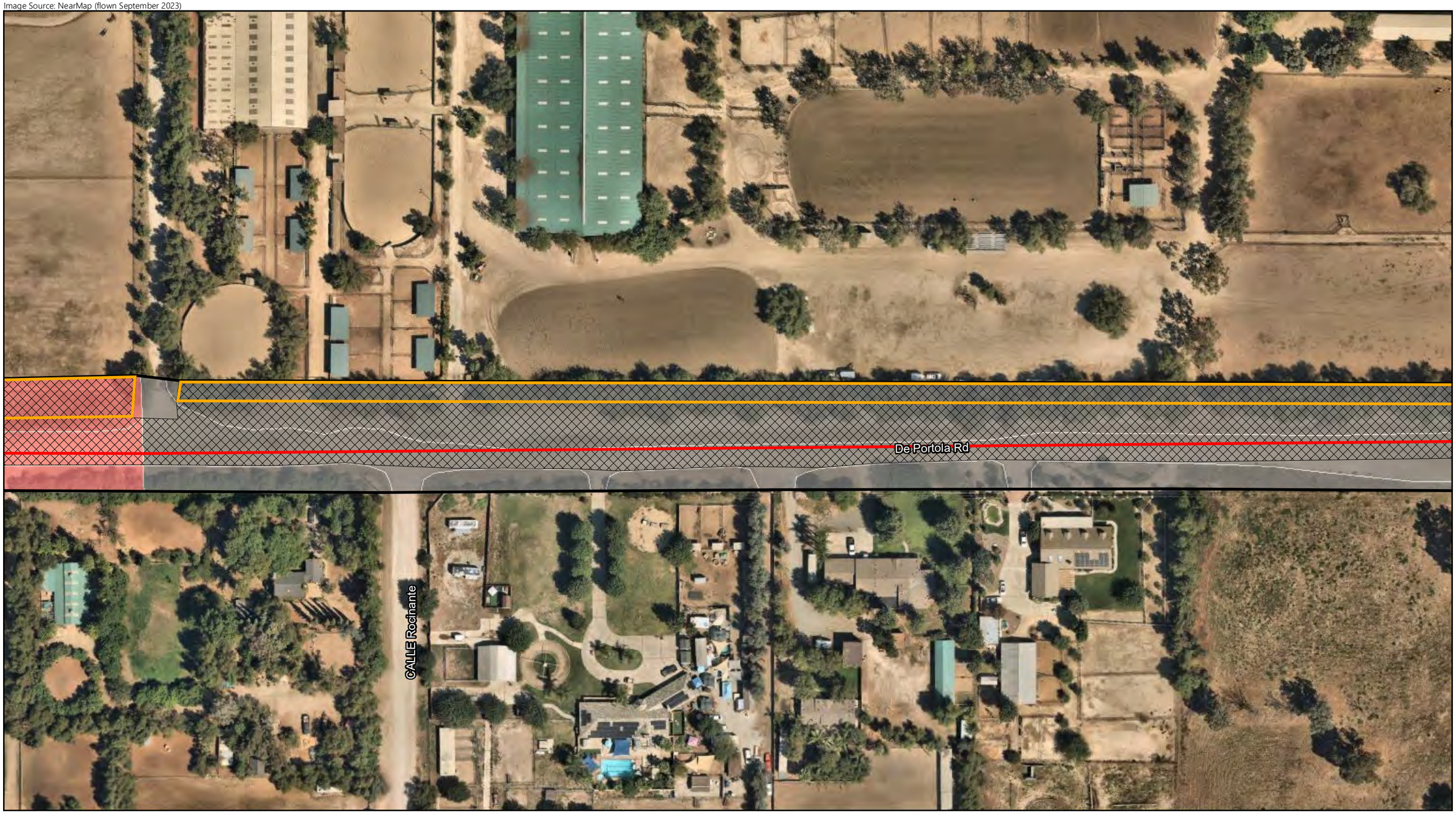
FIGURE 4.5
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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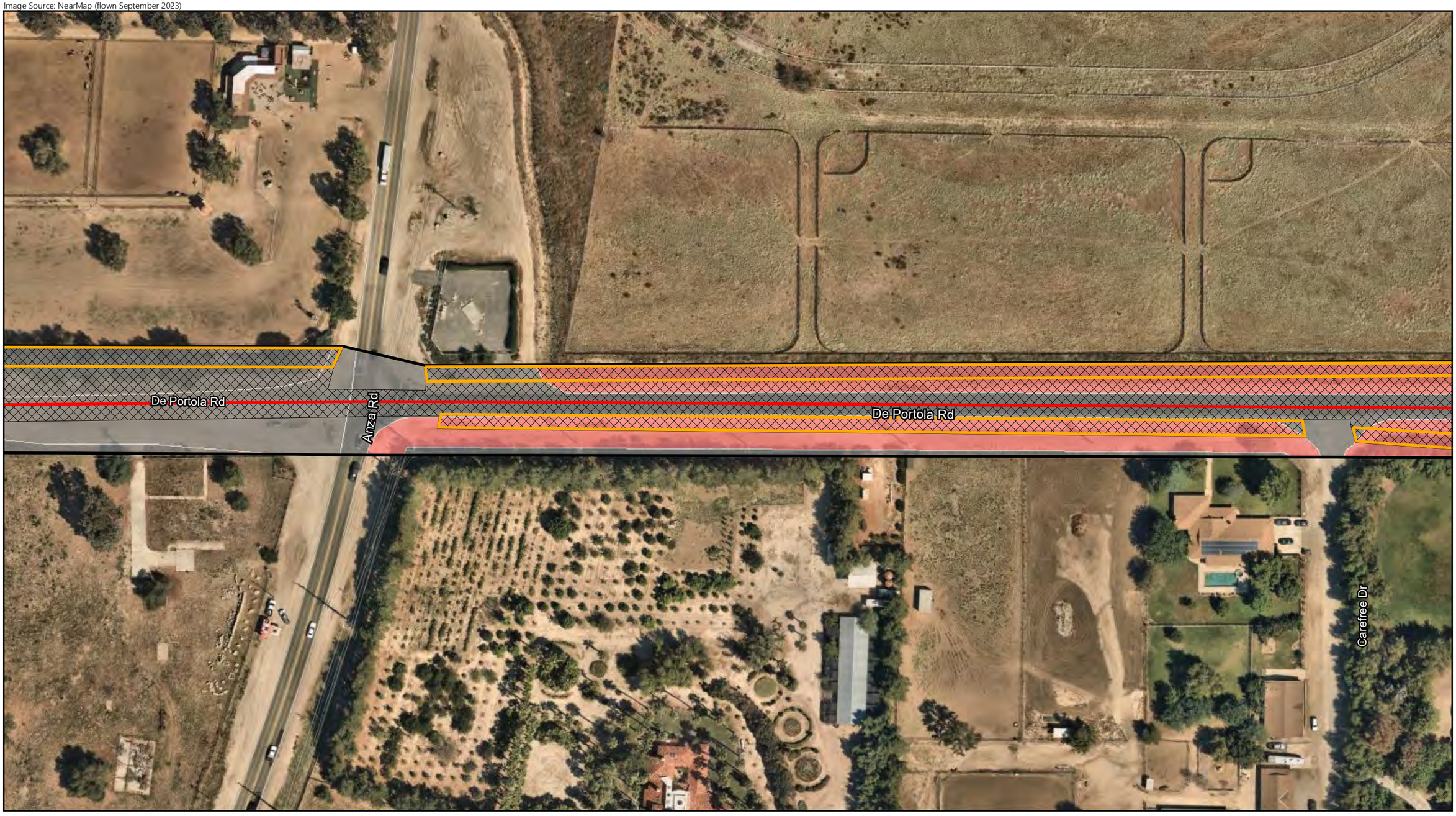
FIGURE 4.6
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 4.7
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 4.8
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 4.9
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 4.10
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

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- Project Alignment
- Potential Staging Area
- Project Impact Area
- Survey Area
- Culvert
- Culverted Non-vegetated Drainage
- Agricultural Ditch

Vegetation Community

- Ornamental
- Disturbed Land
- Urban/Developed

0 Feet 100

FIGURE 4.11
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

RECON

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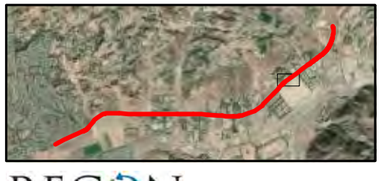
Project Alignment
Potential Staging Area
Project Impact Area
Survey Area
Agricultural Ditch

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

FIGURE 4.12
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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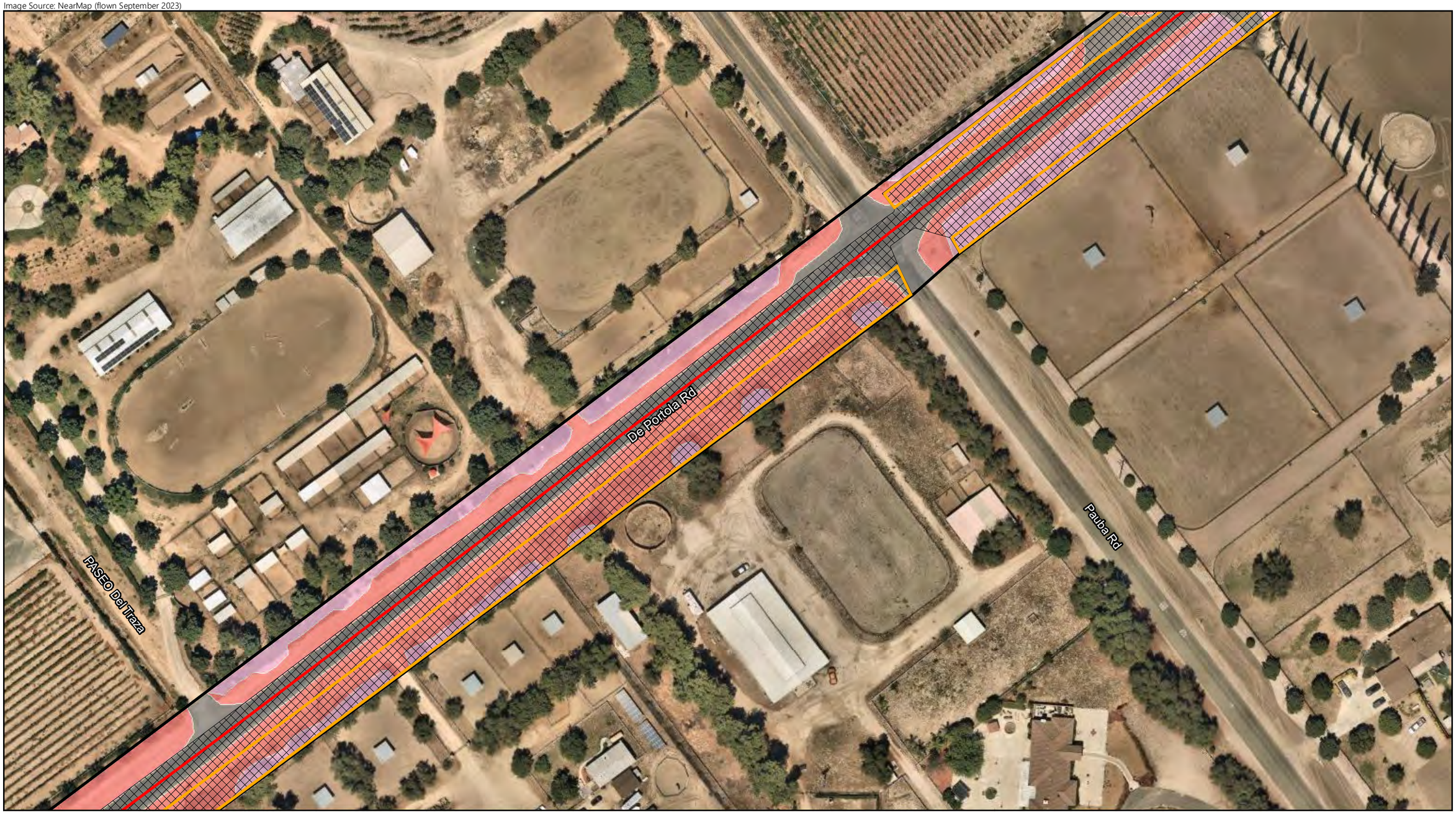
FIGURE 4.13
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 4.14
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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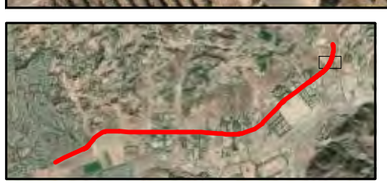
FIGURE 4.15
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Ornamental
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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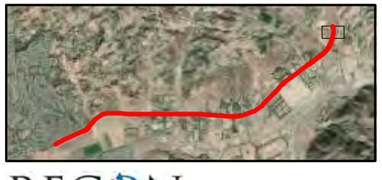
FIGURE 4.16
Existing Biological Resources within Southern Alignment

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Project Impact Area
Survey Area

Vegetation Community
Disturbed Land
Urban/Developed

0 Feet 100

RECON

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FIGURE 4.17
Existing Biological Resources within Southern Alignment

2.0 Survey Methodology

2.1 Literature Review

RECON conducted a search of existing biological data for the project site, including database queries for sensitive plant and animal species reported within one mile of the project site, and a review of the site's physical characteristics (e.g., location, elevation, soils/substrate, topography). Prior to conducting surveys, the assessor's parcel numbers for the survey area were entered into the MSHCP Informational Map, provided on the Western Riverside County Regional Conservation Authority (WRCRCA) website, to identify the potentially occurring sensitive species on-site. Additional supplemental data sources included the California Natural Diversity Database (CNDDB; California Department of Fish and Wildlife [CDFW] 2023a-e), the Information for Planning and Consultation Database (IPaC; USFWS 2023a, Attachment 1), the All Species Occurrences Database (U.S. Fish and Wildlife Service [USFWS] 2023b), the California Native Plant Society (CNPS) Online database (CNPS 2023), and the U.S. Department of Agriculture (USDA) Soil Conservation Service maps and descriptions (USDA 1971 and 2023).

2.2 Biological Survey

RECON Environmental, Inc. (RECON) biologists Alex Fromer and Chris Thomson conducted a general biological survey within the eastern segment of the project site, from Pulgas Creek Road to Anza Road on December 30, 2022. The western segment of the project site, from Anza Road to Butterfield Stage Road, was evaluated separately by Mr. Fromer on June 2, 2023. The general biological survey included an evaluation of the entire roadway associated with De Portola Road and surrounding 50-foot buffer (herein referred to as the survey area).

Most portions of the survey area were covered on foot. However, due to the presence of private property adjacent to public access throughout the survey area, many areas were surveyed from accessible viewpoints with the use of binoculars. During the general biological surveys, RECON biologists mapped vegetation communities and aquatic resources, recorded vegetation and habitat characteristics, and noted wildlife and plant species apparent at the time of the survey (see Figure 4). Vegetation communities and aquatic resources were mapped in the field on a digital map of the survey area. Plants were visually identified in the field and wildlife species were identified visually with the aid of binoculars or based on identification of calls, scat, tracks, or burrows. Based on findings during the general biology survey, it was determined that the aquatic resources on-site would not be significantly impacted by project activities and a formal aquatic resource delineation was not conducted (see Figure 4).

Nomenclature in this report follows the Jepson Online Interchange (Jepson Flora Project 2023) and Rebman and Simpson (2014), for common plants, *Sunset Western Garden Book* (Brenzel 2001) for ornamental species, Crother et al. (2017) for reptiles, and Chesser et al. (2023) for birds.

3.0 Existing Conditions

3.1 Site Topography and Soils

The southern alignment survey area consists of paved roads generally surrounded by residential developments, agricultural land, disturbed land, and sparse pockets of native habitats (Photographs 1 and 2). Elevations in the survey area range from approximately 1,100 feet above mean sea level (amsl) to 1,300 feet amsl. The survey area contains almost exclusively sandy loams, with primarily fine sandy loam with some areas of coarse sandy loam throughout. A few small areas of riverwash can also be found within the survey area.

3.2 Botanical Resources

The survey area supports four vegetation communities and land cover types: agriculture, ornamental, disturbed land, and urban/developed (Table 1; see Figure 4). A total of 31 plant species were identified within the survey area (Attachment 2). Of this total, 14 (45 percent) are native species and 17 (55 percent) are non-native. Sensitive plant species and their potential for occurrence are discussed in Section 4.0.

Table 1
Vegetation Communities/Land Cover Types within the Survey Area

Vegetation Community/ Land Cover Type	Total Survey Area (acres)	Project Site Impact Area (acres)
Agriculture	0.46	0
Ornamental	18.39	2.91
Disturbed land	30.05	23.87*
Urban/developed	22.78	17.85
TOTAL	**71.68**	**44.63**

*Includes potential staging areas located outside of right-of-way. Actual area used for staging will be determined and refined based on access agreements negotiated at the time of construction.

3.2.1 Agriculture

Agricultural lands are found south of the central portion of De Portola Road (Photograph 3). The majority of the agricultural lands appeared to have been recently cleared of vegetation and contain mostly bare ground with sparse non-native weedy species throughout.

3.2.2 Ornamental

Ornamental trees and shrubs are found throughout the survey area, adjacent to roadways and developments (Photograph 4). This vegetation community contains non-native tree and shrub species, including non-native rose (*Rosa* sp.), French lavender (*Lavandula stoechas*), gum tree (*Eucalyptus* sp.), Brazilian pepper tree, and Peruvian pepper tree.

PHOTOGRAPH 1
Typical View of Topography within Survey Area, Facing West along De Portola Road

PHOTOGRAPH 2
Typical View of Topography within Survey Area, Facing East along De Portola Road

PHOTOGRAPH 3
View of Agriculture South of an Unpaved Segment of De Portola Road, Facing East

PHOTOGRAPH 4
View of Ornamental Vegetation along an Unpaved Segment of De Portola Road, Facing West

3.2.3 Disturbed Land

Disturbed land is found throughout the survey area, adjacent to paved roadways and residential developments (Photograph 5). Disturbed land within the survey area occurs as bare ground or previously disturbed soils dominated by non-native species, such as short-pod mustard (*Hirschfeldia incana*) and prickly lettuce (*Lactuca seriola*), interspersed with some non-native grasses, such as bromes (*Bromus* sp.).

3.2.4 Urban/Developed

Urban/developed accounts for the majority of the survey area and occurs primarily as paved and unpaved roadways and driveways, private residences, and ornamental vegetation associated with private developments throughout the survey area (see Photograph 5). This land cover type contains little vegetative cover provided primarily by ornamental non-native species.

3.3 Zoological Resources

A total of 31 wildlife species were identified during the biological survey (Attachment 3). Most of the species observed are urban-adapted species typical of disturbed land. Section 4.0 addresses sensitive wildlife species and their potential to occur.

3.4 Jurisdictional Resources

No potential jurisdictional wetlands or non-wetland waters were observed within the survey area. An unlined roadside ditch occurs within and adjacent to the survey area (Photograph 6, see Figure 4). The ditch appears to be manmade and associated with the adjacent agricultural fields and does not show evidence that it was constructed within a naturally occurring drainage. As such, the roadside ditch is not anticipated to be considered jurisdictional under U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board, or CDFW.

4.0 Sensitive Biological Resources

4.1 Sensitivity Criteria/Regulatory Setting

For purposes of this report, species will be considered sensitive if they are (1) listed or proposed to be listed by state or federal agencies as threatened or endangered (CDFW 2023a-e); (2) on California Rare Plant Rank (CRPR) 1B (considered endangered throughout its range), CRPR 2 (considered endangered in California but more common elsewhere), CRPR 3 (more information about the plant's distribution and rarity needed), and CRPR 4 (plants of limited distribution) of the CNPS Inventory of Rare and Endangered Vascular Plants of California (2023); or covered species under the Western Riverside County Multiple Species Habitat Conservation Plan (Western Riverside County Regional Conservation Authority [WRCRCA] 2003).

PHOTOGRAPH 5
View of Disturbed and Urban/Developed Land along a Segment of De Portola Road, Facing Southwest

PHOTOGRAPH 6
View of Unlined Ditch South of an Unpaved Segment of De Portola Road, Facing Northeast

4.1.1 Federal Regulations

4.1.1.1 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act of 1918 (MBTA) was established to provide protection to the breeding activities of migratory birds throughout the U.S. The MBTA, which is enforced by USFWS, makes it unlawful "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird, or attempt such actions, except as permitted by regulation. The take, possession, import, export, transport, sale, purchase, barter, or offering of these activities is prohibited, except under a valid permit or as permitted in the implementing regulations.

4.1.1.2 Federal Endangered Species Act

The federal Endangered Species Act (FESA) (16 United States Code 1531 et seq.) is implemented by the USFWS through a program that identifies and provides for protection of various species of fish, wildlife, and plants deemed to be in danger of or threatened with extinction. As part of this regulatory act, the FESA provides for designation of critical habitat, defined in FESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features "essential to the conservation of the species" are found and that "may require special management considerations or protection." Critical habitat may also include areas outside the current geographical area occupied by the species that are nonetheless "essential for the conservation of the species." There is no USFWS critical habitat within the project area (USFWS 2023c).

4.1.1.3 Clean Water Act

Under the Clean Water Act Section 404, the USACE is authorized to regulate waters of the U.S. The currently accepted regulations defining waters of the U.S. follow the September 8, 2023 publishment of the final rule: *Revised Definition of "Waters of the U.S.", Conforming*. Notably, this new rule provides a new interpretation of the term "adjacent" whereas wetlands must contain a surface hydrologic connection to other waters of the U.S. to be considered adjacent waters of the U.S. Additionally, this new rule eliminates the applicability of the significant nexus standard for "non-relatively permanent waters", so ephemeral features are no longer likely to be considered waters of the U.S.

4.1.2 State Regulations

4.1.2.1 California Endangered Species Act

The CDFW administers the California Endangered Species Act (CESA) (California Fish and Game Code [CFGC] Section 2050 et seq.), which prohibits the take of plant and animal species designated by the California Fish and Game Commission as endangered or threatened in California. Under CESA Section 86, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA Section 2053 stipulates that state agencies may not approve projects that will "jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species,

if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy."

4.1.2.2 California Fish and Game Code

The CFGC regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as natural resources such as wetlands and waters of the State. It includes the CESA (Sections 2050-2115) and Streambed Alteration Agreement regulations (Sections 1600-1616), as well as provisions for legal hunting and fishing, and tribal agreements for activities involving take of native wildlife. The CFGC also includes protection of birds (Sections 3500 et seq.) and the Native Plant Protection Act (Sections 1900-1913), which directed CDFW to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State."

Pursuant to Section 1602 of the CFGC, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. A Streambed Alteration Agreement (CFGC Section 1602 et seq.) is required for impacts on jurisdictional resources, including streambeds and associated riparian habitat.

In addition, the CDFW affords protection over the destruction of nests or eggs of native bird species (CFGC Section 3503), and it states that no birds in the orders of Falconiformes or Strigiformes (birds of prey) can be taken, possessed, or destroyed (CFGC Section 3503.5). The project is designed to comply with Sections 3503 and 3503.3 which precludes direct impacts to nesting birds and raptors.

4.1.3 Local Regulations

4.1.3.1 Multiple Species Habitat Conservation Plan

The project is located within the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) area (County of Riverside 2003). The MSHCP was designed to conserve approximately 500,000 acres of habitat, including 347,000 acres of existing conservation on public and quasi-public land and 153,000 acres of conservation on privately owned lands. Areas of privately owned lands considered for potential conservation are identified as Criteria Cells, which are intended to facilitate assessment of conservation potential under the MSHCP. In this way, the MSHCP directs future conservation efforts to occur within these Criteria Cells.

The northernmost portion of the right-of-way intersects Criteria Cells 6917 and 7014; however, it is anticipated that project work would be limited to the existing right-of-way outside of any potential habitat areas. However, portions of the project staging areas are located within the survey area for western burrowing owl (*Athene cunicularia hypugaea*), as identified in the MSHCP (County of Riverside 2003). The project does not fall within the MSHCP survey areas for Criteria Area plant species, narrow endemic plant species, amphibians, mammals, or Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*).

4.2 Sensitive Vegetation Communities

No sensitive vegetation communities were observed within the survey area.

4.3 Sensitive Plants

No sensitive plants were observed within or adjacent to the survey area during biological surveys and none have a moderate or high potential to occur within the project site (Attachment 4). Most portions of this area contain urban/developed land and disturbed land that are not suitable to support sensitive plant species. The agricultural land is subject to repeated soil disturbance for cultivation purposes with sandy loam being the primary soil type in these areas.

The IPaC letter provided by USFWS identified the following species as having potential to occur within the project area: California Orcutt grass (*Orcuttia californica*), Munz's onion (*Allium munzii*), Nevin's barberry (*Berberis nevinii*), San Diego ambrosia (*Ambrosia pumila*), slender-horned spineflower (*Dodechema leptoceras*), spreading navarretia (*Navarretia fossalis*), thread-leaved brodiaea (*Brodiaea filifolia*), and Vail lake ceanothus (*Ceanothus ophiochilus*) (see Attachment 1). Each of these species are discussed in more detail in Attachment 4 and none are expected to occur based on lack of suitable habitat within the project area.

4.4 Sensitive Wildlife

No sensitive wildlife species were detected within or adjacent to the survey area during biological surveys. However, six sensitive wildlife species are determined to have a moderate potential to occur in the project site: burrowing owl, ferruginous hawk (*Buteo regalis*), northern harrier (*Circus hudsonius*), Stephen's kangaroo rat (*Dipodomys stephensi*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and California glossy snake (*Arizona elegans occidentalis*). These species are evaluated for potential to occur below and presented in Attachment 5.

Burrowing Owl. The burrowing owl is a CDFW species of special concern and a MSHCP covered species (CDFW 2023e; WRCRCA 2003). No burrowing owl, burrowing owl sign, or potentially suitable burrows were detected during survey; however, the agricultural and disturbed land within and adjacent to the potential staging areas contain suitable foraging habitat.

Ferruginous Hawk. The ferruginous hawk is a CDFW watch list species and a MSHCP covered species (CDFW 2023; WRCRCA 2003). This species was not observed during surveys and it is not expected to occur within the developed roadways associated with the project. While it has moderate potential to forage in the disturbed and agricultural land in the potential staging areas due to the presence of suitable habitat, this species is a winter migrant and is not known to nest in southern California .

Northern Harrier. The northern harrier is a CDFW species of special concern and an MSHCP covered species (CDFW 2023e; WRCRCA 2003). This species was not observed during surveys and it is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to occur in the disturbed and agricultural land within the potential staging areas due to the presence of suitable foraging habitat.

Stephen's Kangaroo Rat. The Stephen's kangaroo rat is a federally listed endangered, a state listed threatened species, and an MSHCP and Stephen's Kangaroo Rat Habitat Conservation Program covered species (CDFW 2023e; WRCRCA 2003). No Stephen's kangaroo rat or signs of the species were observed during surveys and this species is not expected to occur within the developed

roadways associated with the project; however, it has a moderate potential to occur within the disturbed land in the potential staging areas. These areas are typified by dense non-native grasses and forbs that lack suitable open areas for this species; however, they appear to be subject to periodic mowing and/or tilling and may contain suitable open, low-lying vegetation for portions of the year.

San Diego Black-tailed Jackrabbit. The San Diego black-tailed jackrabbit is an MSHCP covered species (WRCRCA 2003). This species was not observed during surveys and it is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to occur in the disturbed and agricultural land within the potential staging areas.

California Glossy Snake. The California glossy snake is a CDFW species of special concern (CDFW 2023e). This species was not observed during surveys and it is not expected to occur within the developed roadways associated with the project; however, it has a moderate potential to occur within the potential staging areas due to the presence of suitable disturbed habitat with loose soils.

*Migratory and Nesting Birds***.** The project site and adjacent land cover types have potential to support migratory and nesting bird species. Urban-adapted species have been known to nest within ornamental vegetation or the eaves of houses or openings in structures. In addition, several ground nesting species have the potential to nest within the disturbed land and open areas found within the agricultural, disturbed, and urban/developed lands within and adjacent to the project site.

In addition to the species listed above, the IPaC letter provided by USFWS identified the following species as having potential to occur within the project area: southwestern willow flycatcher (*Empidonax traillii extimus*), arroyo toad (*Anaxyrus californicus*), monarch butterfly (*Danaus plexippus*), Quino checkerspot butterfly (*Euphydryas Editha quino*), Riverside fairy shrimp (*Streptocephalus woottoni*), vernal pool fairy shrimp (*Branchinecta lynchi*), Allen's hummingbird (*Selasphorus sasin*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), California gull (*Larus californicus*), Cailfornia thrasher (*Toxostoma redivivum*), common yellowthroat (*Geothlypsis trichas sinuosa*), Lawrence's goldfinch (*Carduelis lawrencei*), Nuttall's woodpecker (*Picoides nuttallii*), oak titmouse (*Baeolophus inornatus*), olive-sided flycatcher (*Contopus cooperi*), and wrentit (*Chamaea fasciata*) (see Attachment 1). Each of these species are discussed in more detail in Attachment 5 and none are expected to occur based on lack of suitable habitat within the project area, with the exception of Stephen's kangaroo rat, discussed above.

4.5 Wildlife Movement Corridors

Wildlife movement corridors are defined as areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors for wildlife travel. Wildlife movement corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations (Beier and Loe 1992). Wildlife movement corridors are considered sensitive by resource and conservation agencies.

The project site is located on De Portola Road, a major thoroughfare that is bounded by dense residential development to the west and a mosaic of agricultural and rural-residential development interspersed with unimproved lots to the north. Larger expanses of open space occur to the south and east which likely support wildlife movement; however, any movement from this area through

the project site is ultimately restricted by De Portola Road and is not anticipated to provide a throughway for regional wildlife movement. Also, the project site is unlikely to support wildlife nursery sites or large roosting or breeding colonies due to the disturbed and developed nature of the project site and lack of native habitats.

5.0 Avoidance, Minimization, and Mitigation for Project Impacts

5.1 Vegetation Communities and Land Cover Types

Project impacts are detailed on Table 2 and illustrated in Figure 4. The project is anticipated to directly impact urban/developed land within existing roadways and ornamental and disturbed land adjacent to roadways. Ornamental, urban/developed, and disturbed land are not considered sensitive and thus would not require mitigation for impacts. Agricultural lands mapped within the survey area would not be impacted.

Table 2
Impacts to Vegetation Communities/Land Cover Types

Land Cover Types	Impacts (acres)
Agriculture	0
Ornamental	2.91
Disturbed land	23.87*
Urban/developed	17.85
TOTAL	**44.63**

*Includes acreage of staging areas located outside of right-of-way. Actual area used for staging will be determined and refined based on access agreements negotiated at the time of construction.

5.2 Sensitive Wildlife Species

Burrowing Owl. The project has the potential to result in direct impacts to burrowing owl as a result of vegetation removal and construction activities in the disturbed land within the potential staging areas. Direct impacts to this species would be considered significant and require mitigation as outlined in the MSHCP and detailed in AMM-BIO-1 below.

AMM-BIO-1: Burrowing Owl

Conduct a pre-construction take avoidance survey in suitable disturbed land within the project footprint, plus 500 feet. Per the Staff Report on Burrowing Owl Mitigation (CDFW 2012), take avoidance surveys require an initial survey no less than 14 days prior to the start of ground disturbance activities and a final survey conducted within 24 hours of ground disturbance. If burrowing owls are detected, the CDFW must be notified within 48 hours and avoidance measures and/or mitigation would be required.

If active burrowing owl burrows are identified within the potential impact area, the project shall avoid disturbing active burrowing owl burrows (nesting sites) and burrowing owl individuals. Buffers shall be established around occupied burrows in accordance with guidance provided in the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012) based on the proposed level of disturbance. For low disturbance projects, initial setback distances for avoidance of active burrows shall be 200 meters (approximately 656 feet) from April 1 to October 15 and 50 meters (164 feet) from October 16 to March 31. Exceptions can be made to the avoidance distance for areas with natural (hills, trees) or artificial (buildings, walls) barriers in place. The final avoidance buffer shall be at the discretion of the biologist. If, after consideration of a reduced buffer, an adequate avoidance buffer cannot be provided between an occupied burrow and required ground-disturbing activities, then passive relocation activities during the non-breeding season (September 1 through January 31) may be authorized in consultation with CDFW, which would include preparation, approval, and implementation of a Burrowing Owl Exclusion Plan in accordance with protocol described in the CDFW Staff Report on Burrowing Owl Mitigation.

Stephen's Kangaroo Rat. The project has potential to result in direct impacts to Stephen's kangaroo rat through incidental mortality from vegetation removal and construction activities in the disturbed land within the potential staging areas. Measures to avoid impacts to Stephen's kangaroo rat are described in AMM-BIO-2 below.

AMM-BIO-2: Stephen's Kangaroo Rat

Conduct a pre-construction take avoidance survey within the potential staging areas. The take avoidance surveys would require a focused habitat assessment survey within 14 days prior to the start of ground disturbance activities to determine whether the potential staging area contains suitable habitat with potential Stephen's kangaroo rat sign, tracks, or burrows. If no evidence of Stephen's kangaroo rat is present, then the staging area will be fenced with silt fencing to the roadway to prevent occupation by this species during construction. If evidence of Stephen's kangaroo rat is present, potential staging areas will avoid suitable disturbed land and be limited to unsuitable areas of disturbed land and/or the developed roadway.

San Diego Black-tailed Jackrabbit. The project has potential to result in direct impacts to San Diego black-tailed jackrabbit through incidental mortality from vegetation removal and construction activities in the disturbed land within the potential staging areas. However, this species if present likely occurs on-site in low numbers, and the project would be expected to result in the loss of very few individuals, if any. The potential loss of these individuals would not reduce the population to less than self-sustaining. Therefore, potential impacts would be considered less than significant and no mitigation is required.

California Glossy Snake. The project has potential to result in direct impacts to California glossy snake through incidental mortality from vegetation removal and construction activities in the disturbed land within the potential staging areas. However, this species if present likely occurs on-site in low numbers, and the project would be expected to result in the loss of very few individuals, if any. The potential loss of these individuals would not reduce the population to less than self-sustaining. Therefore, potential impacts would be considered less than significant and no mitigation is required.

Migratory and Nesting Birds. Potential direct and indirect impacts could result to nesting and migratory birds, including northern harrier, should construction activities occur during the general avian and raptor breeding season (January 1 through August 31). Potential direct impacts could result from vegetation removal and construction activities in the disturbed land within the proposed staging areas. Indirect noise impacts may also occur to migratory and nesting birds if they are nesting in the adjacent habitat. These species are protected by the CFGC Section 3503.5 and impacts to nesting individuals would need to be avoided. Measures to avoid impacts to nesting and migratory birds are described in AMM-BIO-3 below.

AMM-BIO-3: Migratory and Nesting Birds

Construction should be conducted outside the avian and raptor breeding season, which is generally defined as January 1 to August 31. If construction must take place during the nesting season, a qualified biologist shall perform a pre-construction survey for nesting birds within the project site, including a 500-foot buffer. The nesting bird survey shall occur no more than seven days prior to the start of construction. If active bird nests are confirmed to be present during the pre-construction survey, a buffer zone will be established by a qualified biologist until a qualified biologist has verified that the young have fledged or the nest has otherwise become inactive.

6.0 Conclusion

Based on the list of threatened and endangered species that may occur in and/or be affected by the project obtained from USFWS on October 5, 2023, the following species and critical habitat were identified as potentially occurring in the survey area (Table 3). A preliminary effect determination for each species is presented in the table based on the impact analyses provided in this report. Based on the analysis presented in this document, only the Stephen's kangaroo rat has a moderate potential to occur (see Attachment 5); however, the project would implement an avoidance measure (see Section 5.2) and a preliminary no effect determination has been made for this species. None of the other species are expected to occur based on lack of suitable habitat within the project site (see Attachment 5).

Table 3
Species and Critical Habitat Identified as Potentially Occurring in the Survey Area

Species	Federal Status	Critical Habitat within the Project Area	Preliminary Effect Determination
Spreading navarretia (*Navarretia fossalis*)	Threatened	No	No effect
Riverside fairy shrimp (*Streptocephalus woottoni*)	Endangered	No	No effect
Vernal pool fairy shrimp (*Branchinecta lynchi*)	Threatened	No	No effect
Coastal California gnatcatcher (*Polioptila californica californica*)	Threatened	No	No effect
Least Bell's vireo (*Vireo bellii pusillus*)	Endangered	No	No effect
Southwestern willow flycatcher (*Empidonax traillii extimus*)	Endangered	No	No effect
Stephen's kangaroo rat (*Dipodomys stephensi*)	Endangered	No	No effect

7.0 References Cited

Beier, P., and S. Loe
1992 A Checklist for Evaluating Impacts to Wildlife Movement Corridors. *Wildlife Society Bulletin* 20: 434-440.

Brenzel, K. N. (editor)
2001 *Sunset Western Garden Book*. Sunset Publishing Corporation, Menlo Park, CA.

California Department of Fish and Wildlife (CDFW)
2012 Staff Report on Burrowing Owl Mitigation. March 7.

2023a Natural Diversity Database. Nongame-Heritage Program, California Department of Fish and Wildlife, Sacramento. Accessed March. RareFind Version 5.2.14.

2023b Special Vascular Plants, Bryophytes, and Lichens List. Quarterly Publication. 140 pp. January.

2023c State and Federally Listed Endangered and Threatened Plants of California. Natural Diversity Data Base. Department of Fish and Game.

2023d Special Animals List. Periodic Publication. 51 pp. Natural Diversity Database.

2023e State and Federally Listed Endangered and Threatened Animals of California. Natural Diversity Data Base. Department of Fish and Game.

California Native Plant Society (CNPS)
2023 Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). http://www.rareplants.cnps.org. Accessed October.

Chesser, R. T., S. M. Billerman, K. J. Burns, C. Cicero, J. L. Dunn, B. E. Hernández-Baños, R. A. Jiménez, A. W. Kratter, N. A. Mason, P. C. Rasmussen, J. V. Remsen, Jr., D. F. Stotz, and K. Winker
2023 Check-list of North American Birds (online). American Ornithological Society. https://checklist.americanornithology.org/taxa/.

Crother, B. I., Rondald M. Bonett, Jeff Boundy, Frank T. Burbrink, Kevin de Queiroz, Darrel R. Frost, Richard Highton, John B. Iverson, Elizabeth L Jockusch, Fred Kraus, Kenneth L. Krysko, Adam D. Leaché, Emilly Moriarty Lemmon, Roy W. McDiarmid, Joseph R. Mendelson III, Peter A. Meylan, Tod W. Reeder, Sara Ruane, Michael E. Seidel
2017 Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding. Eighth Edition. Society for the Study of Amphibians and Reptiles Herpetological Circular 43.

Eriksen, Clyde, and Denton Belk
1999 *Fairy Shrimp of California's Puddles, Pools, and Playas*. Mad River Press, Eureka.

Evans, Arthur V.
2008 *Field Guide to Insects and Spiders of North America*. Sterling Publishing Company, New York.

Integrated Taxonomic Information System (ITIS)
2022 ITIS Website. Accessed on December 28, 2022. https://www.itis.gov/.

Jennings, M. R., and M. P. Hayes
1994 Amphibian and Reptile Species of Special Concern in California. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA. Contract number 8023.

Jepson Flora Project (editors)
2023 Jepson eFlora, http://ucjeps.berkeley.edu/eflora/. Accessed October, 2023.

Nature Festivals of San Diego County
2002 Checklist of Butterflies of San Diego County. Revised September. https://www.sdnhm.org/science/entomology/projects/checklist-of-butterflies-of-san-diego-county/.

NatureServe
2023 NatureServe Explorer. https://www.natureserve.org/.

Rebman, J. P., and M. G. Simpson
2014 *Checklist of the Vascular Plants of San Diego County*, 5th edition. San Diego Natural History Museum.

Riverside, County of
2003 Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Prepared by Dudek and Associates. Approved June 17. https://www.wrc-rca.org/Permit_Docs/MSHCP/MSHCP-Volume%201.pdf.

Tremor, S., D. Stokes, W. Spencer, J. Diffendorfer, H. Thomas, S. Chivers, and P. Unitt, eds.
2017 *San Diego County Mammal Atlas*. San Diego Natural History Museum.

United States Department of Agriculture (USDA)
1971 Soil Survey, Western Riverside Area, California. Edited by Arnold A. Knecht. Soil Conservation Service. November.

2023 PLANTS Database. Plant List of Accepted Nomenclature, Taxonomy, and Symbols. National Plant Data Team, Greensboro, North Carolina, USA. https://plants.usda.gov/home.

2023 Natural Resources Conservation Service, Soil Survey Staff. Official Soil Series Descriptions. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed October.

United States Fish and Wildlife Service (USFWS)
2023a Information for Planning and Consultation (IPaC) Database. Accessed October.

2023b All Species Occurrences GIS Database. Carlsbad Fish and Wildlife Office. Accessed October.

2023c Critical Habitat and Occurrence Data" [map]. http://www.fws.gov/data. Accessed October.

United States Geological Survey (USGS)
1997 7.5-Minute Topographic Map Pechenga Quadrangle.

Unitt, P. A.
2004 San Diego County Bird Atlas. Proceedings of the San Diego Society of Natural History, No. 39. San Diego Natural History Museum.

Western Riverside County Regional Conservation Authority (WRCRCA)
2003 Western Riverside County Multiple Species Habitat Conservation Plan. https://rctlma.org/Portals/0/mshcp/volume3/Exhibit_C.html; https://rctlma.org/Portals/0/mshcp/volume3/Exhibit_E.html; https://rctlma.org/Portals/0/mshcp/volume1/table9-2.html.

ATTACHMENTS

ATTACHMENT 1

Information for Planning and Consultation Database (IPaC) Resource List

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Riverside County, California

Local office

Carlsbad Fish And Wildlife Office

(760) 431-9440
(760) 431-5901

2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Stephens' Kangaroo Rat Dipodomys stephensi (incl. D. cascus) Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3495	Threatened

Birds

NAME	STATUS
Coastal California Gnatcatcher Polioptila californica californica Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo Vireo bellii pusillus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher Empidonax traillii extimus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered

Amphibians

NAME	STATUS
Arroyo (=arroyo Southwestern) Toad *Anaxyrus californicus* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3762	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Quino Checkerspot Butterfly *Euphydryas editha quino (=E. e. wrighti)* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5900	Endangered

Crustaceans

NAME	STATUS
Riverside Fairy Shrimp *Streptocephalus woottoni* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8148	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
California Orcutt Grass *Orcuttia californica* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4923	Endangered
Munz's Onion *Allium munzii* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2951	Endangered
Nevin's Barberry *Berberis nevinii* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8025	Endangered
San Diego Ambrosia *Ambrosia pumila* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8287	Endangered
Slender-horned Spineflower *Dodecahema leptoceras* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4007	Endangered

Spreading Navarretia Navarretia fossalis — Threatened
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/1334

Thread-leaved Brodiaea Brodiaea filifolia — Threatened
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/6087

Vail Lake Ceanothus Ceanothus ophiochilus — Threatened
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/4566

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/ documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
California Gull Larus californicus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
California Thrasher Toxostoma redivivum This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Lawrence's Goldfinch Carduelis lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20

Oak Titmouse *Baeolophus inornatus* — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher *Contopus cooperi* — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Wrentit *Chamaea fasciata* — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

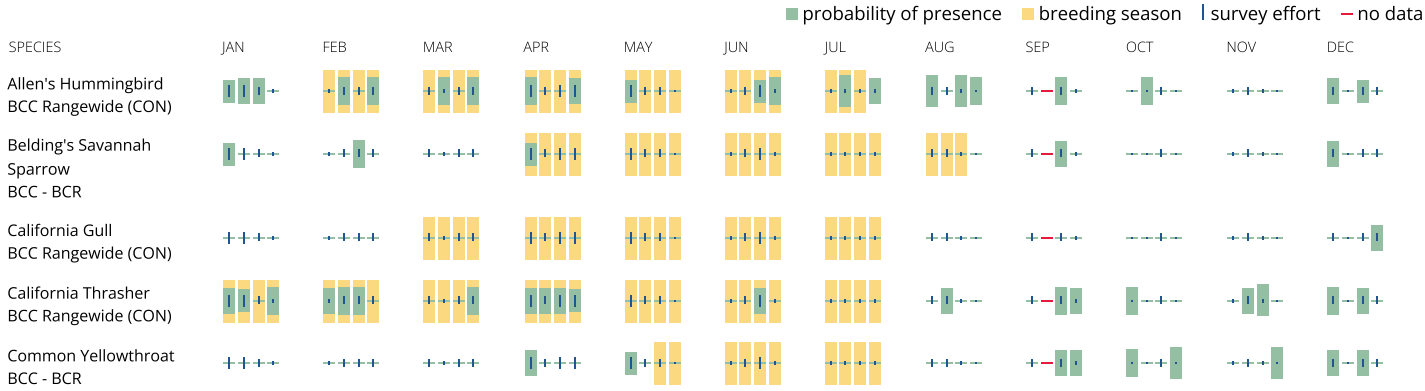
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

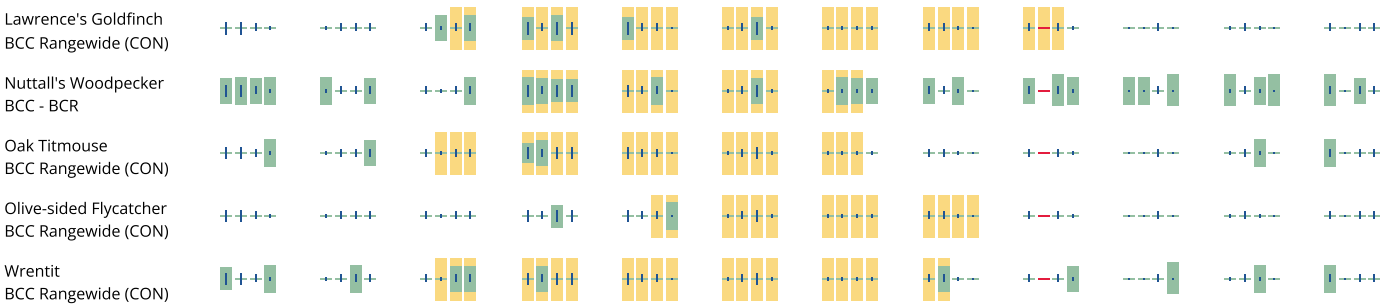
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

- R4SBC
- R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

ATTACHMENT 2

Plant Species Observed

Attachment 2 Plant Species Observed			
Major Plant Group	Family	Scientific Name / Common Name	Origin
Angiosperms: Eudicots	Fabaceae (Leguminosae) / Legume Family	*Acmispon glaber* [=*Lotus scoparius*] / deerweed, California broom	N
	Asteraceae / Sunflower Family	*Ambrosia psilostachya* / western ragweed	N
	Boraginaceae / Borage Family	*Amsinckia* sp. / fiddleneck	N
	Chenopodiaceae / Goosefoot Family	*Atriplex semibaccata* / Australian saltbush	I
		Chenopodium album / lamb's quarters, pigweed	I
	Apiaceae (Umbelliferae) / Carrot Family	*Conium maculatum* / common poison hemlock	I
	Solanaceae / Nightshade Family	*Datura wrightii* / western Jimson weed	N
	Asteraceae / Sunflower Family	*Erigeron canadensis* [=*Conyza canadensis*] / horseweed	N
	Geraniaceae / Geranium Family	*Erodium botrys* / long-beak filaree	I
		Erodium cicutarium / redstem filaree	I
	Myrtaceae / Myrtle Family	*Eucalyptus* sp. / gum tree	I
	Brassicaceae (Cruciferae) / Mustard Family	*Hirschfeldia incana* / short-pod mustard	I
	Plantaginaceae / Plantain Family	*Keckiella antirrhinoides* var. *antirrhinoides* / yellow bush penstemon	N
	Asteraceae / Sunflower Family	*Lactuca serriola* / prickly lettuce	I
		Logfia filaginoides [=*Filago californica*] / California cottonrose	N
	Malvaceae / Mallow Family	*Malva parviflora* / cheeseweed, little mallow	I
	Oleaceae / Olive Family	*Olea europaea* / olive	I
	Viscaceae / Mistletoe Family	*Phoradendron bolleanum* / fir mistletoe	N
	Fagaceae / Oak Family	*Quercus agrifolia* / coast live oak, encina	N
	Polygonaceae / Buckwheat Family	*Rumex crispus* / curly dock	I
	Chenopodiaceae / Goosefoot Family	*Salsola australis* / Australian tumbleweed	I
	Viburnaceae / Muskroot Family	*Sambucus mexicana* [=*Sambucus nigra* ssp. *caerulea*] / blue elderberry	N
	Anacardiaceae / Sumac or Cashew Family	*Schinus molle* / Peruvian pepper tree	I
		Schinus terebinthifolius / Brazilian pepper tree	I
	Brassicaceae (Cruciferae) / Mustard Family	*Sisymbrium officinale* / hedge mustard	I
	Urticaceae / Nettle Family	*Urtica dioica* ssp. *holosericea* / hoary nettle	N
	Asteraceae / Sunflower Family	*Xanthium strumarium* / cocklebur	N
Angiosperms: Monocots	Poaceae (Gramineae) / Grass Family	*Avena* sp. / oats	I
		Bromus rubens [=*Bromus madritensis* ssp. *rubens*] / red brome	I
		Distichlis spicata / salt grass	N
		Stipa sp. [=*Nassella* sp.] / needle grass	N

NOTE: Scientific and common names were primarily derived from Jepson eFlora (Jepson Flora Project 2023). In instances where common names were not provided in this resource, common names were obtained from Rebman and Simpson (2014). Additional common names were obtained from the *Sunset Western Garden Book* (Brenzel 2001) for ornamental/horticultural plants.

ORIGIN

N =Native to locality.

I = Introduced species from outside locality.

ATTACHMENT 3

Wildlife Species Observed

Attachment 3 Wildlife Species Observed			
Major Wildlife Group	Family	Scientific / Common Name	Origin
Reptiles	Colubridae / Colubrid Snakes	*Pituophis catenifer annectens* / San Diego gophersnake	N
Birds	Odontophoridae / New World Quail	*Callipepla californica* / California quail	N
	Accipitridae / Hawks, Kites, & Eagles	*Buteo jamaicensis* / red-tailed hawk	N
		Buteo lineatus / red-shouldered hawk	N
	Columbidae / Pigeons & Doves	*Streptopelia decaocto* / Eurasian collared-dove	I
	Trochilidae / Hummingbirds	*Calypte anna* / Anna's hummingbird	N
	Picidae / Woodpeckers & Sapsuckers	*Dryobates* [=*Picoides*] *nuttallii* / Nuttall's woodpecker	N
	Tyrannidae / Tyrant Flycatchers	*Sayornis nigricans* / black phoebe	N
		Sayornis saya / Say's phoebe	N
		Tyrannus vociferans / Cassin's kingbird	N
	Corvidae / Crows, Jays, & Magpies	*Aphelocoma californica* / California [=western] scrub-jay	N
		Corvus brachyrhynchos / American crow	N
	Hirundinidae / Swallows	*Petrochelidon pyrrhonota* / cliff swallow	N
	Aegithalidae / Bushtit	*Psaltriparus minimus* / bushtit	N
	Sittidae / Nuthatches	*Sitta carolinensis* / white-breasted nuthatch	N
	Troglodytidae / Wrens	*Thryomanes bewickii* / Bewick's wren	N
		Troglodytes aedon / house wren	N
	Turdidae / Thrushes	*Sialia mexicana* / western bluebird	N
		Turdus migratorius / American robin	N
	Mimidae / Mockingbirds & Thrashers	*Mimus polyglottos* / northern mockingbird	N
	Sturnidae / Starlings & Mynas	*Sturnus vulgaris* / European starling	I
	Parulidae / Wood Warblers	*Setophaga* [=*Dendroica*] *coronata* / yellow-rumped warbler	N
	Passerellidae / New World Passerines	*Melospiza melodia* / song sparrow	N
		Melozone [=*Pipilo*] *crissalis* / California towhee	N
		Pipilo maculatus / spotted towhee	N
		Zonotrichia leucophrys / white-crowned sparrow	N
	Cardinalidae / Cardinals & Grosbeaks	*Pheucticus melanocephalus* / black-headed grosbeak	N
	Icteridae / Blackbirds & New World Orioles	*Sturnella neglecta* / western meadowlark	N
	Fringillidae / Finches	*Haemorhous* [=*Carpodacus*] *mexicanus* / house finch	N
		Spinus [=*Carduelis*] *lawrencei* / Lawrence's goldfinch	N
		Spinus [=*Carduelis*] *tristis* / American goldfinch	N

NOTE: Zoological nomenclature for reptiles is in accordance with Crother et. al (2017) and for birds with Chesser et al. 2022.

ORIGIN

N =Native to locality.

I = Introduced species from outside locality.

ATTACHMENT 4

Sensitive Plant Species Observed or with the Potential to Occur

Attachment 4 Sensitive Plant Species Observed or with the Potential to Occur									
Major Plant Group	Family	Scientific Name / Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Angiosperms: Monocots	Alliaceae / Onion Family	*Allium munzii* / Munz's onion	FE	ST	1B.1	NE, MSHCP, 6.1.3	Perennial herb (bulbiferous); chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland; blooms March-May; elevation between 975 and 3,500 feet.	U	This species is not expected to occur within the project site due to lack of suitable chaparral, woodland, scrub or grassland habitat with clay soils.
Angiosperms: Eudicots	Asteraceae / Sunflower Family	*Ambrosia pumila* / San Diego ambrosia	FE		1B.1	NE, MSHCP, 6.1.3	Perennial herb (rhizomatous); chaparral, coastal sage scrub, valley and foothill grasslands, creek beds, vernal pools, often in disturbed areas; blooms April–October; elevation less than 1,400 feet. Many occurrences extirpated in San Diego County.	U	This species is not expected to occur within the project site due to lack of suitable floodplain terraces, vernal pools, or alkali playas with sparse vegetation. In addition, the disturbed land on-site lacks suitable mesic conditions and contains dense vegetation that appears to be subject to repeated disturbance from mowing and agricultural operations.

Attachment 4 Sensitive Plant Species Observed or with the Potential to Occur									
Major Plant Group	Family	Scientific Name / Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Angiosperms: Eudicots	Berberidaceae / Barberry Family	*Berberis nevinii* [=*Mahonia nevinii*] / Nevin's barberry	FE	SE	1B.1	MSHCP, 6.3.2	Perennial evergreen shrub; chaparral, cismontane woodland, coastal sage scrub, riparian scrub; sandy or gravelly soils; blooms February–June; elevation 900–2,700 feet. California endemic. Known from San Diego, Riverside, Los Angeles, and San Bernardino counties.	U	This species is not expected to occur within the project site due to the high density of thatch and lack of suitable openings. Additionally, as a large perennial shrub, the species would have been observed during biological surveys if present.
Angiosperms: Eudicots	Rhamnaceae / Buckthorn Family	*Ceanothus ophiochilus* / Vail Lake ceanothus	FT	SE	1B.1	MSHCP, 6.3.2	Perennial evergreen shrub; chaparral (gabbroic, pyroxenite-rich outcrops); blooms February-March; elevation between 1,900 and 3,500 feet.	U	The suitable elevation range for this species is outside the elevation range of the project impact area and survey area. Therefore, this species is not expected to occur.

Attachment 4 Sensitive Plant Species Observed or with the Potential to Occur									
Major Plant Group	Family	Scientific Name / Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Angiosperms: Eudicots	Polygonaceae / Buckwheat Family	*Chorizanthe parryi* var. *parryi* / Parry's spineflower, Parry's spine flower**			1B.1	MSHCP	Annual herb; chaparral, cismontane woodland, coastal scrub, valley and foothill grassland; openings, rocky (sometimes), sandy (sometimes); blooms April-June; elevation between 900 and 4,000 feet.	U	This species is not expected to occur within the project site due to the high density of thatch and lack of suitable openings.
Angiosperms: Eudicots	Polygonaceae / Buckwheat Family	*Chorizanthe polygonoides* var. *longispina* / long-spined spineflower, long-spined spine flower**			1B.2	MSHCP	Annual herb; clay soils; openings in chaparral, coastal sage scrub, near vernal pools and montane meadows, April–July; elevation 100–5,000 feet.	U	This species is not expected to occur within the project site due to lack of suitable chaparral, scrub, vernal pool, or meadow habitat with clay soils.
Angiosperms: Eudicots	Polygonaceae / Buckwheat Family	*Dodecahema leptoceras* / slender-horned spineflower, slender-horned spine flower**	FE	SE	1B.1	NE, MSHCP, 6.1.3	Annual herb; chaparral, cismontane woodland, coastal sage scrub, alluvial fans, and sandy areas; blooms	U	This species is not expected to occur within the project site due to lack of alluvial scrub maintained by periodic flooding and sediment transport.

Attachment 4 Sensitive Plant Species Observed or with the Potential to Occur									
Major Plant Group	Family	Scientific Name / Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
							April-June; elevation 600-2,500 feet.		
Angiosperms: Eudicots	Boraginaceae / Borage Family	*Harpagonella palmeri* / Palmer's grapplinghook			4.2	MSHCP	Annual herb; chaparral, coastal sage scrub, valley and foothill grasslands; clay soils; blooms March–May; elevation less than 3,200 feet. Inconspicuous and easily overlooked.	U	This species is not expected to occur within the project site due to lack of suitable chaparral, scrub, or grassland habitat with clay soils.
Angiosperms: Eudicots	Brassicaceae (Cruciferae) / Mustard Family	*Lepidium virginicum* var. *robinsonii* / Robinson's peppergrass			4.3		Annual herb; coastal sage scrub, chaparral; blooms January–July; elevation less than 2,900 feet.	U	This species is not expected to occur within the project site due to lack of suitable chaparral or scrub habitat.
Angiosperms: Eudicots	Polemoniaceae / Phlox Family	*Navarretia fossalis* / spreading navarretia	FT		1B.1	NE, MSHCP, 6.1.3	Annual herb; vernal pools, marshes and swamps, chenopod scrub; blooms April–June; elevation 100–4,300 feet.	U	This species is not expected to occur within the project site due to lack of suitable vernal pool, marsh, swamp or chenopod scrub habitat.

Attachment 4 Sensitive Plant Species Observed or with the Potential to Occur									
Major Plant Group	Family	Scientific Name / Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Angiosperms: Monocots	Poaceae (Gramineae) / Grass Family	*Orcuttia californica* / California Orcutt grass	FE	SE	1B.1	NE, MSHCP, 6.1.3	Annual herb; vernal pools; blooms April–August; elevation 50–2,200 feet.	U	This species is not expected to occur within the project site due to lack of suitable vernal pool habitat.
Lichens	Caliciaceae / Pin Lichen Family	*Texosporium sancti-jacobi* / woven-spored lichen			3		Crustose lichen; arid to semiarid shrub steppe, grassland, and savannahs (dominated by native plants); non-saline and non-calcareous soils; elevation less than 3,300 feet.	U	This species is not expected to occur within the project site due to lack of suitable shrub steppe, grassland, and savannah habitat.
Common names denoted with ** are from Western Riverside County Regional Conservation Authority 2003. Federal and state listing status is based on California Department of Fish and Wildlife, Natural Diversity Database (CDFW) 2023a.									

Attachment 3 Sensitive Plant Species Observed or with the Potential to Occur
STATUS CODES Federal Status FE = Listed as endangered by the federal government FT = Listed as threatened by the federal government State Status SE = Listed as endangered by the state of California ST = Listed as threatened by the state of California California Native Plant Society (CNPS): California Rare Plant Ranks (CRPR) 1A = Species presumed extinct. 1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing. 2A = Plants presumed extirpated in California, but more common elsewhere. 2B = Species rare, threatened, or endangered in California but more common elsewhere. These species are eligible for state listing. 3 = Species for which more information is needed. Distribution, endangerment, and/or taxonomic information is needed. 4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations. 0.1 = Species seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat). 0.2 = Species fairly threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat). 0.3 = Species not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known). CBR = Considered but rejected. Western Riverside MSHCP = Western Riverside County Multiple Species Habitat Conservation Plan covered species. 6.1.3 = Species subject to survey requirements and avoidance measures in Section 6.1.3, Protection of Narrow Endemic Plant Species. 6.3.2 = Species subject to survey requirements and avoidance measures in Section 6.3.2, Additional Survey Needs and Procedures of the MSHCP. NE = Plant species that are highly restricted by their habitat affinities, edaphic requirements or other ecological factors, and for which specific conservation measures have been identified in Section 6.1.3 of the MSHCP. **POTENTIAL TO OCCUR ON-SITE** L = Low M = Medium H = High U = Not expected

ATTACHMENT 5

Sensitive Wildlife Species Occurring or with the Potential to Occur

Attachment 5 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Invertebrates	Branchinectidae / Fairy Shrimp	*Branchinecta lynchi* / vernal pool fairy shrimp	FT		MSHCP, 6.1.2	Vernal pools.	U	This species is not expected to occur within or adjacent to the project site due to lack of suitable vernal pool habitat or ponding areas.
Invertebrates	Streptocephalidae / Fairy Shrimp	*Streptocephalus woottoni* / Riverside fairy shrimp	FE		MSHCP, 6.1.2	Deep lowland vernal pools and ponds greater than 12 inches in depth, and lacking marine or riverine hydrology.	U	This species is not expected to occur within or adjacent to the project site due to lack of suitable vernal pool habitat or ponding areas.
Invertebrates	Nymphalidae / Brush-footed Butterflies	*Danaus plexippus* / monarch	FC			Wide variety of habitats, including urban areas. Host plant is milkweed *(Asclepias* sp.).	U	This species is not expected to occur within or adjacent to the project site due to lack of suitable wintering habitat (stands of eucalyptus) and/or nectaring habitat (milkweed).
Invertebrates	Nymphalidae / Brush-footed Butterflies	*Euphydryas editha quino* / Quino checkerspot	FE		MSHCP	Open, dry areas in foothills, mesas, lake margins. Larval host plant *Plantago erecta.* Adult emergence mid-January through April.	U	This species is not expected to occur within or adjacent to the project site due to lack of suitable, open native habitat. The disturbed land within the potential staging areas has been subject to repeated clearing and disturbance and consists of dense thatch, that lacks suitable openings with host or nectar plants to support this species.
Amphibians	Pelobatidae / Spadefoot Toads	*Spea hammondii* / western spadefoot		SSC	MSHCP	Vernal pools, floodplains, and alkali flats within areas of open vegetation.	U	This species is not expected to occur within or adjacent to the project site due to lack of suitable vernal pools,

Attachment 5 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
								floodplains, or alkali flats. Furthermore, the riparian habitat adjacent to the project site is densely vegetated and lacks suitable open areas with gravelly, friable, or sandy soils to support this species.
Amphibians	Bufonidae / True Toads	*Anaxyrus californicus [=Bufo microscaphus californicus]* / arroyo toad	FE	SSC	MSHCP, 6.1.2	Open streamside sand/gravel flats. Quiet, shallow pools along stream edges are breeding habitat. Nocturnal except during breeding season (March–July).	U	This species is not expected to occur within or adjacent to the project site. The riparian habitat adjacent to the project site is densely vegetated and lacks suitable open areas with gravelly, friable, or sandy soils to support this species.
Reptiles	Gekkonidae / Geckos	*Coleonyx variegatus abbotti* / San Diego banded gecko		SSC	MSHCP	Granite and rocky outcrops in coastal sage scrub and chaparral.	U	This species is not expected to occur within or adjacent to the project site due to the lack of suitable scrub habitat with granite and rocky outcroppings.
Reptiles	Phrynosomatidae / Spiny Lizards	*Phrynosoma blainvillii [= P. coronatum coastal population], Phrynosoma coronatum blainvillei* / Blainville's horned lizard, coast horned lizard, San Diego horned lizard		SSC	MSHCP	Chaparral, coastal sage scrub with fine, loose soil. Partially dependent on harvester ants for forage.	U	This species is not expected to occur within or adjacent to the project site due to the lack of suitable scrub or chaparral habitat.

Attachment 5 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Reptiles	Teiidae / Whiptail Lizards	*Aspidoscelis hyperythra beldingi* [=*Cnemidophorus hyperythrus*] / Belding's orange-throated whiptail		WL	MSHCP	Chaparral, coastal sage scrub with coarse sandy soils and scattered brush.	U	This species is not expected to occur within or adjacent to the project site due to the lack of suitable scrub or chaparral habitat.
Reptiles	Teiidae / Whiptail Lizards	*Aspidoscelis tigris stejnegeri* / San Diegan tiger whiptail		SSC		Coastal sage scrub, chaparral, woodlands, and streamsides where plants are sparsely distributed.	U	This species is not expected to occur within or adjacent to the project site due to the lack of suitable open scrub or chaparral habitat.
Reptiles	Colubridae / Colubrid Snakes	*Arizona elegans occidentalis* / California glossy snake		SSC		Scrub and grassland habitats, often with loose or sandy soils.	M	This species has moderate potential to occur in disturbed land within potential staging areas due to the presence of suitable disturbed habitat with loose soils. Suitable habitat within the project site is limited to the disturbed habitat in the potential staging areas and does not include the developed roadway.
Birds	Accipitridae / Hawks, Kites, & Eagles	*Buteo regalis* / ferruginous hawk		WL	MSHCP	Require large foraging areas. Grasslands, agricultural fields. Uncommon winter resident.	M	This species has moderate potential to occur within potential staging areas for the project site due to the presence of suitable foraging habitat. These disturbed lands are part of a rural agricultural system with open space connectivity to the

Attachment 5 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
								southeast, which contains more expansive foraging habitat for this species. Suitable habitat within the project site is limited to the disturbed habitat and agricultural land in the potential staging areas and does not include the developed roadway.
Birds	Accipitridae / Hawks, Kites, & Eagles	*Circus hudsonius* / northern harrier		SSC	MSHCP	Coastal lowland, marshes, grassland, agricultural fields. Migrant and winter resident, rare summer resident.	M	This species has a moderate potential to forage within the potential staging areas for the project site due to the presence of suitable foraging habitat, but is not expected to nest as it is a winter migrant that is not known to nest in southern California. These disturbed lands are part of a rural agricultural system with open space connectivity to the southeast, which contains more expansive foraging habitat for this species. Suitable foraging habitat within the project site is limited to the disturbed habitat and agricultural land in the potential staging areas, and does not include the developed roadway.

Attachment 5 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Birds	Strigidae / Typical Owls	*Athene cunicularia* / burrowing owl		SSC	MSHCP, 6.3.2	Grassland, agricultural land, coastal dunes. Require rodent burrows. Declining resident.	M	This species has a moderate potential to occur within the potential staging areas for the project site due to the presence of suitable foraging habitat. No burrows or sign were observed within the project site. Suitable habitat within the project site is limited to the disturbed habitat and agricultural land within the potential staging areas, and does not include the developed roadway.
Birds	Tyrannidae / Tyrant Flycatchers	*Empidonax traillii extimus* / southwestern willow flycatcher	FE	SCE	MSHCP, 6.1.2	Nesting restricted to willow thickets. Also occupies other woodlands. Rare spring and fall migrant, rare summer resident. Extremely localized breeding.	U	This species is not expected to occur within or adjacent to the project site due to the lack of suitable riparian habitat for nesting.
Birds	Vireonidae / Vireos	*Vireo bellii pusillus* / least Bell's vireo	FE	SCE	MSHCP, 6.1.2	Willow riparian woodlands. Summer resident.	U	This species is not expected to occur within or adjacent to the project site due to the lack of suitable riparian habitat.
Birds	Polioptilidae / Gnatcatchers	*Polioptila californica californica* / coastal California gnatcatcher	FT	SSC	MSHCP	Coastal sage scrub, maritime succulent scrub. Resident.	U	This species is not expected to occur within or adjacent to the project site due to the lack of suitable scrub habitat.
Birds	Passerellidae / New World Passerines	*Aimophila ruficeps canescens* / southern California rufous-crowned sparrow		WL	MSHCP	Coastal sage scrub, chaparral, grassland. Resident.	U	This species is not expected to occur within or adjacent to the project site due to the lack of suitable scrub, chaparral, or grassland habitat.

Attachment 5 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Birds	Passerellidae / New World Passerines	*Artemisiospiza* [=*Amphispiza*] *belli belli* / Bell's sage sparrow		WL	MSHCP	Chaparral, coastal sage scrub. Localized resident.	U	This species is not expected to occur within or adjacent to the project site due to the lack of suitable scrub or chaparral habitat.
Mammals	Leporidae / Rabbits & Hares	*Lepus californicus bennettii* / San Diego black-tailed jackrabbit		SSC	MSHCP	Open areas of scrub, grasslands, agricultural fields.	M	This species has moderate potential to occur within the disturbed land and agricultural land in the potential staging areas. Suitable habitat does not include the developed roadway.
Mammals	Heteromyidae / Pocket Mice & Kangaroo Rats	*Dipodomys stephensi* / Stephens' kangaroo rat	FT	ST	MSHCP, SKRHCP	Grassland, open areas.	M	This species has a moderate potential to occur within the disturbed land in the potential staging areas. Disturbed land in the potential staging areas have a moderate potential to support this species as they contain dense non-native grasses and forbs that lack suitable open areas for this species; however, these areas appear to be subject to periodic mowing and/or tilling and may contain suitable low-lying vegetation suitable for this species for portions of the year. Suitable habitat does not include the developed roadway.

Attachment 5 Sensitive Wildlife Species Observed or with the Potential to Occur								
Major Wildlife Group	Family	Scientific Name / Common Name	Federal Status	State Status	Western Riverside	Habitat Preference / Requirements	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
Mammals	Heteromyidae / Pocket Mice & Kangaroo Rats	*Perognathus longimembris internationalis* / Jacumba pocket mouse		SSC		Desert riparian, desert scrub, desert wash, coastal scrub, and sagebrush.	U	This species is not expected to occur within or adjacent to the project site due to the lack of suitable scrub, desert wash, or desert riparian habitat.
Mammals	Muridae / Mice & Rats	*Neotoma lepida intermedia* / San Diego desert woodrat		SSC	MSHCP	Coastal sage scrub and chaparral.	U	This species is not expected to occur within or adjacent to the project site due to the lack of suitable scrub or chaparral habitat.
NOTE: Determination of the potential occurrence for listed, sensitive, or noteworthy species is based upon known ranges and habitat preferences for species follows Eriksen and Belk 1999, Nature Festivals of San Diego County 2002, Evans 2008, Jennings and Hayes 1994, Unitt 2004, and Tremor et. al. 2017. Federal and state listing status is based on California Department of Fish and Wildlife, Natural Diversity Database (CDFW) 2023a.								

Attachment 5 Sensitive Wildlife Species Observed or with the Potential to Occur
STATUS CODES Federal Status FE = Listed as endangered by the federal government FT = Listed as threatened by the federal government FC = Federal candidate for listing (taxa for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support proposals to list as endangered or threatened; development and publication of proposed rules for these taxa are anticipated) State Status ST = Listed as threatened by the state of California SCE = State candidate for listing as Endangered SSC = California Department of Fish and Wildlife species of special concern WL = California Department of Fish and Wildlife watch list species Western Riverside MSHCP = Western Riverside County Multiple Species Habitat Conservation Plan covered species 6.1.2 = Species subject to survey requirements and avoidance and minimization measures in Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools of the MSHCP 6.3.2 = Species subject to survey requirements and avoidance measures in Section 6.3.2, Additional Survey Needs and Procedures of the MSHCP SKR HCP = Stephens' Kangaroo Rate Habitat Conservation Program covered species **POTENTIAL TO OCCUR ON-SITE** M = Medium U = Not expected

APPENDIX C-1

Cultural Resources Survey Report for the Wine Country Sewer, Northern Alignment Project (Confidential)

APPENDIX C-2

Cultural Resources Survey Report for the Wine Country Sewer, Southern Alignment Project (Confidential)

APPENDIX D

Geotechnical Investigation Report

January 10, 2024
Kleinfelder Project No.: 20234673.001A

Mr. Ed Yang, PE
Kennedy/Jenks Consultants
300 N. Lake Avenue, #1020
Pasadena, California 91101

Subject: **DRAFT Report of Geotechnical Investigation**
South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

Dear Mr. Yang:

Kleinfelder is pleased to present this draft report summarizing our geotechnical investigation for the proposed South/North Wine Country Sewer project. The purpose of our investigation was to evaluate the subsurface conditions along the proposed pipeline alignment and develop geotechnical recommendations for project design and construction. The proposed alignment is located along various roads in Temecula area of Riverside County, California.

It is our opinion, from a geotechnical engineering perspective, that the proposed pipeline may be constructed as proposed, provided the recommendations presented in this report are properly incorporated into project design and construction.

We appreciate the opportunity to be of service on this project. If you have any questions, comments, or require additional information, please do not hesitate to contact the undersigned at your convenience.

Sincerely,

KLEINFELDER, INC.

Hector Marquez, PE
Project Engineer

Joel Metcalf, PG, CEG
Senior Engineering Geologist

Jeffrey D. Waller, PE, GE
Principal Geotechnical Engineer

2280 Market Street, Suite 300, Riverside, CA **p |** 951.801.3681 **f |** 951.682.0192

DRAFT REPORT OF GEOTECHNICAL INVESTIGATION
SOUTH/NORTH WINE COUNTRY SEWER
EASTERN MUNICIPAL WATER DISTRICT
TEMECULA, CALIFORNIA

JANUARY 10, 2024

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FIGURES

Figure 1 – Site Vicinity Map
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Figure 3a and 3b – Geologic Map

APPENDICES

Appendix A Field Exploration
Appendix B Laboratory Testing
Appendix C Liquefaction Analysis

1.0 INTRODUCTION

1.1 GENERAL

Kleinfelder was retained as a subconsultant to Kennedy/Jenks to conduct a geotechnical investigation for the South/North Wine Country Sewer project on behalf of Eastern Municipal Water District (EMWD). The proposed sewer alignment is located along various streets in the Temecula area of Riverside County, California. The approximate location and limits of the project are shown on Figure 1, Site Vicinity Map. The scope of our services was provided to Kennedy/Jenks in our abbreviated proposal entitled*, Proposal for Geotechnical Services, South/North Wine Country Sewer,* dated January 30, 2023. At the time of the proposal, the west end of the southern alignment was planned to run along portions of Temecula Parkway (SR-79) and Anza Road, however the alignment was updated as described in the following sections.

This report presents the results of our field exploration and laboratory testing for the proposed alignment, and our conclusions and recommendations relative to the geotechnical aspects of project design and construction. Conclusions and recommendations presented in this report are based on the subsurface conditions encountered at the locations of our field explorations, and the provisions and requirements outlined in the Additional Services and Limitations sections of this report. Recommendations presented in this report should not be extrapolated to other areas or be used for other projects (beyond those expressly identified within) without our prior review and comment.

1.2 SITE AND PROJECT DESCRIPTION

We understand the project involves construction of two separate vitrified clay pipe (VCP) sewer alignments within existing roadways in the Temecula area of Riverside County. Based on preliminary 30% design drawings prepared by Kennedy/Jenks Consultants, the proposed southern alignment consists of approximately 4.5 miles of 10- to 15-inch diameter VCP sewer with invert depths ranging from approximately 8 to 15 feet below ground surface (bgs). The proposed northern alignment consists of approximately 2.5 miles of 8- to 12-inch diameter VCP sewer with invert depths ranging from approximately 8 to 21 feet bgs. The southern alignment is proposed to be constructed along portions of Butterfield Stage Road and De Portola Road. Most of the alignment is along De Portola Road and extends approximately 4.3 miles from Butterfield Stage Road to Oak Mountain Road (Figure 3a; borings KB-2 through KB 21), with an approximately ¼-mile-long segment along Butterfield Stage Road (boring KB-1). The northern

alignment is proposed to be constructed along portions of Rancho California Road, Glen Oaks Road, Buck Road, and East Benton Road. The main route of the northern alignment trends northeast-southwest approximately 1¾ miles along Rancho California Road, Buck Road, and East Benton Road (Figure 3b; borings KB-22 through KB-25 and KB-30 through KB-35), with an approximately ¾-mile-long northwest-southeast trending branch along Glen Oaks Road (borings KB-26 through KB-29).

It should be noted preliminary design drawings were not available at the time of this report for the southern alignment segment starting at Butterfield Stage Road and Temecula Parkway (SR-79) and ending at De Portola Road and Anza Road, which is the segment that was updated as mentioned in Section 1.1.

The proposed sewer alignments are located in a generally rural area of Temecula mainly consisting of residential structures, farms, wineries, and undeveloped agricultural land. Appurtenant construction is expected to include street reconstruction (to similar pre-construction grades) after pipeline installation. We understand the pipeline will be installed using conventional cut and cover methods. The approximate alignment is presented on Figure 2, Boring Location Map.

1.3 PURPOSE AND SCOPE

The purpose of our investigation was to evaluate subsurface conditions along the proposed alignment and provide geotechnical recommendations for design and construction of the pipeline. A description of the scope of services performed is presented below:

Task 1 – Literature Review

We began our services by reviewing readily available online data and previous data collected in and around the project area. This includes research and review of geologic maps, aerial photographs, and well records in the area that may contribute to our understanding of geologic hazards and general site conditions.

Task 2 – Field Investigation

Prior to conducting the field exploration, our proposed exploration locations were cleared of known and identified, existing utility lines through Underground Service Alert (USA). In addition, we had each borehole location investigated using electro-magnetic and ground-penetrating radar (GPR) utility scanning methods to locate unknown and unidentified buried lines that might be present.

Additionally, encroachment permits were obtained from the County of Riverside and the City of Temecula, as required.

The subsurface exploration program included advancing a total of 36 exploratory borings along the proposed alignment. The borings were drilled to approximately 20 feet bgs, with exception to KB-20 and KB-23, which were drilled to approximately 50 feet bgs. It should be noted preliminary design drawings were not available at the time of our field investigation and borings were drilled to at least 20 feet bgs based on an assumed invert depth up to 10 feet bgs that was provided to us. Review of 30% preliminary design plans indicate portions of the sewer will be up to 21 feet bgs. Based on the updated invert depths provided after our field investigation, some of the borings did not extend at least 10 feet below the proposed invert depths. However, the borings extended at least to the approximate invert depth. If additional subsurface information is requested for these areas, Kleinfelder can prepare a proposal for supplemental services.

Bulk and drive samples were obtained from the boreholes for laboratory testing. A detailed description of the field investigation and the logs of the explorations for this study are presented in Appendix A.

Task 3 – Laboratory Testing

Laboratory testing was performed on soil samples collected during our field exploration to substantiate field classifications and to evaluate the physical characteristics of the subsurface soils. Testing consisted of evaluating in-situ dry unit weight and moisture content, wash sieves, sieve analysis, direct shear, sand equivalent, modified Proctor (maximum dry unit weight and optimum moisture content), R-value, and preliminary corrosion potential. A description of the laboratory tests and the test results for this geotechnical investigation are described and presented in Appendix B.

Task 4 – Geotechnical Analyses and Report Preparation

Field and laboratory findings were evaluated in conjunction with the proposed project use. This report includes the following:

- Description of the proposed project including a site plan showing the approximate boring locations.
- Description of the subsurface site conditions encountered during our field investigation including groundwater conditions as encountered in our field exploration.

- Discussion of site conditions, including the excavation characteristics and geotechnical suitability of the site for the general type of construction proposed.
- Discussion of geohazards including faulting and liquefaction.
- Recommendations for seismic design parameters in accordance with the 2022 CBC.
- Recommended trench sidewall slope inclinations and geotechnical engineering parameters for design of cantilevered and braced shoring.
- Evaluation and recommendations of the use of excavated materials, including suitability of excavated materials for pipe bedding and trench backfill. Recommendations for alternative backfill will be provided where necessary.
- Discussion regarding the potential for dewatering during construction.
- Recommendations of trench backfill compaction procedures including compaction density requirements.
- Special preparation requirements for pipeline subgrade, if required.
- Coefficients of active earth pressure, coefficients of friction and values of cohesion for determining lateral loads.
- Preliminary evaluation of the corrosion potential of the on-site soils.
- Appendix A with a summary of the field investigation and logs of the borings.
- Appendix B with descriptions of laboratory tests and test results.
- Appendix C with liquefaction analysis results.

2.0 SITE CONDITIONS

2.1 TOPOGRAPHY AND DRAINAGE

The project is in the Temecula-Pauba region of southwest Riverside County, about 7 miles southeast of the town of Murrieta where Interstate-215 joins Interstate-15. The project alignment is divided into southern and northern sections which both traverse an uplifted region of low relief consisting of dissected hills and elevated plains separated by west-flowing drainages.

The southern alignment is in the Pauba Valley in a semi-rural area of mixed land use on the floodplain north of Temecula Creek. The southern alignment is bounded on the southeast by Oak Mountain and the Black Hills and on the south by Agua Tibia Mountain.

The northern alignment is northeast of Buck Mesa in an area of rolling hills consisting of agricultural land and residential development. The northern alignment is bounded on the north by the highlands around Skinner Lake Reservoir and on the northeast by the Tucalota Hills.

2.2 GEOLOGIC SETTING

California is divided into eleven natural geomorphic provinces that are recognized based on geology, landscape or landform, topographic relief, and climate. The project is in the Peninsular Ranges province which extends from the San Gabriel and San Bernardino mountains north of the site southward into lower California, and from the Pacific coast eastward to the Colorado Desert (Norris and Webb, 1990).

The Peninsular Ranges are a series of northwest-trending mountain ranges and valleys subparallel to major faults branching from the San Andreas fault system. The Peninsular Ranges are divided into three fault-bounded structural blocks comprised of mostly granitic rocks intruding sedimentary rocks and older metamorphic rocks (Norris and Webb, 1990). The project area is in the middle (Perris) block, in roughly the middle of the block along the southwest boundary with the west (Santa Ana) block.

The Perris block is bounded by active faults: the Sierra Madre fault on the north, the San Jacinto fault on the northeast, and the Elsinore fault on the southwest. The Elsinore fault zone, which forms the boundary between the Perris and Santa Ana blocks, is a major right-lateral strike-slip fault zone in southern California (SCEDC, 2013). At its nearest point, the project area is about 2 miles east of the Elsinore fault zone.

2.3 STATIGRAPHY

A range of geologic materials are present along the southern and northern alignments. Geologic materials are described below based on geologic mapping by Morton et al. (2003) and Kennedy et al. (2007), and on the results of 36 boreholes drilled along the proposed alignments (see boring logs in Appendix A).

The proposed southern alignment trends northeast-southwest on the floodplain north of Temecula Creek and the entire alignment is located in alluvium (Kennedy et al., 2007). The west half of the southern alignment covered by borings KB-1 through KB-12 is underlain by young alluvial floodplain deposits (Qya) of Holocene and late Pleistocene age (Kennedy et al., 2007). The east end of the alignment covered by borings KB-18 through KB-21 is also in Qya where the alignment approaches an unnamed side drainage on the north side of Temecula Creek. The part of the southern alignment covered by borings KB-13 through KB-17 is underlain by alluvial wash deposits (Qw) of Holocene age (Kennedy et al., 2007) in the active channel of Temecula Creek.

The proposed northern alignment occupies an area of uplifted plains and dissected hills south of Skinner Reservoir. The proposed northern alignment is mostly underlain by the Pauba Formation (Qpfs) of Pleistocene age. Morton et al. (2003) describes the Pauba Formation (sandstone member) in the vicinity of the northern alignment as moderately well-indurated, cross-bedded sandstone containing sparse cobble- to boulder-conglomerate beds. At the northeast end of the northern alignment, granitic bedrock of Cretaceous age (tonalite, Kt [Morton et al., 2003]) was encountered at the surface (boring KB-33) or beneath a veneer of Qpfs (borings KB-32 and KB-34).

Kleinfelder drilled and sampled both Qpfs deposits and Kt bedrock using HSA drilling equipment and soil sampling tools without encountering refusal, although locally blow-counts were high (up to 50 blows for 3-inches). We interpret the ease of drilling in the Pauba Formation (Qpfs) to be due to the relatively young age (1.0-1.6 million years [Reynolds and Reynolds, 1990]) and lack of induration of these deposits. Qpfs samples are described using the USCS (Appendix A). We were able to drill and sample the tonalite (Kt) bedrock to the maximum depth explored of 21.5 feet bgs because the Kt rock is moderately to highly weathered.

There are a few areas along the northern alignment where alluvium (Qya) is present (Figure 3b). At the southwest end of the northern alignment Qpfs deposits are incised by Santa Gertrudis Creek and the creek bed is filled with alluvium (Morton et al., 2003). In borings KB-22 and KB-23 shallow groundwater was encountered in Qya underlain by Qpfs. Further to the northeast, the

alignment crosses an upper fork of Santa Gertrudis Creek that is mapped as Qya along Buck Road between borings KB-31 and KB-32. At the northeast end of the northern alignment a narrow trough of alluvium is mapped along East Benton Road at the base of the Tucalota Hills which was encountered in boring KB-35.

Following are brief descriptions of the soil and rock units encountered during our subsurface exploration.

Artificial Fill (af):

Artificial fill is present locally along part of both the southern and northern alignments, generally beneath existing roads. The fill overlies native materials and generally consists of a thin veneer of locally-derived silty sand and lesser clayey sand and poorly-graded sand. The fill soils are considered undocumented (Appendix A).

Alluvial Wash Deposits (Qw):

Wash deposits (Kennedy et al., 2007) comprised of unconsolidated bouldery to sandy alluvium of active and recently active washes (late Holocene age). Wash deposits were encountered in the active stream channel of Temecula Creek in borings KB-13 through KB-16 and consist of mostly poorly-graded and well-graded sand, sand with silt, and sand with gravel.

Young Alluvium (Qya):

Young alluvium comprised of poorly consolidated, poorly sorted, permeable floodplain deposits of Holocene and late Pleistocene age (Morton et al., 2003; Kennedy et al., 2007). Along the southern alignment, flood-plain deposits of young alluvium were encountered on the north side of Temecula Creek in borings KB 1 through KB-12 and KB-17 through KB-21; these flood plain deposits consist of mostly silty sand, clayey sand, and sandy silt with lesser clay, silt, sand, and sand with gravel. Along the northern alignment, stream channel and overbank deposits of young alluvium were encountered in borings KB 22, KB-23, and KB-35; these stream channel and overbank deposits consist of mostly of silty sand, clayey sand, and sandy clay.

Pauba Formation:

The Pauba Formation of early Pleistocene age (Reynolds and Reynolds, 1990) comprises of moderately well indurated sandstone and siltstone containing sparse cobble to boulder conglomerate beds (Morton et al., 2003). Although regionally described by Morton et al. (2003) as moderately well indurated rock, the weathered Pauba Formation that was encountered in

borings KB 23 through KB-32 and KB-34 is described in our logs (Appendix A) as dense to very dense or very stiff to hard, weakly cemented soil. Based on the results of the soil borings, we anticipate that the Pauba Formation along the northern alignment can be excavated using conventional trenching techniques. Kleinfelder did not encounter any cobble or boulder conglomerate beds as described by Morton et al. (2003) during drilling, but if encountered during construction, cobble or boulder conglomerate beds may require additional effort to excavate, including use of an excavator hoe-ram.

Tonalite:

At the north end of the northern alignment, tonalite (granitic bedrock) is present beneath a veneer of Pauba Formation (Morton et al., 2003). Tonalite (may also include granodiorite, a similar rock) is of Cretaceous age and is gray, medium-grained biotite-hornblende tonalite and is commonly foliated (Morton et al., 2003). Moderately to highly weathered tonalite was encountered below Pauba Formation in borings KB-32 at about 12½ feet bgs and in KB-34 at about 17½ feet bgs. In boring KB-33, tonalite was encountered at the surface below a foot of fill. Where tonalite was encountered during drilling the rock was sufficiently weathered to be drilled and sampled using HSA drilling equipment and soil sampling tools without encountering refusal.

Trenching in the tonalite bedrock is anticipated to require additional effort and result in additional wear on equipment. Tonalite bedrock was encountered above invert depth only in boring KB-33. However, the base of the weathered zone, known as the rockhead, is commonly highly irregular and the depth to hard rock can vary dramatically over distances of a few feet. If encountered, high spots in the rockhead (the buried, unweathered rock surface), or core stones (blocks of hard, unweathered rock entirely surrounded by softer, weathered rock) may require additional effort to excavate, including use of an excavator hoe-ram.

2.4 GROUNDWATER

Information on groundwater presented in this report is based on information derived from our geotechnical investigation and review of observation well water levels in the database of the State of California Department of Water Resources (DWR, 2021). The project is in the Temecula Groundwater basin (DWR, 2019).

Groundwater was not encountered in any of the borings drilled along the southern alignment. However, borings KB-13 through KB-16 were located in alluvial wash deposits (Qw) associated with the active channel of Temecula Creek and these locations could potentially be affected by rising groundwater levels during rain events.

There are two groundwater observation wells in the State database (DWR, 2021) showing data for 2011-2023 that are adjacent to the southern alignment. The nearest is Well No. RCWD 417 (lat. 33.49609, lon. -117.03286) which is about 0.1 mile south of boring KB-14 and is located in alluvial wash deposits (Qw). Depth-to-groundwater has varied from a minimum of about 86 feet in 2012 to a maximum of about 114 feet in 2023. Well No. RCWD 422 (lat. 33.49028, lon. -117.06420) which is about 0.4 mile south of boring KB-6 and is located in young floodplain deposits (Qya). Depth-to-groundwater has varied from a minimum of about 51 feet in 2012 to a maximum of about 93 feet in 2023.

At the conclusion of drilling, groundwater was observed along the northern alignment in borings KB-22, KB-23, KB-26, KB-34, and KB-35 at depths ranging from approximately 3 to 18 feet bgs. There is only one groundwater observation wells in the State database (DWR, 2021) showing useful data adjacent to the northern alignment. Well No. 07S02W13R001S (lat. 33.55670, lon. -117.03400) which is about 0.15 mile north of boring KB-31 and is located in Pauba Formation (Qpfs). A single depth-to-groundwater measurement of about 24 feet in 1968 is available.

We interpret the available groundwater data to indicate generally shallow groundwater conditions along portions of the northern alignment, with the Pauba Formation as the aquifer (although water is also held in streambed sediments). Groundwater was encountered during drilling under different circumstances. At the south end of the northern alignment, groundwater was encountered in borings KB-22 and KB-23 while drilling in topographic low spots along Saint Gertrudis Creek. Similarly, KB-26 was drilled in the low spot of a draw which forms the upper reach of a branch of Saint Gertrudis Creek.

Perched groundwater was present in boring KB-34, which encountered 17.5 feet of Pauba Formation underlain by tonalite bedrock. The Tonalite bedrock in KB-34 underlies the Pauba Formation and the rest of the northern alignment south of KB-34 at depths greater than our investigation (Morton et al., 2003).

Boring KB-35, which marks the east end of the northern alignment, encountered shallow groundwater in 8 feet of fill overlying streambed alluvium; neither Pauba Formation nor tonalite bedrock were encountered to the maximum depth explored of 21.5 feet. We interpret the alluvium encountered in KB-35 to represent a former drainage channel that was filled for development purposes. The path of the former drainage channel, which begins to the northeast along East Benton Road and once drained to the southwest to Saint Gertrudis Creek, is visible in a historic air photo taken in 1939 (UCSB, 2020).

In addition to the discrete locations where groundwater was encountered during drilling (KB-22, KB-23, KB-26, KB-34, and KB-35), we anticipate that groundwater may be encountered at or above the proposed invert depth between the following approximate station intervals (per preliminary 30% design drawings).

Station	10+00	to	31+00	Rancho California Road
Station	62+00	to	66+00	Buck Road
Station	71+00	to	77+00	Buck Road
Station	10+00	to	37+00	East Benton Road

Prior to project construction, we will install monitoring wells throughout the portions of the northern alignment where groundwater was previously encountered or could be potentially encountered above the proposed pipe invert depth. The groundwater in the wells will be monitored over time and the results will be provided in a separate report.

Fluctuations in groundwater levels (including localized zones of perched water) and changes in soil moisture content should be anticipated during and following the rainy season. Irrigation and future development on surrounding properties can also cause a fluctuation of local groundwater levels. Based upon the currently proposed alignment and invert elevations, and the groundwater levels encountered during our field investigation, seepage or nuisance water may be encountered during construction near parts of the pipeline.

2.5 GEOLOGIC HAZARDS

2.5.1 Fault Rupture

The project is in seismically active southern California. The project is within the zone of influence for several faults which are considered active. The California Alquist-Priolo (A-P) Earthquake Fault Zoning Act defines an active fault as one which has “had surface displacement within Holocene time” (the last 11,700 years). Geologic faults that lack evidence for ground surface displacement within Holocene time are not necessarily inactive. A fault may only be presumed to be inactive based on satisfactory geologic evidence. However, the evidence necessary to prove inactivity sometimes is difficult to obtain and locally may not exist. In cases where fault investigations are required by the A-P Act to assess the recency of fault movement, faults within an earthquake fault zone are presumed to be active until determined otherwise. Note that the A-

P Act requires fault investigations to address potential fault hazards only for structures intended for human occupancy.

The site is not located within a State-designated Alquist-Priolo Earthquake Fault Zone (CGS, 2021) and there are no known faults that cross the project alignment or that are in the immediate vicinity of the project (Morton et al., 2003; Kennedy et al., 2007; USGS, 2006). Consequently, it is our opinion that the risk of surface fault rupture within the project alignment is low.

2.5.2 Erosion

Erosion is a natural process that occurs on slopes, hillsides, and natural drainages. The proposed southern alignment is an area of mixed land use on the floodplain and distal margin of the active channel of Temecula Creek, and the risk of erosion is considered low to moderate. The proposed northern alignment is an area of primarily agricultural use dissected by drainages and the risk of erosion is considered moderate where the alignment occupies or crosses drainages, and low elsewhere.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 GENERAL

Based on the field exploration, laboratory testing and geotechnical analyses conducted for this project, it is our opinion that it is geotechnically feasible to construct the proposed pipelines as planned, and as described within, provided the recommendations presented in this report are incorporated into the project design and construction. The following sections provide our conclusions and recommendations, from a geotechnical engineering standpoint, for pipeline design and construction.

3.2 SEISMIC DESIGN CONSIDERATIIONS

3.2.1 2022 CBC Seismic Design Parameters

According to the 2022 California Building Code (CBC), every structure, and portion thereof, including non-structural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE/SEI 7-16. The Seismic Design Category for a structure may be determined in accordance with Section 1613 of the 2022 CBC.

Based on information obtained from the investigation, published geologic literature and maps, and on our interpretation of the ASCE/SEI 7-16 criteria, it is our opinion that the project site may be classified as Site Class D, Stiff Soil. Approximate coordinates for the site are noted below.

Table 1
Coordinates for Approximate Alignment Sections

	SOUTHERN ALIGNMENT			NORTHERN ALIGNMENT		
	SOUTH END	MID WAY	NORTH END	SOUTH END	MID WAY	NORTH END
Latitude (°N)	33.4879	33.4956	33.5102	33.5476	33.5517	33.5606
Longitude (°W)	117.0793	117.0456	117.0175	117.0440	117.0308	117.0245

The Risk-Targeted Maximum Considered Earthquake (MCE_R) mapped spectral accelerations for 0.2 seconds and 1 second periods (S_s and S_1) were estimated using Section 1613 of the 2022 CBC and the California Office of Statewide Planning and Development (OSHPD) seismic design maps web-based application (available at https://seismicmaps.org/). In accordance with Section

11.4.8 of ASCE 7-16, a site-specific ground motion hazard analysis is required for Site Class D sites with an S_1 greater than 0.2 g. However, a site-specific ground motion hazard analysis is not required if the exception in Section 11.4.8 of ASCE 7-16 are taken. In accordance with the 2022 CBC, which adopts Supplement 3 of ASCE 7-16, the exception requires the values of parameters S_{M1} and S_{D1} to be increased by 50 percent. Assuming the exception will be taken, the 2022 CBC Seismic Design Parameters for the project site are provided in the following table.

Table 2
2022 CBC Seismic Design Parameters

DESIGN PARAMETER	RECOMMEDNED VALUE					
	SOUTHERN ALIGNMENT			NORTHERN ALIGNMENT		
	SOUTH END	MID WAY	NORTH END	SOUTH END	MID WAY	NORTH END
Site Class	D	D	D	D	D	D
S_s (g)	1.365	1.437	1.384	1.534	1.365	1.373
S_1 (g)	0.500	0.529	0.506	0.568	0.500	0.503
F_a	1.0	1.0	1.0	1.0	1.0	1.0
F_v	N/A or 1.80*	N/A or 1.77*	N/A or 1.79*	N/A or 1.73*	N/A or 1.80*	N/A or 1.80*
S_{MS} (g)	1.365	1.437	1.384	1.534	1.365	1.373
S_{M1} (g)	N/A	N/A	N/A	N/A	N/A	N/A
S_{DS} (g)	0.910	0.958	0.922	1.023	0.910	0.915
S_{D1} (g)	N/A	N/A	N/A	N/A	N/A	N/A
PGA_M (g)	0.649	0.691	0.659	0.750	0.621	0.589

*Section 11.4.8 of ASCE 7-16 requires a site-specific ground motion hazard analysis be performed for Site Class D sites with S_1 values greater than or equal to 0.2g unless exceptions are taken in which the values of S_{M1} and S_{D1} are increased by 50 percent. If exceptions are taken, then this Fv value may be used in accordance with Table 11.4-2 of ASCE 7-16, Supplement 3 (per the 2022 CBC).

3.2.2 Liquefaction and Seismically Induced Settlement

Soil liquefaction is a phenomenon in which saturated, cohesionless soils lose their strength due to the build-up of excess pore water pressure during cyclic loading such as that induced by earthquakes. The primary factors affecting the liquefaction potential of a soil deposit are:

1) intensity and duration of earthquake shaking, 2) soil type and relative density, 3) overburden pressures, and 4) depth to groundwater. Soils most susceptible to liquefaction are clean, loose, uniformly graded, fine-grained sands, and non-plastic silts that are saturated. Silty sands and silts, under certain site conditions, may also be susceptible to liquefaction.

Generalized liquefaction potential zones have been mapped for areas of Riverside County (RCIT). The zones are based on generalized criteria for sediment types, groundwater levels, and ground shaking potential. Based on the screening criteria used to develop the generalized maps, the entire southern alignment and a localized drainage crossing on the northern alignment in the vicinity of Rancho California Road, between Lomo Ventoso Lane and Hilt Road (near KB-22 and KB-23) are identified as having a potential for liquefaction.

Groundwater was not encountered in any of the borings drilled in the southern alignment to depths ranging from 20 to 50 feet bgs. Based on the lack of groundwater and the anticipated pipeline invert elevations, it is our opinion that liquefaction has a low potential to occur during a design earthquake event on the southern alignment. However, potentially liquefiable soils were identified on the northern alignment in the vicinity of Rancho California Road, between Lomo Ventoso Lane and Hilt Road based on the results of the SPT blow counts, soil type, and encountered groundwater in our borings. Outside of the areas described above, liquefaction has a low potential to occur during a design earthquake event.

To assess the potential for liquefaction of subsurface soils within Rancho California Road, between Lomo Ventoso Lane and Hilt Road, we used the liquefaction analysis procedures outlined in Cetin et.al (2004), Idriss and Boulanger (2008), and Youd et al. (2001) based on standard penetration test (SPT) data. For estimating the resulting ground settlements, we used the methods proposed by Cetin et.al (2009a and b) and Idriss and Boulanger (2008), and Tokimatsu and Seed (1987) respectively. These methods utilize corrected SPT blow counts to estimate the amount of volumetric compaction or settlement during an earthquake.

Groundwater in borings KB-22 and KB-23 drilled during our geotechnical study was measured at depths ranging between approximately 3 to 8 feet bgs. A design groundwater depth of 3 feet bgs was used in our analyses.

According to Section 1803.5.12 of the 2022 CBC, the peak ground acceleration (PGA) used in the liquefaction analysis may be determined in accordance with Section 11.8.3 of ASCE 7-16. Further, the potential for liquefaction should be evaluated using the maximum considered earthquake (MCE) geometric mean (M_{CEG}) PGA adjusted for site class or PGA_M, as determined

by Equation 11.8-1. A PGA_M of 0.65g with an earthquake magnitude of 7.7 was used as the MCE level seismic event for our liquefaction analyses.

Based on the SPT data and engineering analyses, it is Kleinfelder's opinion that, below the pipe invert, loose to medium dense sand layers below the groundwater at a depth of approximately 18 to 22 feet bgs may be subject to liquefaction in the event of a major earthquake occurring on a nearby fault. Based on the liquefaction analyses, seismically-induced settlement of saturated soils due to strong ground shaking during an MCE-level seismic event was calculated to be on the order of 1 to 2 inches for soils below the pipe invert. Because of variations in distribution, density, and confining conditions of the soils, liquefaction settlement is generally non-uniform and serious structural damage can occur due to differential settlement. The amount of differential settlement will depend on the uniformity of the subsurface profile. For uniform subsurface conditions, differential settlement on the order of 50 percent of the total seismic settlement could be expected. For highly heterogeneous sites, differential settlements on the order of 75 to 100 percent of the total seismic settlement could be expected. Kleinfelder estimates differential settlement to be between 1/2 to 2/3 of the total settlement, or approximately 1/2 to 1 inch over a horizontal distance of 50 feet. Potentially liquefiable soil above the pipe invert elevation was not considered in the analysis. The results of the liquefaction analysis are presented in Appendix C.

3.3 AVERAGE SOIL PARAMETERS FOR PIPE DESIGN

Recommended soil parameters to be used in the design of below grade vitrified clay pipe (VCP) are provided below. These parameters are based upon the results of our field investigation, laboratory testing, engineering analysis, and the pipeline assumptions presented within. The parameters presented do not include a factor of safety. An appropriate factor of safety may be used by the project designer dependent upon project needs.

Table 3
Recommended Average Soil Parameters

Geologic Unit (See Section 2, Figure 3, and Appendix A for approximate location on alignment unit is anticipated to be encountered)	Alluvium	Pauba Formation	Tonalite (Bedrock)
Soil dry unit weight (γ_d)	110 pcf	120 pcf	125 pcf
Soil bulk unit weight (γ)	120 pcf	125 pcf	130 pcf
Angle of internal friction of soils (ϕ)	30º	32º	35º
Soil cohesion (c)	50 psf	100 psf	150 psf
Coefficient of active earth pressure (K_a)*	0.33	0.31	0.27
Coefficient of earth pressure at-rest (K_o)*	0.50	0.47	0.42
Coefficient of passive earth pressure (K_p)*	3.00	3.25	3.69
Coefficient of friction between the pipe-soil interface (for bedding-pipe-zone material)	0.30		

*Calculations below the groundwater table should consider buoyant soil unit weights, surcharge loads, and include water pressure.

3.4 PIPE ANCHORAGE

Anchorage of pipe may be evaluated using frictional resistance along the pipe and passive pressure at thrust block locations. As provided above, a frictional coefficient of 0.30 is recommended for the sand bedding and VCP sewer.

Passive resistance for thrust blocks, if needed, bearing against firm natural soil or properly compacted backfill can be calculated using an equivalent fluid pressure of 300 psf per foot of depth. The maximum passive resistance should not exceed 3,000 psf. Note that the passive pressures presented above are ultimate values and have not been reduced by a factor of safety.

3.5 GUIDELINES FOR TEMPORARY EXCAVATIONS

3.5.1 Excavation Characteristics

The borings at the site were advanced using a CME-75 truck-mounted drill rig or GT-16 track-mounted drill rig. Drilling was advanced with easy to moderate difficulty effort through the subsurface soils and the target depths at each boring location was reached without refusal, suggesting the subsurface soils can be excavated with conventional excavation equipment. Based on the proposed pipe invert, we anticipate that the excavation difficulty will vary between minimal to moderate difficulty based on encountering fill/alluvial soil, Pauba formation, or granitic bedrock. This is assuming that large excavator type of equipment will be used for trenching.

Cobbles or boulders may exist locally in areas not explored and difficulty drilling through cobbles and boulders may be anticipated. Continuous breaking, chemical cracking or other methods may be necessary in some areas of the alignments if shallow, less weathered bedrock is encountered.

The contractor should carefully review the boring logs in this report and perform their own assessment of potential construction difficulties. Installation construction methods should be selected accordingly, and the associated costs should be included in the bid submittal. We recommend that the contractor's actual method of construction be evaluated by the geotechnical and civil engineer prior to construction to verify that the installation method is consistent with the design assumptions. We recommend all bid documents should be reviewed by the geotechnical and civil engineer for consideration of proposed construction methodologies.

Artificial fill, alluvial soils, and Pauba Formation soils encountered may require special attention during construction to avoid trench wall collapse, undermining, and damage to existing facilities. Interbedded layers of non-cohesive soil may tend to run and ravel. After the trench excavation is made and the soil begins to dry-out, the apparent cohesion of granular soil may be reduced, and sloughing could occur. Shoring of trench walls or alternate methods of trench stability such as, trench shields and/or sloping sidewalls, should be incorporated into the project evaluation and planning.

We recommend that all individuals utilizing this report review the boring logs presented in Appendix A for greater detail. Subsurface conditions may vary between and beyond the points explored and may differ from the general conditions presented above. If soil conditions are encountered during construction which differ from those described, we should be notified immediately in order that a review may be made. Supplemental recommendations and construction techniques may be required.

3.5.2 Temporary Slopes

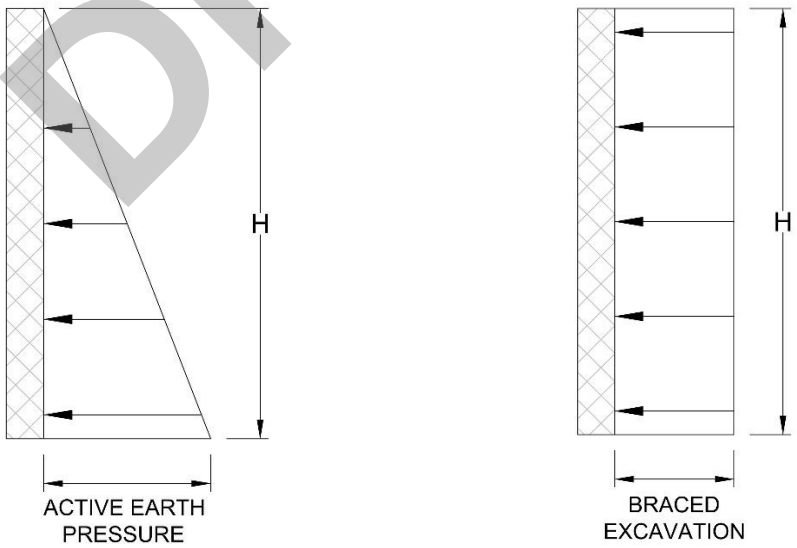
Excavations must comply with applicable local, state, and federal safety regulations including the current OSHA Excavation and Trench Safety Standards. Construction site safety is the responsibility of the contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. We are providing the information below as a service to our client. Under no circumstances should the information provided be interpreted to mean that Kleinfelder is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

Minor sloughing, running, and/or raveling of slopes should be anticipated as they dry out. Where space for sloped embankments is not available, shoring will be necessary. In addition, excavations should not be made closer to existing improvements more than 1.5 times the height of the excavation. Stockpiled (excavated) materials should be placed no closer to the edge of an excavation than a distance equal to the depth of the excavation, and never closer than 4 feet from the edge of the excavation. Stockpiles should be placed so that the materials will not fall back into the excavation. The geotechnical engineer or their field representative should observe the excavations so that modifications can be made as necessary, based on variations in the soil conditions encountered.

3.5.3 Shoring

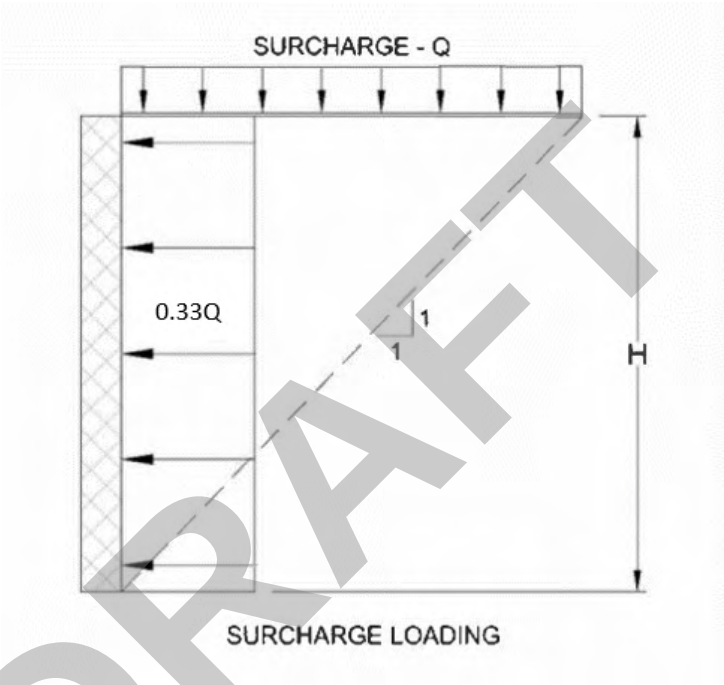
Shoring may be required where soil conditions, space or other restrictions do not allow a sloped excavation. A braced or cantilevered shoring system may be used.

A temporary cantilevered shoring system should be designed to resist an active earth pressure equivalent to a fluid weighing 40 pounds per cubic foot (pcf) (see figure below). Braced or restrained excavations should be designed to resist a uniform horizontal equivalent soil pressure of 26 pounds square foot (psf) times the depth of shoring (26H) (see figure below). The values provided above assume a level ground surface adjacent to the top of the shoring and do not include a factor of safety.



In addition to the recommended earth pressure, any surcharge (live load including vehicular traffic, construction equipment, and dead loads) located within a 1H:1V plane drawn upward from

the base of the shored excavation should be added to the lateral earth pressures. The lateral contribution of a uniform surcharge load located immediately behind the wall may be calculated by multiplying the surcharge by 0.33 for the level backfill condition (see figure below). Lateral load contributions of surcharges located at a distance behind the shored wall may be provided once the load configurations and layouts are known. As a minimum, a 2-foot equivalent soil surcharge (250 psf) is recommended to account for traffic or nominal construction loads. It should be noted that the above pressures do not include hydrostatic pressure.



SURCHARGE LOADING

Cantilevered shoring must extend to a sufficient depth below the excavation bottom to provide the required lateral resistance. We recommend required embedment depths be determined using methods for evaluating sheet pile walls and based on the principles of force and moment equilibrium. For this method, the passive pressure against shoring, which extends below the level of excavation may be assumed to be equivalent to a fluid weighing 300 psf per foot of depth. Additionally, we recommend a factor of safety of at least 1.2 be applied to the calculated embedment depth and that the allowable passive pressure be limited to 3,000 psf.

The contractor should be responsible for the structural design and safety of all temporary shoring systems.

3.6 EXCAVATION

3.6.1 Soil Stripping and Demolition

Prior to excavation operations, all vegetation, roots, and organics should be removed and disposed at an approved facility for recycling organic waste. Paved areas may be stripped to removal any asphalt, concrete, and/or aggregate base materials. Pavement materials should be hauled to an approved facility for disposal or crushing and recycling.

Native soil and existing fill soils from excavations may be segregated and used for backfill. Prior to backfilling operations, all vegetation, roots, organics, wet or soft soil, oversize material, etc., and deleterious materials should be removed from any material designated to be used as backfill. Designated backfill materials will require Proctor compaction testing in a soils laboratory for determination of maximum density and optimum moisture content prior to placement as fill. Proctor compaction testing per ASTM D1557 may take up to three days to complete and must be performed prior to backfill operations. We recommend the contractor plan for laboratory testing and notify the onsite geotechnical representative of materials that are planned to be used in backfill. Refer to Section 3.7 for more information on backfill materials.

Voids created by the removal of sub-surface obstructions (such as oversize material, underground utilities, etc.) should have all loose (soft) soil, organic matter, and other deleterious materials removed, and be backfilled with material placed, and compacted as engineered fill in accordance with the recommendations presented in this report. Pipes or utilities identified for removal or abandonment should be capped and reinforced (cement slurry injection, grouting, etc.) as required to prevent the migration of water and potential collapse due to decay or other forces, which could cause settlement of overlying soils, pipelines, or structures.

3.6.2 Overexcavation

Trench excavation operations must expose a firm subgrade that is free of significant voids, loose, soft, or wet soil, oversize material, organics, or other deleterious material. The subgrade soils exposed at the bottom of each excavation for the proposed pipeline should be observed by a representative from our firm prior to the placement of any pipeline, pipe bedding materials, or fill. If unsuitable conditions are encountered, additional removal and replacement of excavation bottom soils and/or other remediation techniques may be required to provide a stable excavation bottom to uniformly support the pipe. Where loose/soft or wet soils are exposed at the pipe invert elevation, we recommend trenches be overexcavated below the bottom of the pipe invert section to allow for adequate bedding material. The trench bottom should be stabilized in accordance with

EMWD specifications. A representative of Kleinfelder should be onsite to determine overexcavation depths and observe and document overexcavation and/or bottom stabilization. Suitable shoring may be needed for the Kleinfelder representative to evaluate the bottom of the excavation.

3.6.3 Unstable Subgrade Conditions

Along portions of the alignment where groundwater may be encountered near the sewer invert, we anticipate pumping subgrade conditions may be encountered and the subgrade may need to be stabilized. An unstable subgrade could be over-excavated 12 to 24 inches below the subgrade elevation and replaced with an equal amount of ¾- or 1-inch compacted crushed rock wrapped by geotextile fabric. The geotextile fabric should consist of a woven geotextile, such as Mirafi 600X, or nonwoven geotextiles, such as 140N, or equivalent. The final depth of removal will depend upon the conditions observed in the field once over-excavation begins. The geotextile fabric should be placed in accordance with the manufacturer's recommendations. Alternate stabilization methods approved by Kleinfelder and/or EMWD may also be performed.

3.7 BACKFILL

3.7.1 Materials

Pipe zone backfill (i.e., material beneath (bedding) and in the immediate vicinity of the pipe extending to 12 inches above the pipe crown) should consist of sand or similar relatively free-draining granular material having a minimum sand equivalent value of 30 and conform to EMWD specifications for backfill. The majority of the soils encountered do not meet this criteria. Sand equivalent results are presented in Appendix B. During grading and prior to placement, we should be notified to sample and perform laboratory sand equivalent testing of the pipe zone backfill soil to confirm the results. Alternative pipe zone backfill options are included in EMWD's standard drawings for sewers and may be considered with Kleinfelder and/or EMWD's approval. If crushed rock is used as pipe zone backfill, it should be wrapped by geotextile fabric.

For portions of the proposed sewer where groundwater could be present within the pipe zone, relatively free-draining pipe bedding creates a conduit for migration of groundwater along the trench. This migration of groundwater can potentially alter localized hydrogeologic regimes and contribute to potential volume changes in moisture-sensitive soils. In order to reduce groundwater migration in the trench, we recommend that trench "seepage plugs" or "clay dams" be constructed every 200 to 300 feet along the pipeline alignment. Seepage plugs should be constructed from an impervious material and keyed into the in-situ soil along the trench bottom and sidewalls,

extending at least 12 inches above the top of the bedding elevation. Seepage plugs may be constructed from compacted clay soils with a soil classification (ASTM D2487) of CL or CH, Controlled Low Strength Material (CLSM), soil cement (flowable fill), or soils amended with bentonite. Seepage plugs should have a minimum thickness, as measure parallel to the pipe, of 24 inches. The water collected by the seepage plugs should be collected and discharged to a suitable outlet (i.e. the manhole structures). The location of the seepage plugs and collection and discharge of the water should be determined by the civil engineer with consultation from the design team.

Trench zone backfill (i.e., material placed between the pipe zone backfill and finished subgrade may consist of native or import soil, which meets the requirements provided in this section. In general, well-graded mixtures of gravel, sand, and silt, with small quantities of cobbles (less than 6 inches maximum dimension), rock fragments, and/or clay are acceptable for use as import soil. Import materials, if required, should have a very low expansion potential, i.e. have an expansion index of less than 20. All import fill soils should be free from deleterious material and debris.

If import material is used for pipe zone backfill, we recommend it consist of well-graded fine to medium grained sand. In general, poorly graded coarse-grained sand and/or open-graded gravel should not be used for pipe or trench zone backfill due to the potential for soil migration into the relatively large void spaces present in this type of material and water seepage along trenches backfilled with coarse-grained sand and/or gravel. Recommendations provided above for pipe zone backfill are minimum requirements only. More stringent material specifications may be required to fulfill local building/agency requirements and/or bedding requirements for specific types of pipes. We recommend the project civil engineer develop these material specifications based on planned pipe types, bedding conditions, and other factors beyond the scope of this study.

During excavation of the native soils, “oversize” rock material is any material with maximum dimension greater than 6 inches. If large equipment is able to break down oversize materials by crushing them under their tracks or other means, then the materials smaller than 6 inches would be approved for use as backfill. Otherwise, larger rocks over 6 inches in maximum dimension may possibly be used as trench backfill but must be approved by the Geotechnical Engineer of Record and/or EMWD. Approval would be based on the amount of oversized to be used, where the oversized is proposed to be used and the method of placement.

3.7.2 Compaction Criteria

All fill soils, native, imported, or blended soil mixes required to bring the site to final grade should be placed as compacted fill. All backfill (compacted fill) should be moisture conditioned to near optimum moisture content and placed in horizontal lifts less than 6 inches in loose thickness and compacted to at least 90 percent of the maximum dry unit weight based on ASTM Test Method D 1557 or as approved by the project geotechnical engineer based upon site conditions. Beneath pavement sections, the upper 12 inches of trench backfill should be compacted to a minimum 95 percent relative compaction (ASTM D 1557). The pipeline or additional fill lifts should not be placed if soil conditions are not stable or if the previous lift did not meet the required minimum dry unit weight. Backfill materials should be brought up at substantially the same rate on both sides of the pipe. Reduction of the lift thickness may be necessary to achieve the above recommended compaction. Mechanical compaction is recommended; ponding or jetting is not recommended.

3.8 TEMPORARY DEWATERING

Based upon the currently proposed alignment invert elevations and the groundwater levels encountered during our field investigation, it is our opinion that groundwater may be encountered along portions of the northern alignment during construction above or in the near vicinity of portions of the pipeline. In addition, seepage or nuisance water may be encountered during construction above or in the near vicinity of portions of the entire pipeline alignment.

We recommend that a dewatering plan be prepared such that the groundwater is maintained below the sewer invert elevation during construction. Sump pumps may be required during construction to aid in mitigation of the seepage or nuisance water encountered in the excavations. If actual flows are heavier than anticipated than larger or additional sump pumps may be needed.

3.9 PRELIMINARY PAVEMENT SECTIONS

The appropriate pavement design section depends primarily on the shear strength of the subgrade soil exposed after grading and anticipated traffic over the useful life of the pavement. R-value testing should be performed during grading to verify and/or modify the preliminary pavement sections presented within this report. Pavement designs assume that heavy construction traffic will not be allowed on finished pavement sections.

Pavement sections presented in Table 4 below are based on a design R-value of 30 which is the lowest estimated R-Value of the surficial subgrade soils anticipated after trench backfilling, and

current Caltrans design procedures. Various Traffic Indices (T.I.) were used for preliminary design purposes. We recommend that pavement sections be constructed utilizing the thickness provided in the following table, or the thickness of the actual pavement sections encountered along the alignment (plus any additional section required by the governing agency for repaired sections), whichever is greater in section thickness. Pavement section thickness should be evaluated by the project engineer prior to placement.

Table 4
Preliminary Flexible Pavement Sections

Traffic Index	Asphalt Concrete (in)	Aggregate Base (in)
5 or less	3.0	5.5
7	4.0	9.5
9	6.0	12.0

The recommended preliminary pavement sections are contingent on the following recommendations being implemented during construction:

- The upper 12 inches of subgrade soil below pavement sections should be compacted to a minimum of 95 percent relative compaction (ASTM D 1557). Fill should be placed in accordance with earthwork recommendations given in this report. This compacted subgrade thickness is in addition to the asphalt concrete and base course pavement sections.
- Subgrade soils and aggregate base should be in a stable, non-pumping condition at the time of are placement and compaction.
- At a minimum, asphalt concrete paving, aggregate base materials, and placement methods should conform to the Caltrans Standard Specifications, (latest edition).
- Aggregate base materials should meet the requirements for Class 2 Aggregate Base in Section 26 of the latest edition of the Caltrans Standard Specifications and should be compacted to at least 95 percent relative compaction (ASTM D 1557).
- All asphalt concrete should be compacted to at least 95 percent relative compaction relative to the maximum density provided by the batch plant. Additional maximum density testing or asphalt samples can be performed in the laboratory if requested by EMWD.
- Within the structural pavement section areas, positive drainage (both surface and subsurface) should be provided. In no instance should water be allowed to pond on the pavement. Roadway performance depends greatly on how well runoff water drains from the site. This drainage should be maintained both during construction and over the entire life of the project.
- Proper methods, such as hot-sealing, should be employed to limit water infiltration into the pavement base course and/or subgrade at construction joints between existing and reconstructed asphalt concrete sections.

Pavement sections provided above are based on the soil conditions encountered during our field investigation and our assumptions regarding final alignment grades. We recommend representative roadway subgrade samples be obtained during grading and R-value tests performed. Should the results of these tests indicate a significant difference, the design pavement sections provided above may need to be revised.

3.10 CORROSIVITY

Samples of the alignment soils were tested for potential corrosion to concrete and steel. The samples were tested in general accordance with Caltrans (California) test methods to evaluate pH, resistivity, water-soluble sulfates, and chlorides content. These tests should be considered as only an indicator of soil corrosivity for the samples tested. Other soils found along the alignment may be more, less, or of a similar corrosive nature. The test results are presented in Appendix B and Table 5, Summary of Corrosion Test Results.

Table 5
Summary of Corrosion Test Results

Boring	Depth (ft)	pH	Sulfate (ppm)	Chloride (ppm)	Minimum Resistivity* (ohm-cm)
KB-2	0-5	9.0	80	46	1,736
KB-8A	0-5	9.1	37	26	7,317
KB-10	0-5	7.5	33	20	4,392
KB-14	0-5	7.4	33	23	3,677
KB-18	0-5	7.4	16	16	17,478
KB-20	0-5	7.4	17	16	15,916
KB-26	0-5	7.9	41	54	1,443
KB-30	0-5	7.0	40	58	1,669
KB-34	0-5	7.3	59	38	876

*Resistivity performed under the saturated condition

According to ACI 318, sulfate concentrations less than 0.10 by mass of soil (1,000 parts per million [ppm]) are considered to have a sulfate exposure class of S0. A water-soluble chloride content of less than 500 ppm is generally considered non-corrosive to reinforced concrete. Minimum resistivity testing performed indicated that the soil tested is considered to be moderately corrosive

to corrosive to buried, unprotected metal objects (Roberge, 2000). Table 6 below indicates the corrosion potential based on sulfate content and soil resistivity. It should be noted that corrosion is not directly proportional to these measurements and many other factors may influence corrosion of buried materials, such as moisture, pH, dissolved oxygen, anaerobic conditions, etc.

Table 6
Corrosion Potential Based on Index Values

Corrosion Test	Measured Test Results		Index Values*		Corrosion Potential*
	Min	Max	Min	Max	
Sulfate (ppm)	16	80	0	1000	S0 for concrete
Resistivity (ohm-cm)	876	17,478	0	1000	Extremely Corrosive to Metals
			1000	3000	Highly Corrosive to Metals
			3000	5000	Corrosive to Metals
			5000	10,000	Moderately Corrosive to Metals
			10,000	20,000	Mildly Corrosive to Metals

* Index and corrosion potential based on ratings found in ACI 318 and Roberge, 2000.

Kleinfelder's scope did not include corrosion engineering. If more detailed information is required, Kleinfelder or the designer's corrosion engineer should be retained to evaluate the corrosion potential of the site to proposed improvements, recommend further testing as required, and provide specific corrosion mitigation methods appropriate for the project.

4.0 ADDITIONAL SERVICES

4.1 ADDITIONAL SERVICES

It is recommended that Kleinfelder, Inc. be retained to review final plans and specifications. It has been our experience that this service provides an opportunity to review whether or not our recommendations have been properly interpreted and to correct possible misunderstandings of our recommendations prior to the start of construction.

In the event Kleinfelder is not retained to perform this recommended review, we will assume no responsibility for misinterpretation of our recommendations. The review will be completed on a time-and-expense basis in accordance with our current Fee Schedule at the time of our review.

4.2 CONSTRUCTION OBSERVATION AND TESTING

It is recommended that Kleinfelder, Inc. be retained to provide observation and testing services during all site earthwork. This will allow us the opportunity to compare actual subsurface soil conditions with those encountered during the field exploration and, if necessary, to provide supplemental recommendations, if warranted, due to unanticipated subsurface conditions. These services will be completed on a time-and-expense basis in accordance with our current Fee Schedule at the time of our work.

5.0 LIMITATIONS

Recommendations contained in this report are based on our field observations and subsurface explorations, laboratory tests, and our present knowledge of the proposed expansion construction. It is possible that soil conditions could vary between or beyond the points explored. If soil conditions are encountered during construction, which differ from those described herein, we should be notified immediately in order that a review may be made and any supplemental recommendations provided. If the scope of the proposed construction changes from that described in this report, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed, and the conclusions of this report are modified or approved in writing, by Kleinfelder. We have not reviewed the final plans for the project. The work performed was based on project information provided by Client. If Client does not retain Kleinfelder to review any plans and specifications, including any revisions or modifications to the plans and specifications, Kleinfelder assumes no responsibility for the suitability of our recommendations. In addition, if there are any changes in the field to the plans and specifications, Client must obtain written approval from Kleinfelder's engineer that such changes do not affect our recommendations. Failure to do so will vitiate Kleinfelder's recommendations.

References to elevations and locations provided within this report were based upon general information provided for our use. Kleinfelder, Inc. did not provide surveying services and, therefore an opinion regarding the accuracy of the surface location or elevations with respect to the approved plans and current site surveying is not provided.

Our evaluation of subsurface conditions at the site has considered subgrade soil and groundwater conditions present at the time of our investigation. The influence(s) of post-construction changes to these conditions such as introduction of water into the subsurface will likely influence future performance of the proposed project. Whereas our scope of services addresses present groundwater conditions; future irrigation, broken water pipelines, etc. may adversely influence the project and should be addressed and mitigated, as necessary.

Other standards or documents referenced in any given standard cited in this report, or otherwise relied upon by the authors of this report, are only mentioned in the given standard; they are not incorporated into it or "included by reference", as the latter term is used relative to contracts or other matters of law.

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under

similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided. The recommendations provided in this report are based on the assumption that Kleinfelder will be retained to provide a program of tests and observations during the construction phase in order to evaluate compliance with our recommendations and to evaluate the site conditions exposed. Information and recommendations presented in this report should not be extrapolated to other areas or be used for other projects without our prior review and response. The Client has the responsibility to see that all parties to the project, including the architect, civil designer, structural engineer, governing agency, etc., are made aware of this letter in its entirety and in order to verify that the recommendations are appropriate for the project currently proposed. Additionally, this report should be incorporated by reference into the contract and specification documents.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

This report, and any future addenda or reports regarding this site, may be made available to bidders to supply them with only the data contained in the report regarding subsurface conditions and laboratory test results at the point and time noted. Bidders may not rely on interpretations, opinion, recommendations, or conclusions contained in the report. Because of the limited nature of any subsurface study, the contractor may encounter conditions during construction which differ from those presented in this report. In such event, the contractor should promptly notify the owner so that Kleinfelder's geotechnical engineer can be contacted to confirm those conditions. We recommend the contractor describe the nature and extent of the differing conditions in writing and that the construction contract include provisions for dealing with differing conditions. Contingency funds should be reserved for potential problems during earthwork and foundation construction. Furthermore, the contractor should be prepared to handle contamination conditions encountered

at this site, which may affect the excavation, removal, or disposal of soil; dewatering of excavations; and health and safety of workers

The scope of our geotechnical services did not include any environmental site assessment for the presence or absence of hazardous/toxic materials. Kleinfelder will assume no responsibility or liability whatsoever for any claim, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

6.0 REFERENCES

American Concrete Institute (ACI), 2019, Building Code Requirements for Structural Concrete (ACI 318-19) and Commentary (ACI 318R-19).

American Society for Testing and Materials (ASTM), Annual Book of ASTM Standards.

ASCE, 2016, Minimum Design Load for Buildings and Other Structures (ASCE/SEI 7-16) and Supplements 1, 2, and 3.

Bryant, W.A. and Hart, E.W., 2007, Fault-rupture hazard zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps, California Geological Survey, Special Publication 42, 42p.

California Geological Survey (CGS), 2021, EQ Zapp: California Earthquake Hazards Zone Application, accessed 11-29-2023 at https://www.conservation.ca.gov/cgs/ geohazards /eq-zapp.

Department of Water Resources (DWR), 2019, California State Groundwater Basin Boundary Assessment Tool (BBAT) online data viewer for DWR Bulletin 118 Basin Boundaries, last updated 2/11/2019; accessed 12-20-23 at https://gis.water.ca.gov/app/bbat/

Department of Water Resources (DWR), 2021, California State Groundwater Management Act (SGMA) online data viewer accessed 12-20-23 at https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#currentconditions

Dept. of the Navy, 1986. NAVFAC DM 7.01: Soil Mechanics, Naval Facilities Engineering Command, Alexandria, Virginia.

Dept. of the Navy, 1986. NAVFAC DM 7.02: Foundations and Earth Structures, Naval Facilities Engineering Command, Alexandria, Virginia.

International Code Council, Inc., 2022 California Building Code.

Kennedy/Jenks Consultants, 30% Preliminary Design Drawings, Northern Wine Country Sewer Pipelines, 29 sheets, undated.

Kennedy/Jenks Consultants, 30% Preliminary Design Drawings, Southern Wine Country Sewer Pipelines, 19 sheets, undated.

Kennedy, M.P., Tan, S.S., Bovard, K.R., Alvarez, R.M., Watson, M.J., and Gutierrez, C.I., 2007, Geologic map of the Oceanside 30' x 60' quadrangle and adjacent areas, California, California Geological Survey, Regional Geologic Map RGM-2, 1:100,000.

Morton, D.M., Kennedy, M.P., Bovard, K.R., and Burns, Diane, 2003, Geologic map and digital database of the Bachelor Mountain 7.5' quadrangle, Riverside County, California, U.S. Geological Survey, Open-File Report OF-2003-103, 1:24,000.

Norris, R.M., and Webb, R.W., 1990, Geology of California, Second Edition: John Wiley & Sons, Inc.

Reynolds, R.E. and Reynolds, R.L., 1990, Irvingtonian? Faunas from the Pauba Formation, Temecula, Riverside County, California, in: Abstracts of Proceeding, 1990 Mojave Desert Quaternary Research Symposium, Quarterly Volume XXXVII, No. 2, San Bernardino Co. Museum, Redlands, California.

Riverside County (RCIT), Riverside County, Map My County website https://gis1.countyofriverside.us/Html5Viewer/?viewer=MMC_Public

Riverside County, 2023, County Faults/Fault Zones online database, accessed 12-20-23, https://gisopendata-countyofriverside.opendata.arcgis.com/datasets/CountyofRiverside::fault-zones-2/about

Roberge, P., 2000. Handbook of Corrosion Engineering, McGraw Hill, New York, 1128 pages, 2000.

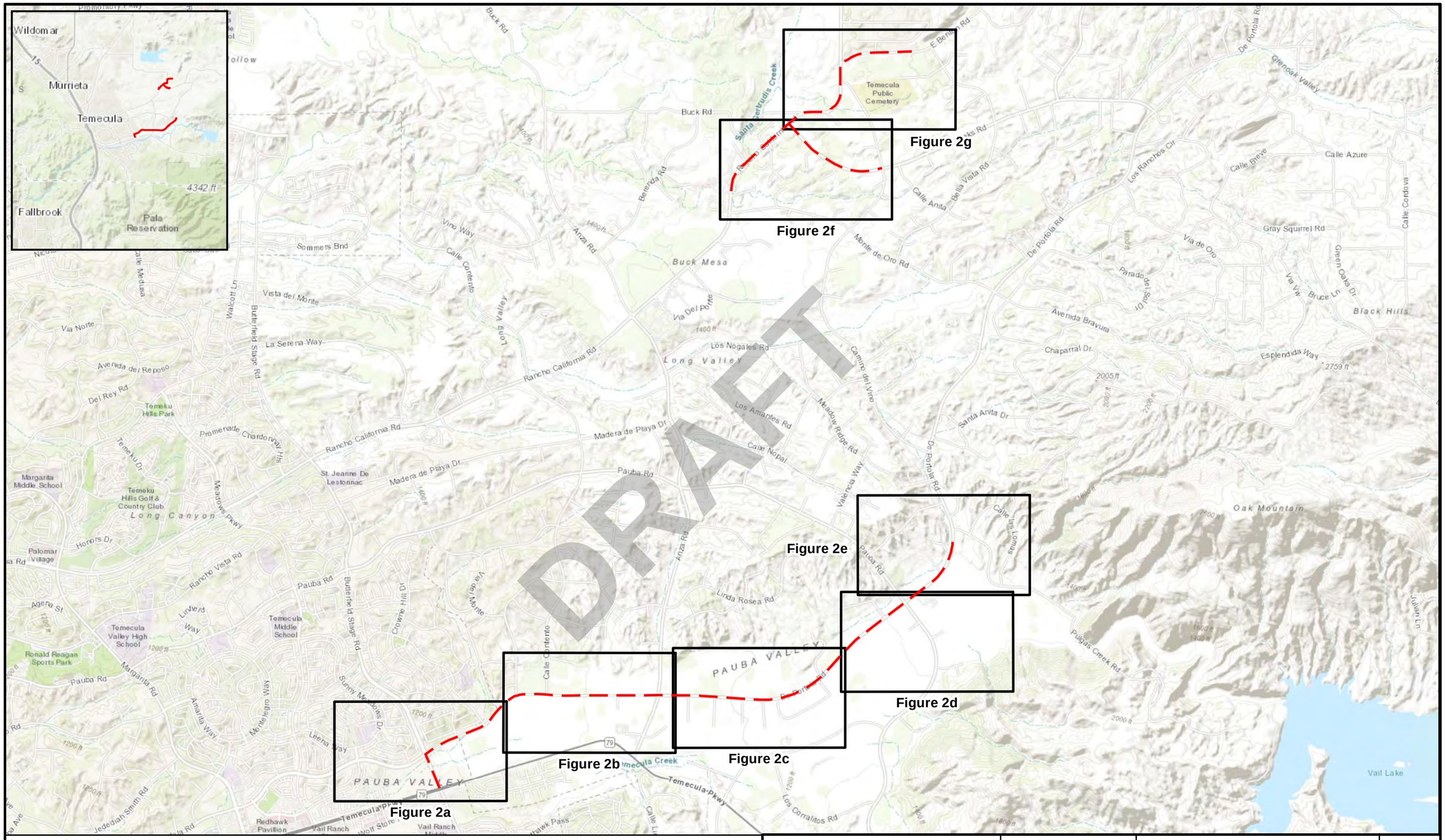
Rockwell, T., Burgmann, M., and Kinney, M., 2000, Holocene Slip Rate of the Elsinore Fault in Temecula Valley, Riverside County, CA in Geology and Enology of the Temecula Valley: Birnbaum, B.B. and Cato, K., editors, p. 105-118.

SCEDC 2013, Southern California Earthquake Data Center, Database of historical earthquakes and significant faults in southern CA, Caltech.Dataset. doi:10.7909/C3WD3xH1, accessed 12-20-23 at https://scedc.caltech.edu/earthquake/significant.html

University of California, Santa Barbara (UCSB), 2020, Geospatial Library online catalog of aerial photography; Flight ID C_5750, Frame AXM 210-73, April 18, 1939, Scale 1:20,000; accessed 11-15-23 at https://www.library.ucsb.edu/geospatial/finding-airphotos.

U.S. Geological Survey and California Geological Survey (2006). Quaternary fault and fold database for United States, accessed 12-20-23, http://earthquake.usgs.gov/hazards/qfaults/.

FIGURES



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Sources: Esri, USGS, NOAA

N

0 0.5 1 Miles

LEGEND

Approximate Proposed Sewer Alignment

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SITE VICINITY MAP

SOUTH/NORTH WINE COUNTRY SEWER
EASTERN MUNICIPAL WATER DISTRICT
TEMECULA, CALIFORNIA

FIGURE
1

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N

0 200 400 600 800 Feet

LEGEND

- Boring Location
- Approximate Proposed Sewer Alignment

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BORING LOCATION MAP

SOUTH/NORTH WINE COUNTRY SEWER
EASTERN MUNICIPAL WATER DISTRICT
TEMECULA, CALIFORNIA

FIGURE
2a

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N

0 200 400 600 800 Feet

LEGEND

- Boring Location
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BORING LOCATION MAP

SOUTH/NORTH WINE COUNTRY SEWER
EASTERN MUNICIPAL WATER DISTRICT
TEMECULA, CALIFORNIA

FIGURE
2b

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N

0 200 400 600 800 Feet

LEGEND

- Boring Location
- Approximate Proposed Sewer Alignment

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BORING LOCATION MAP

SOUTH/NORTH WINE COUNTRY SEWER
EASTERN MUNICIPAL WATER DISTRICT
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FIGURE
2 c

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N

0 200 400 600 800 Feet

LEGEND

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BORING LOCATION MAP

SOUTH/NORTH WINE COUNTRY SEWER
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TEMECULA, CALIFORNIA

FIGURE
2d

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N

0 200 400 600 800 Feet

LEGEND

- Boring Location
- Approximate Proposed Sewer Alignment

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BORING LOCATION MAP

SOUTH/NORTH WINE COUNTRY SEWER
EASTERN MUNICIPAL WATER DISTRICT
TEMECULA, CALIFORNIA

FIGURE
2e

N

0 200 400 600 800 Feet

LEGEND

- Boring Location
- Approximate Proposed Sewer Alignment

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BORING LOCATION MAP

SOUTH/NORTH WINE COUNTRY SEWER
EASTERN MUNICIPAL WATER DISTRICT
TEMECULA, CALIFORNIA

FIGURE
2f

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N

0 200 400 600 800 Feet

LEGEND

- Boring Location
- Approximate Proposed Sewer Alignment

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BORING LOCATION MAP

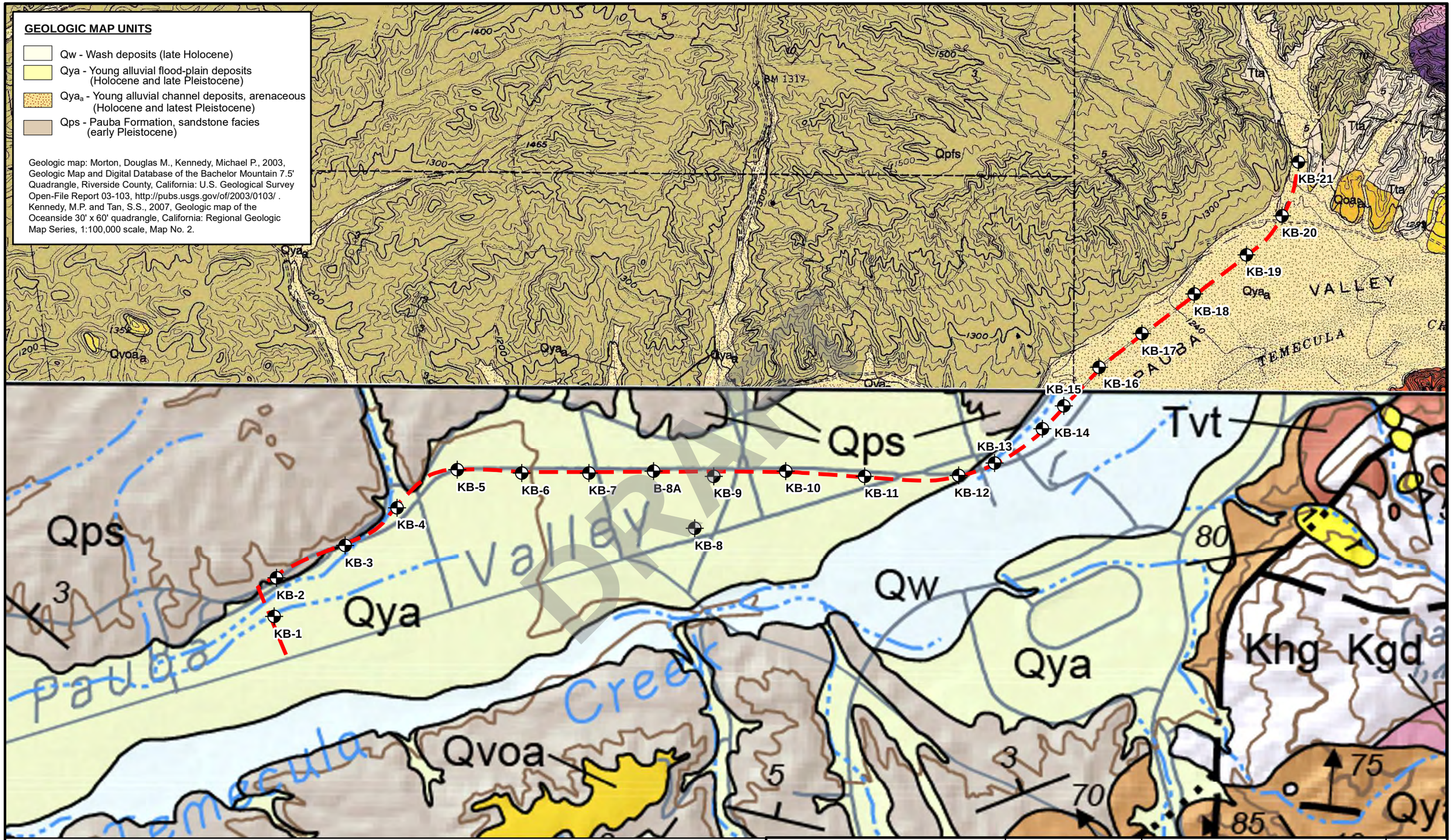
SOUTH/NORTH WINE COUNTRY SEWER
EASTERN MUNICIPAL WATER DISTRICT
TEMECULA, CALIFORNIA

FIGURE
2g

GEOLOGIC MAP UNITS

- Qw - Wash deposits (late Holocene)
- Qya - Young alluvial flood-plain deposits (Holocene and late Pleistocene)
- Qya_a - Young alluvial channel deposits, arenaceous (Holocene and latest Pleistocene)
- Qps - Pauba Formation, sandstone facies (early Pleistocene)

Geologic map: Morton, Douglas M., Kennedy, Michael P., 2003, Geologic Map and Digital Database of the Bachelor Mountain 7.5' Quadrangle, Riverside County, California: U.S. Geological Survey Open-File Report 03-103, http://pubs.usgs.gov/of/2003/0103/ . Kennedy, M.P. and Tan, S.S., 2007, Geologic map of the Oceanside 30' x 60' quadrangle, California: Regional Geologic Map Series, 1:100,000 scale, Map No. 2.



LEGEND

- Boring Location
- Approximate Proposed Sewer Alignment

0 900 1,800 Feet

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GEOLOGIC MAP

SOUTH/NORTH WINE COUNTRY SEWER
EASTERN MUNICIPAL WATER DISTRICT
TEMECULA, CALIFORNIA

FIGURE 3a

GEOLOGIC MAP UNITS

- Qya_a - Young alluvial channel deposits, arenaceous (Holocene and latest Pleistocene)
- $Qvov_a$ - Very old alluvial valley deposits (middle to early Pleistocene)
- Qpfs - Pauba Formation, sandstone facies (Pleistocene)
- Kt - Tonalite, undifferentiated (Cretaceous)

Geologic map: Morton, Douglas M., Kennedy, Michael P., 2003, Geologic Map and Digital Database of the Bachelor Mountain 7.5' Quadrangle, Riverside County, California: U.S. Geological Survey Open-File Report 03-103, http://pubs.usgs.gov/of/2003/0103/ .

N

0 1,250 2,500 Feet

LEGEND

- Boring Location
- Approximate Proposed Sewer Alignment

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GEOLOGIC MAP

SOUTH/NORTH WINE COUNTRY SEWER
EASTERN MUNICIPAL WATER DISTRICT
TEMECULA, CALIFORNIA

FIGURE 3b

APPENDIX A
FIELD EXPLORATION

APPENDIX A
FIELD EXPLORATION

The subsurface exploration program for the proposed project consisted of excavating and logging a total of 36 hollow-stem auger borings drilled to depth between approximately 20 and 50 feet bgs. The borings were drilled with a CME-75 truck-mounted drill rig or GT-16 track-mounted drill rig, equipped with 8-inch hollow stem augers, provided by 2R Drilling of Chino, California. The approximate locations of the borings are shown on Figure 2, Boring Location Map.

The logs of the borings are presented as figures A-3 through A-40. An explanation to the logs is presented as figures A-1 and A-2. The logs of borings describe the earth materials encountered, samples obtained, and show field and laboratory tests performed. The logs also show the boring number, drilling date, and the name of the logger and drilling subcontractor. A Kleinfelder staff engineer logged the borings using methods outlined in the Unified Soil Classification System (USCS) and general procedures established in ASTM D 2488. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. Bulk and drive samples of representative earth materials were obtained from the borings at maximum intervals of approximately 5 feet.

In-place soil samples were obtained at the boring locations using a Standard Penetration (SPT) or California-type Sampler driven a total of 18-inches (or until practical refusal) into the undisturbed soil at the bottom of the boring. The soil sampled by the SPT (2-inch O.D., 1.5 inches I.D.) or California-type sampler (3-inch O.D., 2.4 inches I.D.) was returned to our laboratory for testing. The samplers and associated rod (threaded) were driven using a 140-pound automatic hammer falling 30 inches. The total number of hammer blows required to drive the sampler the final 12 inches is termed the blow count and is recorded on the Logs of Borings. The blow count values on the boring logs are presented as field values and have not been corrected for the effects such as overburden pressure, sampler size, hammer efficiency, etc. Bulk samples of the surface soils were retrieved via hand auger equipment to 5 feet bgs. Borings were with soil cuttings.

DRILLING METHOD/SAMPLER TYPE GRAPHICS

BULK SAMPLE

CALIFORNIA SAMPLER
(3 in. (76.2 mm.) outer diameter)

STANDARD PENETRATION SPLIT SPOON SAMPLER
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

GROUND WATER GRAPHICS

WATER LEVEL (level where first observed)

WATER LEVEL (level after stabilizing period)

WATER LEVEL (additional levels after exploration)

OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Solid lines separating strata on the logs represent approximate boundaries only, dashed lines are inferred or extrapolated boundaries. Actual transitions may be gradual or differ from those represented.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System (ASTM D2488/D2487) designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., CL-ML, GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS
WOH - Weight of Hammer
WOR - Weight of Rod

REFERENCES
1. American Society for Materials and Testing (ASTM), 2011, ASTM D2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System).

UNIFIED SOIL CLASSIFICATION SYSTEM[1]

COARSE GRAINED SOILS (More than 50% retained on No. 200 Sieve)	**GRAVELS** (More than 50% of coarse fraction retained on No. 4 Sieve)	CLEAN GRAVEL WITH <5% FINES	**GW**	WELL-GRADED GRAVEL, WELL-GRADED GRAVEL WITH SAND
			GP	POORLY GRADED GRAVEL, POORLY GRADED GRAVEL WITH SAND
		GRAVELS WITH 5% TO 12% FINES	**GW-GM**	WELL-GRADED GRAVEL WITH SILT, WELL-GRADED GRAVEL WITH SILT AND SAND
			GW-GC	WELL-GRADED GRAVEL WITH CLAY (OR SILTY CLAY), WELL-GRADED GRAVEL WITH CLAY AND SAND (OR SILT CLAY AND SAND)
			GP-GM	POORLY GRADED GRAVEL WITH SILT, POORLY GRADED GRAVEL WITH SILT AND SAND
			GP-GC	POORLY GRADED GRAVEL WITH CLAY (OR SILTY CLAY), POORLY GRADED GRAVEL WITH CLAY AND (OR SILTY CLAY AND SAND)
		GRAVELS WITH > 12% FINES	**GM**	SILTY GRAVEL, SILTY GRAVEL WITH SAND
			GC	CLAYEY GRAVEL, CLAYEY GRAVEL WITH SAND
			GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL WITH SAND
	SANDS (50% or more of coarse fraction passes the No. 4 Sieve)	CLEAN SANDS WITH <5% FINES	**SW**	WELL-GRADED SAND, WELL-GRADED SAND WITH GRAVEL
			SP	POORLY GRADED SAND, POORLY GRADED SAND WITH GRAVEL
		SANDS WITH 5% TO 12% FINES	**SW-SM**	WELL-GRADED SAND WITH SILT, WELL-GRADED SAND WITH SILT AND GRAVEL
			SW-SC	WELL-GRADED SAND WITH CLAY (OR SILTY CLAY), WELL-GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL)
			SP-SM	POORLY GRADED SAND WITH SILT, POORLY GRADED SAND WITH SILT AND GRAVEL
			SP-SC	POORLY GRADED SAND WITH CLAY, POORLY GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL)
		SANDS WITH > 12% FINES	**SM**	SILTY SAND, SILTY SAND WITH GRAVEL
			SC	CLAYEY SAND, CLAYEY SAND WITH GRAVEL
			SC-SM	SILTY, CLAYEY SAND, SILTY, CLAYEY SAND WITH GRAVEL
FINE GRAINED SOILS (50% or more passes the No. #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)		**ML**	SILT, SILT WITH SAND, SILT WITH GRAVEL
			CL	LEAN CLAY, LEAN CLAY WITH SAND, LEAN CLAY WITH GRAVEL
			CL-ML	SILTY CLAY, SILTY CLAY WITH SAND, SILTY CLAY WITH GRAVEL
			OL	ORGANIC CLAY, ORGANIC CLAY WITH SAND, ORGANIC CLAY WITH GRAVEL, ORGANIC SILT, ORGANIC SILT WITH SAND, ORGANIC SILT WITH GRAVEL
	SILTS AND CLAYS (Liquid Limit 50 or greater)		**MH**	ELASTIC SILT. ELASTIC SILT WITH SAND, ELASTIC SILT WITH GRAVEL
			CH	FAT CLAY, FAT CLAY WITH SAND, FAT CLAY WITH GRAVEL
			OH	ORGANIC CLAY, ORGANIC CLAY WITH SAND, ORGANIC CLAY WITH GRAVEL, ORGANIC SILT, ORGANIC SILT WITH SAND, ORGANIC SILT WITH GRAVEL

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

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DRAWN BY: D.E
CHECKED BY: H.M
DATE:

GRAPHICS KEY

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-1

GRAIN SIZE[1]

DESCRIPTION		SIEVE SIZE	GRAIN SIZE
Boulders		>12 in.	>12 in. (304.8 mm.)
Cobbles		3 - 12 in.	3 - 12 in. (76.2 - 304.8 mm.)
Gravel	coarse	3/4 -3 in.	3/4 -3 in. (19 - 76.2 mm.)
	fine	#4 - 3/4 in.	0.19 - 0.75 in. (4.8 - 19 mm.)
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)
Fines		Passing #200	<0.0029 in. (<0.07 mm.)

SECONDARY CONSTITUENT[1]

Term of Use	AMOUNT	
	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

PLASTICITY[1]

DESCRIPTION	CRITERIA
Non-Plastic	A 1/8 in. (3 mm) thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

MOISTURE CONTENT[1]

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CONSISTENCY - FINE-GRAINED SOIL[2, 3]

CONSISTENCY	SPT - N (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Easily penetrated several inches by fist
Soft	2 - 4	0.25 ≤ PP <0.5	500 - 1,000	Easily penetrated several inches by thumb
Medium Stiff	4 - 8	0.5 ≤ PP <1	1,000 - 2,000	Can be penetrated several inches by thumb with moderate effort
Stiff	8 - 15	1 ≤ PP <2	2,000 - 4,000	Readily indented by thumb but penetrated only with great effort
Very Stiff	15 - 30	2 ≤ PP <4	4,000 - 8,000	Readily indented by thumbnail
Hard	>30	4 ≤ PP	>8,000	Indented by thumbnail with difficulty

APPARENT DENSITY - COARSE-GRAINED SOIL[2]

APPARENT DENSITY	SPT-N (# blows / ft)
Very Loose	<4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	>50

STRUCTURE[1]

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. (6mm) thick, note thickness.
Laminated	Alternating layers of varying material or color with the layers less than 1/4-in. (6 mm) thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.
Homogeneous	Same color and appearance throughout

ANGULARITY[1]

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

REACTION WITH HYDROCHLORIC ACID[1]

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

CEMENTATION[1]

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or little finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

REFERENCES

1. American Society for Materials and Testing (ASTM), 2017, ASTM D2488: Standard Practice for Description and Identification of Soils (Visual Manual Procedures).
2. Terzaghi, K and Peck, R., 1948, Soil Mechanics in Engineering Practice, John Wiley & Sons, New York.
3. United States Department of the Interior Bureau of Reclamation (USBR), 1998, Earth Manual, Part I.

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CHECKED BY: H.M
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SOIL DESCRIPTION KEY
(For additional tables, see ASTM D2488)

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-2

Date Begin - End:	10/16/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-1**	
Logged By:	D. Edrees	**Drill Crew:**	Eddie/ Junior		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.48826°
Longitude: -117.07930°
Approximate Ground Surface Elevation (ft.): 1,111
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1110			**Artificial Fill** **Silty SAND (SM)**: fine to coarse sand, dark brown, moist	1											Hand Auger 5ft bgs R-Value Test
			Alluvium **Silty SAND (SM)**: fine to coarse sand, dark brown, moist												
1105	5		fine to medium sand, brown, medium dense, weakly cemented, trace coarse sand, trace clay	2		BC=12 16 22	18"		7.5	129.3					
1100	10		fine sand, greyish olive, moist	3		BC=6 8 7	18"		11.3		98	32			
1095	15		**Poorly Graded SAND (SP)**: fine to medium sand, light gray, moist, medium dense	4		BC=4 4 12	18"		5.3	97.4					
1090	20		**Poorly Graded SAND with Silt (SP-SM)**: fine to coarse sand, light gray, moist, medium dense	5		BC=4 4 6	14"								
1085	25														
1080	30														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on October 16, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20234673.001A	BORING LOG KB-1		FIGURE
DRAWN BY: D.E	South/North Wine Country Sewer Eastern Municipal Water District Temecula, California		A-3
CHECKED BY: H.M			
DATE:			PAGE: 1 of 1

Date Begin - End:	10/16/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-2**	
Logged By:	D. Edrees	**Drill Crew:**	Eddie/ Junior		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49022°
Longitude: -117.07916°
Approximate Ground Surface Elevation (ft.): 1,125
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Clayey SAND (SC)**: fine to medium sand, low plasticity, dark grayish brown, moist	1											Hand Auger 5ft bgs Expansion Index Corrosion Test
1120	5		**Alluvium** **Clayey SAND (SC)**: fine to medium sand, low plasticity, olive gray, moist, trace coarse sand medium dense	2		BC=5 11 14	18"		14.3	119.9	98	67			
			Silty Clayey SAND (SC-SM): fine to medium sand, low plasticity, brown, moist, dense												
1115	10			3		BC=11 19 29	18"		13.7	118.2					Direct Shear Test
			Silty SAND (SM): fine sand, olive grey, moist, medium dense, trace clay												
1110	15			4		BC=7 9 12	18"		12.8						
			Clayey SAND (SC): fine sand, low plasticity, light brown, moist, loose												
1105	20			5		BC=3 4 4	18"								
1100	25														
1095	30														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on October 16, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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BORING LOG KB-2

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-4

PAGE: 1 of 1

Date Begin - End:	10/16/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-3**	
Logged By:	D. Edrees	**Drill Crew:**	Eddie/ Junior		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49192°
Longitude: -117.07500°
Approximate Ground Surface Elevation (ft.): 1,140
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine to coarse sand, light brown, moist, trace clay	1											Hand Auger 5ft bgs Modified Proctor Sand Equivalent Test
1135	5		**Alluvium** **Silty SAND (SM)**: fine to medium sand, light brown, moist, medium dense	2		BC=7 13 22	18"		10.3	127.1			NP	NP	
1130	10		fine to coarse sand, medium dense	3		BC=5 6 8	18"		11.3		99	28			
1125	15		fine to medium sand	4		BC=10 18 22	18"		18.2	114.0					
1120	20		trace coarse sand	5		BC=4 8 7	18"								
1115	25														
1110	30														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on October 16, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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DATE:	

BORING LOG KB-3

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-5

Date Begin - End:	10/16/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-4**	
Logged By:	D. Edrees	**Drill Crew:**	Eddie/ Junior		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49388°
Longitude: -117.07184°
Approximate Ground Surface Elevation (ft.): 1,148
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1145	0		**Artificial Fill** **Silty SAND (SM)**: fine sand, olive gray, moist												Hand Auger 5ft bgs
	5		very dense	1		BC=16 36 50/6"	18"		6.8	124.2					
1140			**Alluvium** **Silty SAND (SM)**: fine sand, dark gray, moist, dense, trace medium sand												
	10			2		BC=14 27 40	18"		10.3	125.1	100	30			
1135															
	15		light brown, weakly cemented, trace coarse sand	3		BC=6 13 17	18"		9.8						
1130															
	20		fine to coarse sand, dark gray, medium dense	4		BC=8 11 14	18"								
1125															
	25														
1120															
	30														
1115															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on October 16, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20234673.001A	BORING LOG KB-4	FIGURE
DRAWN BY: D.E	South/North Wine Country Sewer Eastern Municipal Water District Temecula, California	A-6
CHECKED BY: H.M		
DATE:		PAGE: 1 of 1

BORING LOG KB-5

Date Begin - End:	10/17/2023	**Drilling Company:**	2R Drilling		
Logged By:	D. Edrees	**Drill Crew:**	Eddie/ Junior		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49583°
Longitude: -117.06189°
Approximate Ground Surface Elevation (ft.): 1,142
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1140	0		**Artificial Fill** **Silty SAND (SM)**: fine to medium sand, yellowish brown, moist, trace clay	1											Hand Auger 5ft bgs R-Value Test
			Alluvium **Sandy SILT (ML)**: fine to medium sand, non-plastic, yellowish brown, moist, trace clay												
	5		fine sand, dark brown, stiff, decrease in sand	2		BC=2 5 10	18"		8.5	103.3	100	54			Direct Shear Test
1135															
	10		fine to medium sand	3		BC=3 3 5	18"		11.0						
1130															
	15		very stiff, trace clay	4		BC=6 18 22	18"		9.3	120.8					
1125															
	20		fine sand, greyish olive, stiff	5		BC=4 5 5	18"								
1120															
	25														
1115															
	30														
1110															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on October 17, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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DRAWN BY: D.E
CHECKED BY: H.M
DATE:

BORING LOG KB-5

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-7

PAGE: 1 of 1

Date Begin - End:	10/16/2023	**Drilling Company:**	2R Drilling		**BORING LOG KB-6**
Logged By:	D. Edrees	**Drill Crew:**	Adrian/ Victor		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	LAR/ GT-16	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49568°
Longitude: -117.06427°
Approximate Ground Surface Elevation (ft.): 1,154
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine sand, brown, moist	1											Hand Auger 5ft bgs Modified Proctor Sand Equivalent Test
			Alluvium **Silty SAND (SM)**: fine sand, brown, moist												
1150	5		medium dense, increase in sand	2		BC=4 8 10	18"		30.9	83.0					
1145	10		light brown	3		BC=5 7 12	18"		15.5	102.0			34	8	
1140	15		**Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, light gray, moist, medium dense, trace coarse sand	4		BC=5 7 7	18"		2.9		99	7.2			
1135	20		**Sandy SILT (ML)**: fine sand, olive gray, moist, stiff	5		BC=3 4 5	18"								
1130	25														
1125	30														
1120															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on October 16, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-6

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-8

PAGE: 1 of 1

Date Begin - End:	10/16/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-7**	
Logged By:	D. Edrees	**Drill Crew:**	Eddie/ Junior		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49572°
Longitude: -117.06017°
Approximate Ground Surface Elevation (ft.): 1,162
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1160	0		**Artificial Fill** **Silty SAND (SM)**: fine sand, greenish gray, moist, trace coarse sand												Hand Auger 5ft bgs
			Alluvium **Silty SAND (SM)**: fine sand, greenish gray, moist, trace coarse sand												
	5		fine to coarse sand, medium dense, increase in sand	1		BC=5 7 9	18"		7.6	108.4					
1155			**Sandy SILT (ML)**: fine to medium sand, non-plastic, light grayish olive, moist, stiff												
	10			2		BC=3 5 7	18"		17.2		100	61	NP	NP	
1150															
	15		**Poorly Graded SAND (SP)**: fine to medium sand, light gray, moist, medium dense	3		BC=6 9 9	18"		2.3	104.5					
1145			**Sandy SILT (ML)**: fine sand, olive gray, moist, medium stiff												
	20			4		BC=3 3 2	18"								
1140															
	25														
1135															
	30														
1130															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on October 16, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-7

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-9

PAGE: 1 of 1

Date Begin - End:	4/05/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-8**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49294°
Longitude: -117.05369°
Approximate Ground Surface Elevation (ft.): 1,175
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Alluvium **Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, brown, moist, trace gravel up to 0.5", angular gravel.	1											Hand auger 5ft bgs R-Value Test Modified Proctor Test
			Silty SAND (SM): fine to medium sand, olive brown, moist, medium dense												
1170	5			2		BC=5 8 9	18"		2.4	113.3					Direct Shear Test
			Well-Graded SAND with Silt (SW-SM): fine to coarse sand, light gray, moist, medium dense												
1165	10			3		BC=7 5 6	16"		15.7		90	9.3			
1160	15		increase in sand contenet	4		BC=12 19 23	18"		2.7	102.9					
			Poorly Graded SAND (SP): fine sand, olive yellow, moist, medium dense												
1155	20			5		BC=7 10 12	16"								
1150	25														
1145	30														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 05, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-8

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-10

Date Begin - End:	10/17/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-8A**	
Logged By:	D. Edrees	**Drill Crew:**	Adrian/ Victor		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	LAR/ GT-16	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49574°
Longitude: -117.05623°
Approximate Ground Surface Elevation (ft.): 1,172
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1170			**Artificial Fill** **Silty SAND (SM)**: fine sand, dark brown, moist, trace coarse sand	1											Hand Auger 5ft bgs Corrosion Test
			Alluvium **Silty SAND (SM)**: fine sand, dark brown, moist, trace coarse sand												
	5		fine to medium sand, light brown, medium dense	2		BC=12 9 10	18"		3.4	108.9					
1165															
	10		increase in sand	3		BC=6 8 12	18"		2.4	108.1					Direct Shear Test
1160			**Poorly Graded SAND (SP)**: fine to medium sand, light gray, moist, medium dense, trace coarse sand												
	15			4		BC=3 5 9	18"		2.3		98	4.2			
1155			**Silty SAND (SM)**: fine to medium sand, greyish olive, moist, medium dense, trace clay												
	20			5		BC=4 2 3	18"								
1150			**Lean CLAY with Sand (CL)**: fine to medium sand, low to medium plasticity, dark gray, moist, medium stiff												
	25														
1145															
	30														
1140															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on October 17, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-8A

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-11

PAGE: 1 of 1

Date Begin - End:	4/05/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-9**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49560°
Longitude: -117.05255°
Approximate Ground Surface Elevation (ft.): 1,182
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1180			**Alluvium** **Poorly Graded SAND (SP)**: fine to medium sand, brown, moist, trace coarse sand, subangular-subrounded sand												Hand auger 5ft bgs
	5		medium dense			BC=4 7 9	NR								
1175			**Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, light gray, moist, medium dense												
	10			1		BC=8 15 23	18"		0.9	112.5	98	6.3			
1170			**SILT with Sand (ML)**: fine sand, non-plastic, olive gray, moist, very stiff												
	15			2		BC=4 6 10	14"		4.8						
1165			**Silty SAND (SM)**: fine sand, olive yellow, moist, medium dense												
	20			3		BC=5 5 7	16"								
1160															
	25														
1155															
	30														
1150															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 05, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-9

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-12

PAGE: 1 of 1

Date Begin - End:	4/05/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-10**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49590°
Longitude: -117.04818°
Approximate Ground Surface Elevation (ft.): 1,191
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1190			**Artificial Fill** **Silty SAND (SM)**: fine to medium sand, dark brown, moist trace asphalt bits	1											Hand auger 5ft bgs Corrosion Test Sand Equivalent Test
			Alluvium **Silty SAND (SM)**: fine to medium sand, dark brown, moist												
	5														
1185			**Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, brown, moist, medium dense, angular-subangular sand	2		BC=3 5 11	NR								
	10		light gray, interbedded orange layer, trace gravel, subangular-subrounded up to 0.75"	3		BC=4 6 7	14"		5.8		98	5.2			
1180			**Poorly Graded SAND with Silt and Gravel (SP-SM)**: fine to coarse sand, light gray, moist, medium dense, subangular to subrounded gravel up to 3/8"												
	15			4		BC=8 13 25	18"		0.2						
1175			**Silty SAND (SM)**: fine to medium sand, brown, moist, medium dense												
	20			5		BC=5 7 9	12"								
1170															
	25														
1165															
	30														
1160															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 05, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-10

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-13

PAGE: 1 of 1

Date Begin - End:	4/05/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-11**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.49566°
Longitude: -117.04336°
Approximate Ground Surface Elevation (ft.): 1,207
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1205	0		**Alluvium** **Silty SAND (SM)**: fine to medium sand, dark brown, moist												Hand auger 5ft bgs
	5		**Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, light gray, moist, medium dense, trace coarse sand, subangular sand	1		BC=8 11 12	18"		2.3	102.0					Direct Shear Test
1200			**Well-Graded SAND with Gravel (SW)**: fine to coarse sand, yellowish brown, moist, dense, fine gravel												
	10			2		BC=9 27 40	18"		2.2	100.5	70	2.6			Drill chatter
1195			**Silty SAND (SM)**: fine sand, dark brown, moist, loose												
	15			3		BC=2 3 3	16"		12.9						
1190			**Poorly Graded SAND (SP)**: fine to medium sand, light gray, moist, medium dense, subrounded sand												
	20			4		BC=5 6 10	16"								
1185															
	25														
1180															
	30														
1175															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 05, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

KLEINFELDER
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PROJECT NO.: 20234673.001A
DRAWN BY: D.E
CHECKED BY: H.M
DATE:

BORING LOG KB-11

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-14

Date Begin - End:	4/05/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-12**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49574°
Longitude: -117.03763°
Approximate Ground Surface Elevation (ft.): 1,215
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt: approximately 3"	1											Hand auger 5ft bgs R-Value Test Modified Proctor Test Sand Equivalent Test
			Artificial Fill **Poorly Graded SAND with Silt (SP-SM)**: brown, moist												
			Alluvium **Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, light gray, moist, medium dense, trace coarse sand increase in sand content trace gravel up to 0.5', subrounded gravel												
1210	5			2		BC=10 15 18	18"		1.9	112.2					
			Well-Graded SAND with Silt (SW-SM): fine to coarse sand, yellowish brown, moist, loose												
1205	10			3		BC=5 5 9	18"				87	7.0			
1200	15		medium dense, increase in sand content	4		BC=10 14 22	18"		3.3	109.1					
1195	20		increase in fines	5		BC=7 8 9	18"								
1190	25														
1185	30														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 05, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

KLEINFELDER
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PROJECT NO.: 20234673.001A	BORING LOG KB-12	FIGURE
DRAWN BY: D.E	South/North Wine Country Sewer Eastern Municipal Water District Temecula, California	A-15
CHECKED BY: H.M		
DATE:		PAGE: 1 of 1

Date Begin - End:	4/05/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-13**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49640°
Longitude: -117.03545°
Approximate Ground Surface Elevation (ft.): 1,215
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Alluvium **Silty SAND (SM)**: fine sand, olive gray, moist, trace medium sand												Hand auger 5ft bgs
			Well-Graded SAND with Gravel (SW): fine to coarse sand, yellowish brown, moist, loose, angular sand												
1210	5			1		BC=7 8 6	18"		0.4	109.4					Direct Shear Test
1205	10		light gray, medium dense	2		BC=7 19 21	18"		1.3	113.6	77	2.5			Drill chatter
			Poorly Graded SAND with Silt (SP-SM): fine to medium sand, yellowish olive, moist, medium dense												
1200	15			3		BC=8 14 14	8"		4.5						
			Poorly Graded SAND (SP): fine to medium sand, grayish brown, moist, medium dense												
1195	20			4		BC=7 11 11	12"								
1190	25														
1185	30														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 05, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

KLEINFELDER
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PROJECT NO.: 20234673.001A	BORING LOG KB-13	FIGURE
DRAWN BY: D.E	South/North Wine Country Sewer Eastern Municipal Water District Temecula, California	A-16
CHECKED BY: H.M		
DATE:		PAGE: 1 of 1

Date Begin - End:	4/05/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-14**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.49816°
Longitude: -117.03254°
Approximate Ground Surface Elevation (ft.): 1,223
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1220	0		**Alluvium** **Poorly Graded SAND (SP)**: fine to medium sand, olive yellow, moist	1											Hand auger 5ft bgs Corrosion Test
	5		light gray, medium dense	2		BC=9 12 12	18"		0.4	106.7	95	4.9			
1215			**Poorly Graded SAND with Silt (SP)**: fine to medium sand, light gray, moist, medium dense, trace gravel												
	10			3		BC=10 9 9	2"		0.1						
1210															
	15		yellowish brown	4		BC=8 12 11	18"								
1205															
	20		olive gray	5		BC=4 7 14	16"								
1200															
	25														
1195															
	30														
1190															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 05, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

KLEINFELDER
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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-14

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-17

Date Begin - End:	4/06/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-15**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION | LABORATORY RESULTS

Latitude: 33.49934°
Longitude: -117.03126°
Approximate Ground Surface Elevation (ft.): 1,226
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1225			**Alluvium** **Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, grayish brown, moist, trace coarse sand, subrounded fine gravel												Hand auger 5ft bgs
1220	5		fine to coarse sand, medium dense	1		BC=5 8 12	18"		1.0	113.8					
1215	10		fine to medium sand, trace coarse sand	2		BC=9 26 19	18"		0.5	109.4	94	5.1			
1210	15		fine to coarse sand, tannish brown, trace gravel, subrounded gravel up to 1.5"	3		BC=5 8 9	18"		1.9						
1205	20		**Poorly Graded SAND with Gravel (SP)**: fine to medium sand, tannish brown, moist, medium dense, subangular to subrounded gravel up to 1"	4		BC=7 11 12	8"								
1200	25														
1195	30														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 06, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

KLEINFELDER
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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-15

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-18

PAGE: 1 of 1

Date Begin - End:	4/06/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-16**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.50132°
Longitude: -117.02913°
Approximate Ground Surface Elevation (ft.): 1,231
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1230			**Alluvium** **Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, brown, moist	1											Hand auger 5ft bgs R-Value Test Modified Proctor Test
1225	5		loose	2		BC=5 6 8	18"		0.5	96.9					Direct Shear Test
			Well-Graded SAND (SW): fine to coarse sand, moist, medium dense, trace fine gravel, subrounded to rounded gravel												
1220	10			3		BC=4 5 8	14"		5.6		95	4.4			
			Poorly Graded SAND with Silt (SP-SM): fine to coarse sand, tannish brown, moist, medium dense												
1215	15			4		BC=12 16 20	18"		1.6	105.5					
1210	20		fine to medium sand, olive yellow	5		BC=7 7 11	16"								
1205	25														
1200	30														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 06, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 20234673.001A	BORING LOG KB-16	FIGURE	
DRAWN BY: D.E	South/North Wine Country Sewer Eastern Municipal Water District Temecula, California	A-19	
CHECKED BY: H.M			
DATE:		PAGE: 1 of 1	

Date Begin - End:	4/06/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-17**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.50306°
Longitude: -117.02654°
Approximate Ground Surface Elevation (ft.): 1,239
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1235	0		**Alluvium** **Silty SAND (SM)**: fine to medium sand, dark brown, moist, subangular sand												Hand auger 5ft bgs Broken cobbles up to 5"
	5		tannish yellow, loose, trace coarse sand, increase in sand content	1		BC=5 4 7	18"		5.5	110.1					Direct Shear Test
1230	10		**Poorly Graded SAND (SP)**: fine to medium sand, light grayish brown, moist, medium dense	2		BC=6 8 11	18"		1.0	102.5	100	2.9			
1225	15		tannish yellow, loose	3		BC=4 4 5	14"		1.8						
1220	20		fine to coarse sand, dense, trace fine gravel, subangular gravel	4		BC=14 22 24	2"								
1215	25														
1210	30														
1205															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 06, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 20234673.001A	BORING LOG KB-17	FIGURE	
DRAWN BY: D.E	South/North Wine Country Sewer Eastern Municipal Water District Temecula, California	A-20	
CHECKED BY: H.M			
DATE:		PAGE: 1 of 1	

Date Begin - End:	4/06/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-18**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.50510°
Longitude: -117.02336°
Approximate Ground Surface Elevation (ft.): 1,243
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1240	0		**Alluvium** **Silty SAND (SM)**: fine to medium sand, dark brown, moist	1											Hand auger 5ft bgs Corrosion Test Sand Equivalent Test
			Poorly Graded SAND (SP): fine to medium sand, light gray, medium dense												
	5			2		BC=7 11 13	18"		3.2	109.0	98	3.4			
1235															
	10		tannish yellow, moist, loose, subangular sand	3		BC=3 3 3	16"		2.2						
1230			**Silty SAND (SM)**: fine to coarse sand, light gray, moist, medium dense, trace gravel up to 0.5", subangular gravel												
	15			4		BC=10 14 21	18"		2.0	108.9					
1225			**Poorly Graded SAND (SP)**: fine sand, yellowish brown, moist, medium dense, trace mica												
	20			5		BC=6 8 9	14"								
1220															
	25														
1215															
	30														
1210															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 06, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-18

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-21

PAGE: 1 of 1

Date Begin - End:	4/06/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-19**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.50713°
Longitude: -117.02019°
Approximate Ground Surface Elevation (ft.): 1,253
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1250			**Alluvium** **Poorly Graded SAND (SP)**: fine to medium sand, dark brown, moist												Hand auger 5ft bgs
	5		fine to coarse sand, tannish yellow, loose	1		BC=5 7 8	18"		0.9	103.0	97	3.7			
1245			**Poorly Graded SAND with Silt (SP-SM)**: fine to coarse sand, light yellow, moist, medium dense												
	10			2		BC=8 11 13	18"		0.7	103.2					
1240			**Silty SAND (SM)**: fine to medium sand, light brown, moist, medium dense, trace fine gravel, subangular gravel												
	15			3		BC=3 5 8	18"		5.4						
1235															
	20		fine sand, loose, trace medium sand, trace mica	4		BC=3 3 4	18"								
1230															
	25														
1225															
	30														
1220															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 06, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-19

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-22

Date Begin - End:	4/06/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-20**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.50914°
Longitude: -117.01804°
Approximate Ground Surface Elevation (ft.): 1,260
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Alluvium **Silty SAND (SM)**: fine to medium sand, light brown, moist, trace coarse sand	1											Hand auger 5ft bgs Corrosion Test Modified Proctor Test Sand Equivalent Test
1255	5		fine sand, very loose	2		BC=3 3 2	18"		14.8	107.6			NP	NP	Direct Shear Test
1250	10		fine to medium sand, loose, trace clay	3		BC=2 2 3	18"					28			
1245	15		trace coarse sand, subrounded sand	4		BC=5 6 7	18"		4.4	117.3					
			Lean CLAY (CL): low plasticity, brown, moist, medium stiff, trace fine to medium sand												
1240	20			5		BC=3 3 3	18"						34	13	
			Silty Clayey SAND (SC-SM): fine to medium sand, low plasticity, light brown, moist, medium dense												
1235	25			6		BC=3 5 5	18"		17.8				28	6	
1230	30			7		BC=3 6 6	18"					49			
			Silty SAND (SM): fine to medium sand, light brown, moist, medium dense												

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DRAWN BY: D.E
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DATE:

BORING LOG KB-20

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-23

Date Begin - End:	4/06/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-20**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.50914°
Longitude: -117.01804°
Approximate Ground Surface Elevation (ft.): 1,260
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine to medium sand, light brown, moist, medium dense	8		BC=6 11 12	16"		3.8						
1220	40		trace mica	9		BC=8 12 14	16"								
1215	45		increase in sand content, trace clay	10		BC=9 14 15	18"		3.4						
			Poorly Graded SAND with Silt (SP-SM): fine to medium sand, tannish yellow, moist, dense												
1210	50			11		BC=10 17 18	18"					7.8			
1205	55														
1200	60														
1195	65														

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 06, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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DATE:

BORING LOG KB-20

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-24

Date Begin - End:	4/06/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-21**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.51190°
Longitude: -117.01707°
Approximate Ground Surface Elevation (ft.): 1,264
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine to medium sand, dark brown, moist												Hand auger 5ft bgs
			Alluvium **Silty SAND (SM)**: fine to medium sand, dark brown, moist, loose												
1260	5			1		BC=6 7 7	18"		5.5	118.6	100	23			
1255	10		fine sand, olive brown	2		BC=4 4 5	18"		8.8	110.7			NP	NP	
1250	15		fine to medium sand, brown	3		BC=2 2 2	18"		11.4						
1245	20			4		BC=1 3 2	18"								
1240	25														
1235	30														
1230															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 06, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 20234673.001A	BORING LOG KB-21		FIGURE
DRAWN BY: D.E	South/North Wine Country Sewer Eastern Municipal Water District Temecula, California		A-25
CHECKED BY: H.M			
DATE:			PAGE: 1 of 1

Date Begin - End:	4/10/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-22**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.54674°
Longitude: -117.04399°
Approximate Ground Surface Elevation (ft.): 1,290
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine to coarse sand, dark brown to black, moist	1											Hand auger 5ft bgs R-Value Test Sand Equivalent Test
1285	5		**Alluvium** **Silty SAND (SM)**: fine to coarse sand, light brown, moist, loose, trace clay	2		BC=4 5 6	18"		6.3	104.7					Direct Shear Test
1280	10		fine to medium sand, olive yellow, wet	3		BC=3 4 7	18"		18.2		99	27	NP	NP	
			Clayey SAND (SC): fine to medium sand, olive yellow, wet, medium dense												
1275	15			4		BC=7 12 19	18"								
			Sandy Lean CLAY (CL): fine sand, low plasticity, olive yellow, wet, trace medium sand												
1270	20		very stiff	5		BC=5 9 15	18"								
1265	25														
1260	30														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 10, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 8 ft. below ground surface during drilling.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
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DATE:	

BORING LOG KB-22

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-26

PAGE: 1 of 1

BORING LOG KB-23

Date Begin - End:	4/10/2023	**Drilling Company:**	2R Drilling		
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.54942°
Longitude: -117.04234°
Approximate Ground Surface Elevation (ft.): 1,434
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Alluvium												Hand auger 5ft bgs
			Silty SAND (SM): fine sand, olive gray, moist												
1430															
	5		wet, loose, trace medium and coarse sand	1		BC=2 5 5	18"		14.2	112.6	95	18			
1425															
	10		fine to coarse sand, trace clay	2		BC=3 4 5	18"		19.3	105.1					
1420															
	15		medium dense, increase in sand, trace fine gravel, subrounded- subangular gravel, trace mica	3		BC=6 7 10	18"								
1415			**Poorly Graded SAND (SP)**: fine to medium sand, olive yellow, moist, loose												Hard drill
	20			4		BC=1 2 4	18"		23.0			4.9			
			Pauba Formation												
1410			**Silty SAND (SM)**: fine to medium sand, olive yellow, wet												
	25		very dense	5		BC=15 25 33	18"								
1405															
	30		fine sand, brown	6		BC=11 20 30	18"		15.8				NP	NP	
1400															

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-23

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-27

Date Begin - End:	4/10/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-23**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.54942°
Longitude: -117.04234°
Approximate Ground Surface Elevation (ft.): 1,434
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Pauba Formation **Silty SAND (SM)**: fine to medium sand, olive yellow, wet brown	7		BC=10 28 30	14"					18	NP	NP	
1395	40		fine to medium sand, dense	8		BC=11 21 23	14"		12.5						
1390	45		fine sand, very dense	9		BC=15 21 41	14"					23			
1385	50		**Clayey SAND (SC)**: fine to medium sand, olive brown, wet, dense	10		BC=10 17 28	18"								
1380	55														
1375	60														
1370	65														
1365															

LABORATORY RESULTS

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 10, 2023.

GROUNDWATER LEVEL INFORMATION:
▼ Groundwater was observed at approximately 3 ft. below ground surface at the end of drilling.
▽ Groundwater was observed at approximately 6 ft. below ground surface during drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-23

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-28

Date Begin - End:	4/10/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-24**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.55125°
Longitude: -117.03994°
Approximate Ground Surface Elevation (ft.): 1,455
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Pauba Formation **Silty SAND (SM)**: fine to medium sand, dark brown, moist, trace coarse sand	1											Hand auger 5ft bgs R-Value Test Modified Proctor Test
1450	5		very dense, increase in fines	2		BC=50/6"	6"		6.1	119.9					Direct Shear Test
1445	10			3		BC=15 23 27	18"		8.6						
1440	15		yellowish brown	4		BC=24 50/6"	12"		5.8	122.9					
1435	20		light brown, dense, increase in sand content	5		BC=17 15 28	18"								
1430	25														
1425	30														

LABORATORY RESULTS

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 10, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-24

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-29

PAGE: 1 of 1

Date Begin - End:	4/11/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-25**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.55310°
Longitude: -117.03753°
Approximate Ground Surface Elevation (ft.): 1,490
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt: approximately 5.5"												Hand auger 5ft bgs
			Aggregate Base: approximatel 6"												
			Pauba Formation **Silty SAND (SM)**: fine to medium sand, olive yellow, moist, dense												
1485	5			1		BC=14 28 28	18"		4.6	127.6			NP	NP	Direct Shear Test
			Sandy Lean CLAY (CL): fine sand, medium plasticity, brown, moist, hard												
1480	10			2		BC=11 27 30	18"		13.1	105.9	100	55			
1475	15			3		BC=8 11 24	18"		18.9						
			Clayey SAND (SC): fine to medium sand, olive yellow, moist, very dense, slightly cemented												
1470	20			4		BC=11 44 46	18"								
1465	25														
1460	30														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on April 11, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-25

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-30

Date Begin - End:	4/11/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-26**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.55220°
Longitude: -117.03582°
Approximate Ground Surface Elevation (ft.): 1,510
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Pauba Formation **Silty SAND (SM)**: fine to medium sand, light brown, moist	1									NP	NP	Hand auger 5ft bgs Corrosion Test Sand Equivalent Test
1505	5		greyish olive, very dense, trace fine gravel, subrounded gravel, slightly cemented	2		BC=19 43 50/4"	18"		4.7	130.4					
			Lean CLAY with Sand (CL): fine sand, low plasticity, brown, moist, stiff, slightly cemented, trace fine gravel												
1500	10			3		BC=4 4 7	18"		20.8		100	75	32	11	
			Clayey SAND (SC): fine sand, brown, moist, medium dense												
1495	15			4		BC=9 10 17	18"								
▽			**Silty SAND (SM)**: fine to medium sand, light brown, wet, medium dense, interbedded clay layer												
1490	20			5		BC=6 10 15	14"		16.4						
1485	25														
1480	30														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 11, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 18 ft. below ground surface during drilling.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-26

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-31

Date Begin - End:	4/11/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-27**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.55040°
Longitude: -117.03349°
Approximate Ground Surface Elevation (ft.): 1,508
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1508	0		**Pauba Formation** **Silty SAND (SM)**: fine to medium sand, yellowish brown, moist, trace coarse sand												Hand auger 5ft bgs
1505	5		**Clayey SAND (SC)**: fine to medium sand, brown, moist, very dense, weakly cemented	1		BC=50/6"	6"		6.4	110.7	100	35			
1500	10		grayish olive, decrease in sand content	2		BC=31 50/6"	10"								
1495	15		**Silty SAND (SM)**: fine to medium sand, moist, very dense	3		BC=14 20 34	14"		8.8						
1490	20		fine to coarse sand, brown, weakly cemented	4		BC=14 27 41	18"								
1485	25														
1480	30														
1475															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 11, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-27

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-32

PAGE: 1 of 1

Date Begin - End:	4/11/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-28**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.54890°
Longitude: -117.02989°
Approximate Ground Surface Elevation (ft.): 1,522
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1520	0		**Pauba Formation** **Clayey SAND (SC)**: fine to medium sand, dark brown, moist	1											Hand auger 5ft bgs Modified Proctor Expansion Index
	5		**Silty SAND (SM)**: fine sand, brown, moist, very dense	2		BC=12 37 50	18"		9.1	125.7			NP	NP	
1515			**Clayey SAND (SC)**: fine to medium sand, brown, moist, medium dense, trace clay												
	10			3		BC=5 6 15	18"		12.5		99	41			
1510															
	15		dense, decrease in sand content	4		BC=16 33 40	18"		8.1	130.9					
1505															
	20		brown, medium dense, weakly cemented	5		BC=6 12 16	18"								
1500															
	25														
1495															
	30														
1490															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 11, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
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CHECKED BY:	H.M
DATE:	

BORING LOG KB-28

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-33

PAGE: 1 of 1

Date Begin - End:	4/11/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-29**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.54899°
Longitude: -117.02646°
Approximate Ground Surface Elevation (ft.): 1,537
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1535			**Pauba Formation** **Silty SAND (SM)**: fine to medium sand, dark brown, moist, trace coarse sand												Hand auger 5ft bgs
	5		dense, trace clay, slightly cemented	1		BC=21 24 25	18"		4.7	127.3	100	22			
1530			**Clayey SAND (SC)**: fine to medium sand, olive brown, moist, dense												
	10			2		BC=10 19 32	18"		6.0	125.8					
1525			**Silty SAND (SM)**: fine to medium sand, olive yellow, moist, dense												
	15			3		BC=10 17 21	18"		6.3						
1520															
	20		tannish yellow	4		BC=11 17 19	18"								
1515															
	25														
1510															
	30														
1505															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 11, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
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DATE:	

BORING LOG KB-29

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-34

PAGE: 1 of 1

Date Begin - End:	4/07/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-30**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.55457°
Longitude: -117.03566°
Approximate Ground Surface Elevation (ft.): 1,562
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1560	0		**Pauba Formation** **Silty SAND (SM)**: fine to medium sand, brown, moist	1											Hand auger 5ft bgs Corrosion Test R-Value test
	5		**Sandy SILT (ML)**: fine to coarse sand, non-plastic, brown, moist, hard	2		BC=28 50/6"	12"		6.0	122.6					
1555			**Silty SAND (SM)**: fine sand, dark brown, moist, medium dense												
	10			3		BC=9 10 11	18"		11.0		98	27			
1550															
	15			4		BC=11 22 40	18"		7.5	112.2					
1545			**Poorly Graded SAND with Silt (SP-SM)**: fine to coarse sand, light gray, moist, dense, trace fine gravel, subangular gravel **Sandy SILT (ML)**: fine to medium sand, low plasticity, brown, moist, very stiff												
	20			5		BC=7 10 19	18"						30	7	
1540															
	25														
1535															
	30														
1530															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 07, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
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DATE:	

BORING LOG KB-30

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-35

PAGE: 1 of 1

Date Begin - End:	4/07/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-31**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.55480°
Longitude: -117.03231°
Approximate Ground Surface Elevation (ft.): 1,518
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Pauba Formation												Hand auger 5ft bgs
1515			**Silty SAND with Gravel (SM)**: fine sand, black, moist, gravel up to 1.5", subangular gravel												
			Clayey SAND (SC): fine to medium sand, dark brown, moist, medium dense												
	5			1		BC=22 19 18	18"				98	43			
1510															
	10		weakly cemented, increase in sand	2		BC=10 10 11	18"		5.6	118.5					Direct Shear Test
1505															
	15		very dense, increase in fines	3		BC=18 50/6"	12"		10.7	121.8					
1500			**Silty SAND (SM)**: fine to medium sand, brown, moist, medium dense												
	20			4		BC=7 9 13	18"								Drill chatter
1495															
	25														
1490															
	30														
1485															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 07, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 20234673.001A	BORING LOG KB-31		FIGURE
DRAWN BY: D.E	South/North Wine Country Sewer Eastern Municipal Water District Temecula, California		A-36
CHECKED BY: H.M			
DATE:			PAGE: 1 of 1

Date Begin - End:	4/07/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-32**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.55716°
Longitude: -117.03101°
Approximate Ground Surface Elevation (ft.): 1,529
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Pauba Formation **Silty SAND (SM)**: fine sand, brown, moist, trace fine gravel , subrounded gravel	1											Hand auger 5ft bgs Modified Proctor Sand Equivalent Test
			Clayey SAND (SC): fine to medium sand, brown, moist, medium dense, weakly cemented												
1525	5			2		BC=8 8 9	18"		6.2	109.5					
1520	10		dense	3		BC=16 18 23	18"		12.4		99	39			
			Tonalite **Granitic BEDROCK**: fine grained, light gray, moist, weak (R2), moderately to highly weathered, excavates as clayey sand (SC)												
1515	15			4		BC=38 50/3"	9"		17.1	110.5					
1510	20		fine to medium grained, gray, excavates as silty sand (SM), trace mica	5		BC=50/5"	5"								
1505	25		The boring was terminated at approximately 20.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 07, 2023.												
1500	30														
1495															

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
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DATE:	

BORING LOG KB-32

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-37

Date Begin - End:	4/07/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-33**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.55975°
Longitude: -117.03041°
Approximate Ground Surface Elevation (ft.): 1,544
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine to coarse sand, grayish brown, moist												Hand auger 5ft bgs
			Tonalite **Granitic BEDROCK**: fine to coarse grained, grayish brown, moist, extremely weak (R0), moderatley to highly weathered, excavates as silty sand (SM)												
1540	5		light gray, weak (R2), excavates as well graded sand with silt (SW-SM)	1		BC=50/2"	2"		1.9	117.4	99	8.3			
1535	10		olive gray, very weak (R1), excavates as silty sand (SM)	2		BC=50/3"	3"								
1530	15			3		BC=50/6"	6"		5.8						
1525	20		gray, excavates as poorly graded sand with clay (SP-SC)	4		BC=20 40 50/4"	16"								
1520	25														
1515	30														
1510															

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 07, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 20234673.001A	BORING LOG KB-33	FIGURE	
DRAWN BY: D.E	South/North Wine Country Sewer Eastern Municipal Water District Temecula, California	A-38	
CHECKED BY: H.M			
DATE:		PAGE: 1 of 1	

Date Begin - End:	4/07/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-34**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.56062°
Longitude: -117.02655°
Approximate Ground Surface Elevation (ft.): 1,573
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)
1570	0		**Pauba Formation** **Silty SAND with Gravel (SM)**: fine to medium sand, dark brown, moist	1			
	5		**Clayey SAND with Gravel (SC)**: fine to medium sand, dark brown, moist, medium dense, subangular gravel up to 1"	2		BC=16 14 10	18"
1565			**Sandy Lean CLAY (CL)**: fine to medium sand, low plasticity, dark brown, moist, stiff				
	10			3		BC=4 5 7	18"
1560							
	15		wet, very stiff	4		BC=5 7 18	18"
1555			**Tonalite** **Granitic BEDROCK**: fine to coarse grained, dark brown, wet, very dense, very weak (R1), moderatley to highly weathered, excavates as silty sand (SM)				
	20			5		BC=22 50/6"	12"
1550							
	25						
1545							
	30						
1540							

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
							Hand auger 5ft bgs Corrosion Test R-Value Test Sand Equivalent Test
	8.7	127.1	75	14			Direct Shear Test
	13.3				31	14	
	16.0	117.0					
	8.0						

The boring was terminated at approximately 21 ft. below ground surface. The boring was backfilled with auger cuttings on April 07, 2023.

GROUNDWATER LEVEL INFORMATION:
▼ Groundwater was observed at approximately 11 ft. below ground surface at the end of drilling.
▽ Groundwater was observed at approximately 7 ft. below ground surface during drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-34

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-39

Date Begin - End:	4/07/2023	**Drilling Company:**	2R Drilling	**BORING LOG KB-35**	
Logged By:	D. Edrees	**Drill Crew:**	Cody/Matt		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.56073°
Longitude: -117.02264°
Approximate Ground Surface Elevation (ft.): 1,611
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1610			**Artificial Fill** **Clayey SAND (SC)**: fine to medium sand, dark brown, moist to wet												Hand auger 5ft bgs
			Silty Clayey SAND (SC-SM): low plasticity, dark bluish gray, wet, very loose	1		BC=1 2 3	18"		15.4	116.7	99	30	23	5	
1605	5		**Alluvium** **Silty Clayey SAND (SC-SM)**: dark bluish gray, wet												
			very loose	2		BC=2 2 2	18"		16.8	116.3					
1600	10		**Sandy Lean CLAY (CL)**: fine to medium sand, low to medium plasticity, dark brown, wet, medium stiff												
				3		BC=2 2 2	18"		19.2						
1595	15		**Clayey SAND (SC)**: fine to medium sand, dark brown, wet, loose												
				4		BC=2 2 6	18"		19.6						
1590	20														
1585	25														
1580	30														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on April 07, 2023.

GROUNDWATER LEVEL INFORMATION:
▼ Groundwater was observed at approximately 5 ft. below ground surface at the end of drilling.
▽ Groundwater was observed at approximately 3 ft. below ground surface during drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	20234673.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG KB-35

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE
A-40
PAGE: 1 of 1

APPENDIX B
LABORATORY TESTING

APPENDIX B
LABORATORY TESTING

The laboratory testing was performed by our laboratory located in Ontario, California or by AP Engineering & Testing, Inc. of Pomona, California on drive and bulk soil samples to estimate engineering characteristics of the various earth materials encountered. Testing was performed in general accordance with procedures outlined in the American Society for Testing and Materials, or other accepted procedures. Visual classifications presented on the lab figures performed by AP Engineering may differ from those presented on the boring logs provided in Appendix A.

LABORATORY MOISTURE AND DENSITY DETERMINATIONS

Natural moisture content and dry density tests were performed on selected soil samples. Moisture content was evaluated in general accordance with ASTM Test Method D 2216; dry unit weight was evaluated using procedures similar to ASTM Test Method D 2937. The results are presented on the boring logs in Appendix A.

WASH SIEVE

To provide information on the fines content of the soil layers at the site, wash sieves were performed to determine the percentage passing the #200 sieve. The wash sieves were performed in accordance with ASTM Test Method D1140. The results are presented on the boring logs in Appendix A.

SIEVE ANALYSIS

Sieve analyses were performed on samples of the materials encountered at the site to evaluate the grain size distribution characteristics of the soils and to aid in their classification. The tests were performed in general accordance with ASTM Test Method D 6913. The results are presented on the boring logs in Appendix A and also attached to this appendix as Figures B-1 to B-8, Grain Size Distribution.

ATTERBERG LIMITS (PLASTICITY INDEX)

Plasticity limit and liquid limit testing was performed on soil samples to evaluate behavior conditions at varying water contents. Testing was performed in general accordance with ASTM Test Method D4318. The results are presented on the boring logs in Appendix A and also attached to this appendix as Figures B-9 to B-12, Plasticity Testing.

DIRECT SHEAR

Direct shear testing was performed by AP Engineering on relatively undisturbed samples to determine the soil shear strength and cohesion values in accordance with ASTM Standard Test Method D 3080. Samples were soaked to near saturation. The results are attached to this appendix.

SAND EQUIVALENT

Sand equivalent testing was performed on samples of the on-site soils to evaluate their relative proportions of clay-like or plastic fines in granular soils that pass the 4.75-mm (No. 4) sieve. The test was performed in general accordance with ASTM Standard Test Method D 2419. The results are presented below in Table B-1, Sand Equivalent Test Results.

EXPANSION INDEX

Expansion Index testing was performed on near surface bulk samples to determine the expansion potential of the soil. The testing was performed in accordance with ASTM Standard Test Method D4829. The results are presented below in Table B-2, Expansion Index Test Results.

MODIFIED PROCTOR TEST

Modified Proctor (maximum density/optimum moisture) testing was performed on select bulk samples to determine compaction characteristics. The tests were performed in accordance with ASTM Standard Test Method D 1557. The results are presented below in Table B-3, Modified Proctor Test Results.

R-VALUE

R-Value testing was performed on select bulk samples to determine the resistance value of the soil. The tests were performed in accordance with ASTM Standard Test Method D 2844. The results are presented below in Table B-4, R-Value Test Results.

PRELIMINARY CORROSIVITY TESTS

A series of chemical tests were performed by AP Engineering on selected soil samples to estimate pH, resistivity, sulfate and chloride contents. The tests were performed in accordance with Caltrans standards. Test results may be used by a qualified corrosion engineer to evaluate the

general corrosion potential with respect to construction materials. The results are attached to this appendix.

Table B-1
Sand Equivalent Test Results

Boring Number	Depth (ft)	Sand Equivalent
KB-3	0 - 5	18
KB-6	0 - 5	17
KB-10	0 - 5	28
KB-12	0 - 5	64
KB-18	0 - 5	36
KB-20	0 - 5	21
KB-22	0 - 5	31
KB-26	0 - 5	13
KB-32	0 - 5	14
KB-34	0 - 5	18

Table B-2
Expansion Index Test Results

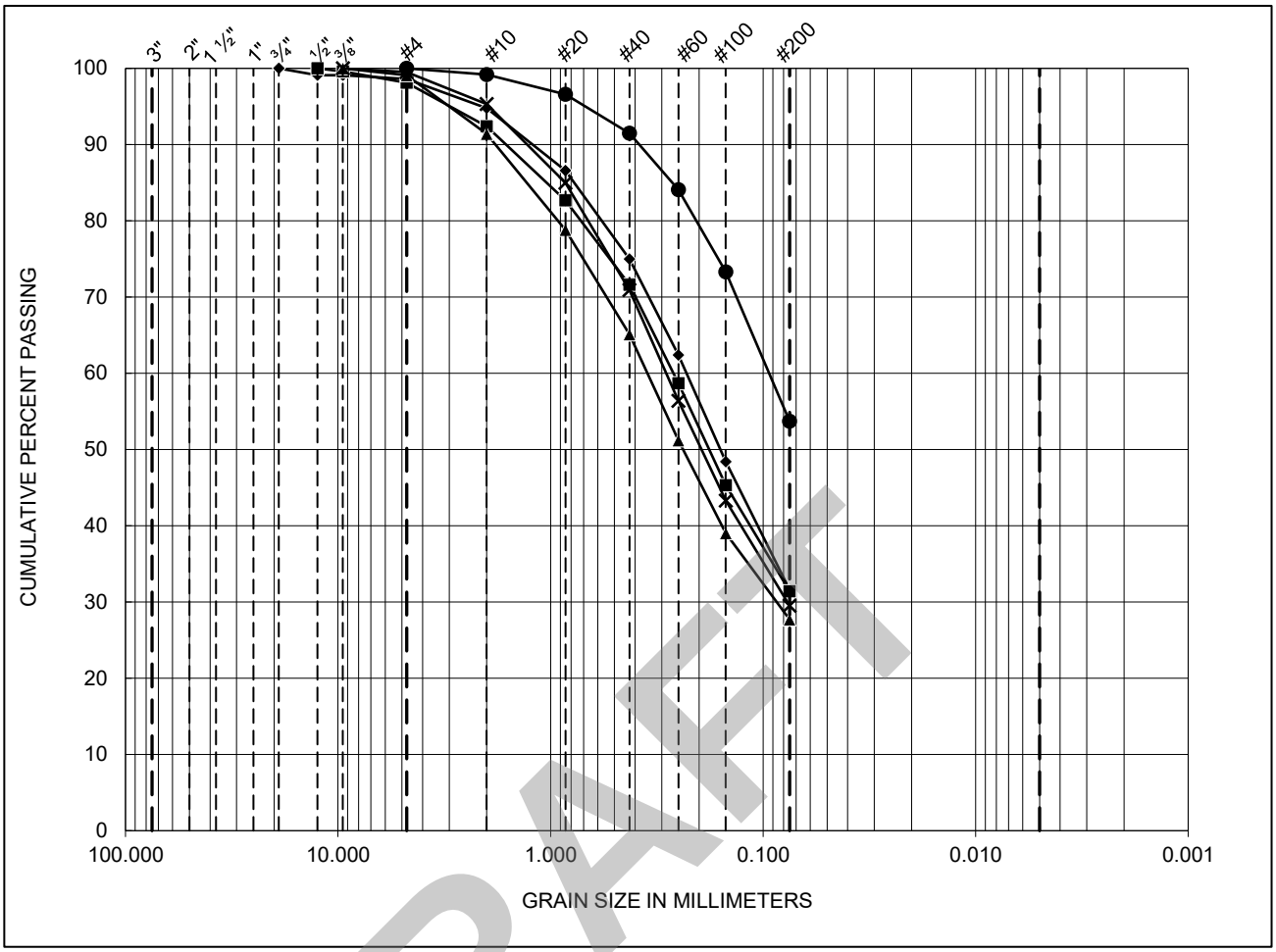
Boring Number	Depth (ft)	Expansion Index	Expansion Potential
KB-2	0 - 5	28	Low
KB-28	0 - 5	33	Low

Table B-3
Modified Proctor Test Results

Boring Number	Depth (ft)	Maximum Density (pcf)	Optimum Moisture (%)
KB-3	0 - 5	132.4	7.5
KB-5	0 – 5	125.0	9.7
KB-8	0 – 5	119.9	10.2
KB-12	0 – 5	118.7	6.6
KB-16	0 – 5	122.2	6.9
KB-20	0 – 5	131.2	6.5
KB-24	0 – 5	130.0	8.6
KB-28	0 – 5	125.9	12.8
KB-32	0 – 5	134.5	7.3

Table B-4
R-Value Test Results

Boring Number	Depth (ft)	R-Value
KB-5	0 - 5	35
KB-8	0 - 5	73
KB-12	0 - 5	74
KB-16	0 - 5	79
KB-22	0 - 5	82
KB-24	0 - 5	30
KB-30	0 - 5	82
KB-34	0 - 5	58



COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	KB-1	3	10	1.4	67.0	31.6	NM	NM	NM	Silty Sand (SM)
■	KB-2	2	5	1.9	66.7	31.4	NM	NM	NM	Clayey Sand (SC)
▲	KB-3	3	10	0.9	71.4	27.7	NM	NM	NM	Silty Sand (SM)
×	KB-4	3	10	0.5	70.0	29.5	NM	NM	NM	Silty Sand (SM)
●	KB-5	2	5	0	46.3	53.7	NM	NM	NM	Sandy Silt (ML)

KLEINFELDER
Bright People. Right Solutions.

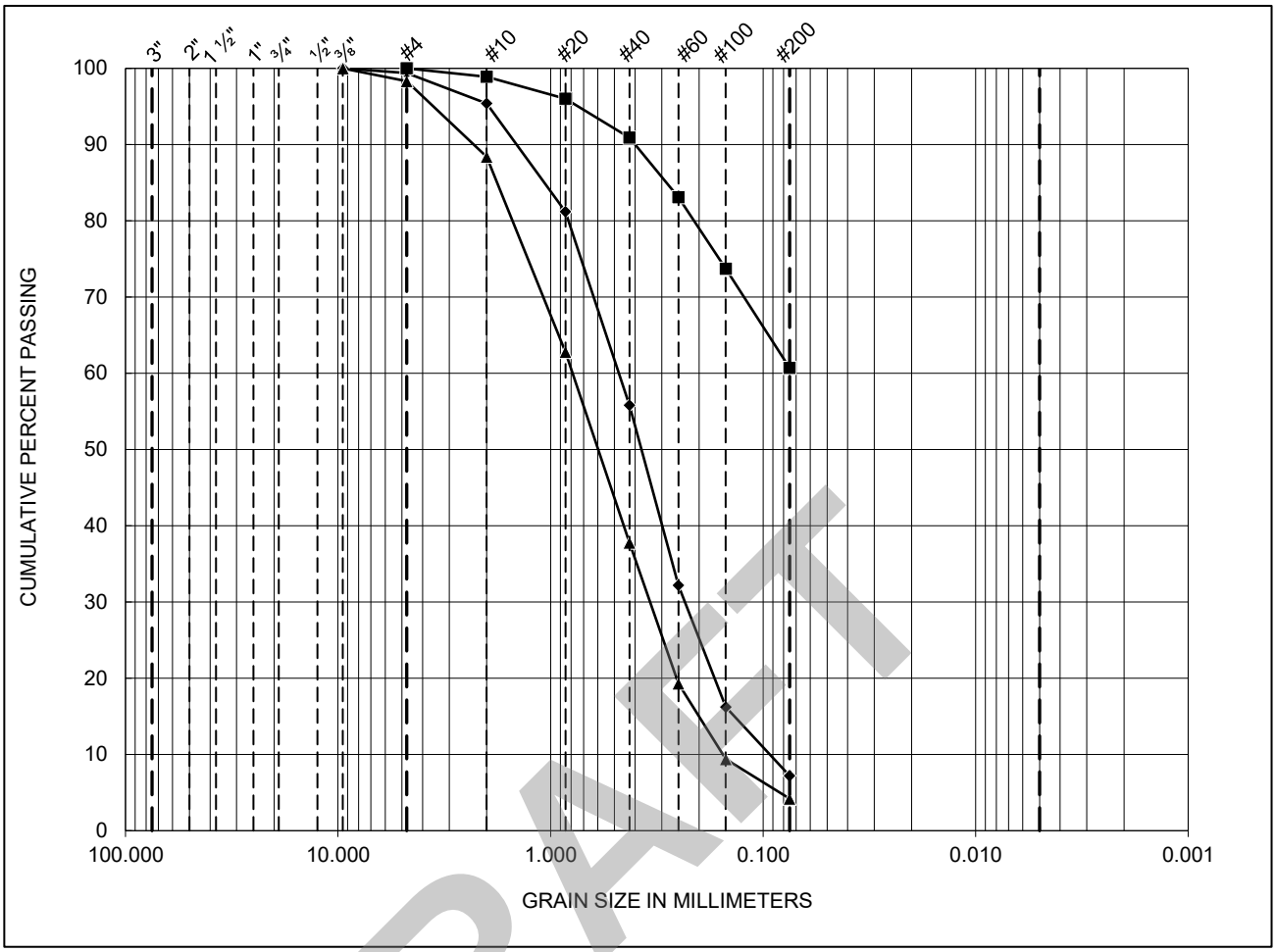
PROJECT NO.:	20234673.001A
TESTED BY:	J.Calderon
DATE:	12/3/2023
CHECKED BY:	M.Magaña
DATE:	12/6/2023

GRAIN SIZE DISTRIBUTION

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE

B-1



COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	KB-6	4	15	0.6	92.2	7.2	NM	NM	NM	Pooly Graded Sand w/Silt (SP-SM)
■	KB-7	3	10	0.0	39.3	60.7	34	26	8	Sandy Silt (ML)
▲	KB-8A	4	15	1.7	94.1	4.2	NM	NM	NM	Poorly Graded Sand (SP)

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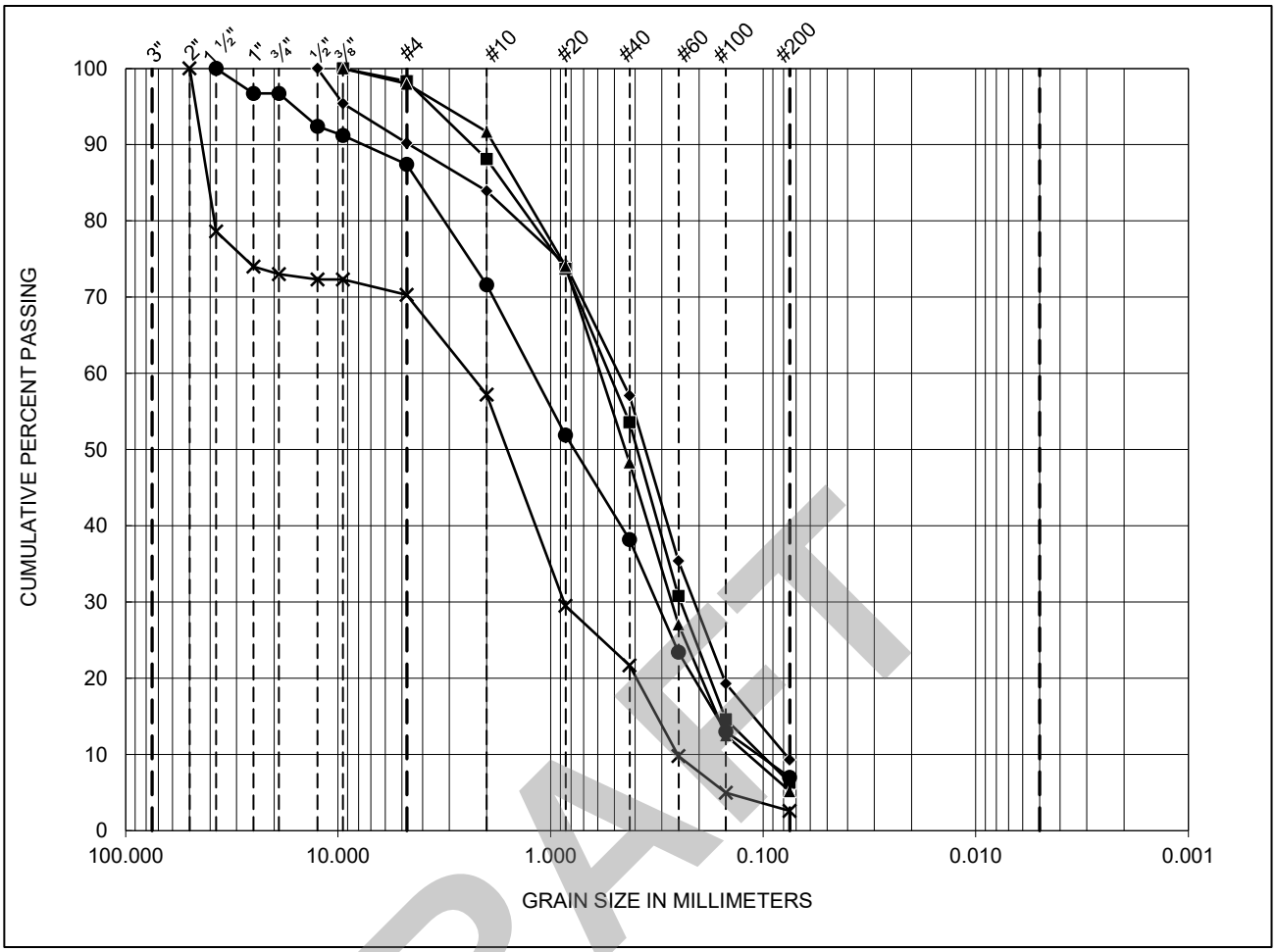
DATE:	12/3/2023
CHECKED BY:	M.Magaña
DATE:	12/6/2023

GRAIN SIZE DISTRIBUTION

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE

B-2



COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	KB-8	3	10	9.8	80.9	9.3	NM	NM	NM	Well Graded Sand w/Silt (SW-SM)
■	KB-9	1	10	1.7	92.0	6.3	NM	NM	NM	Poorly Graded Sand w/Silt (SP-SM)
▲	KB-10	2	10	2.0	92.8	5.2	NM	NM	NM	Poorly Graded Sand w/Silt (SP-SM)
×	KB-11	2	10	29.7	67.7	2.6	NM	NM	NM	Well Graded Sand w/Gravel (SW)
●	KB-12	3	10	12.6	80.4	7.0	NM	NM	NM	Well Graded Sand w/Silt (SW-SM)

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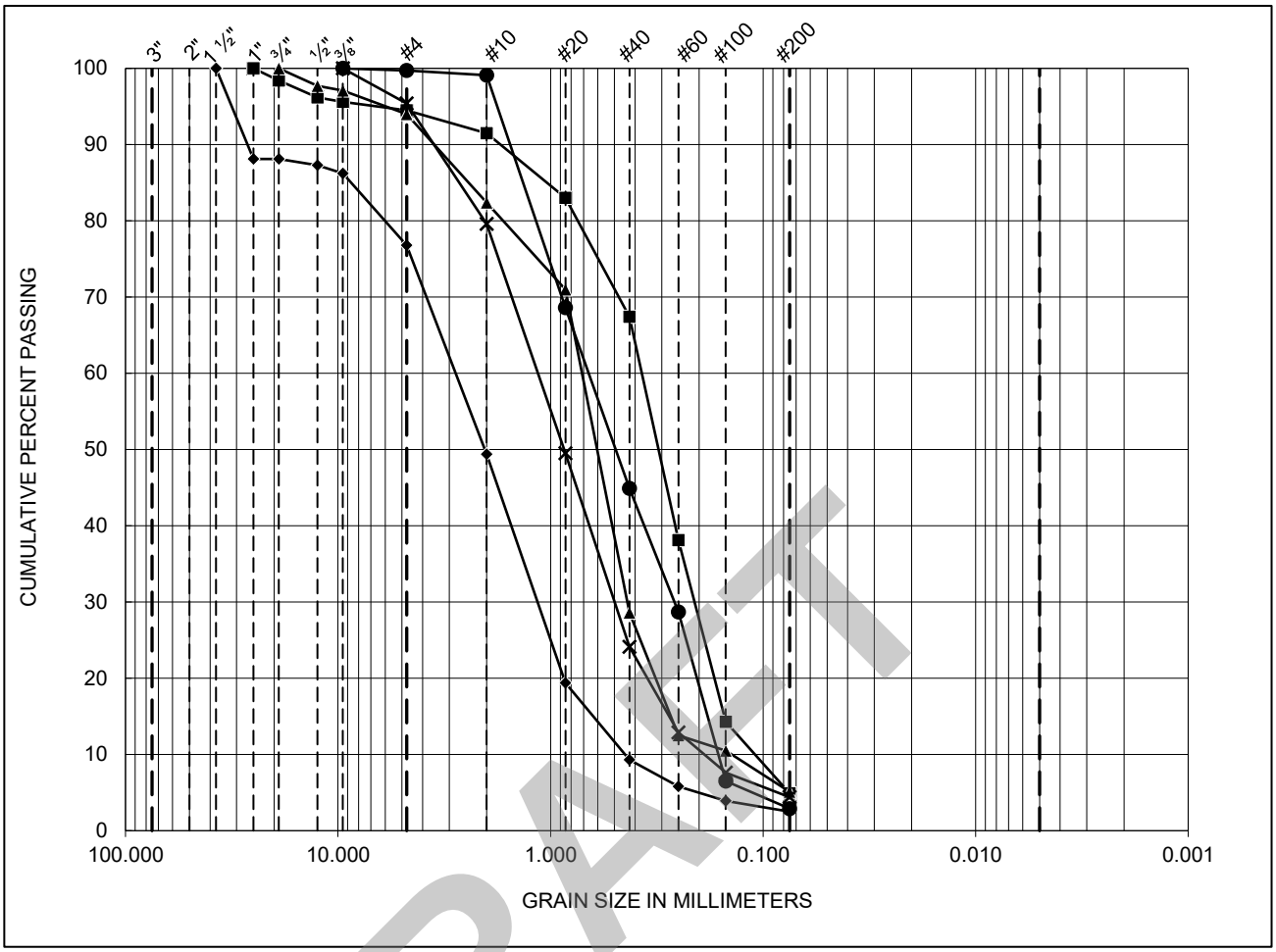
TESTED BY:	C.Massa
DATE:	7/13/2023
CHECKED BY:	M.Magaña
DATE:	8/1/2023

GRAIN SIZE DISTRIBUTION

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE

B-3



COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	KB-13	2	10	23.2	74.3	2.5	NM	NM	NM	Well Graded Sand w/Gravel (SW)
■	KB-14	2	5	5.5	89.6	4.9	NM	NM	NM	Poorly Graded Sand (SP)
▲	KB-15	2	10	6.0	88.9	5.1	NM	NM	NM	Poorly Graded Sand w/Silt (SP-SM)
×	KB-16	3	10	4.6	91.0	4.4	NM	NM	NM	Well Graded Sand (SW)
●	KB-17	2	10	0.3	96.8	2.9	NM	NM	NM	Poorly Graded Sand (SP)

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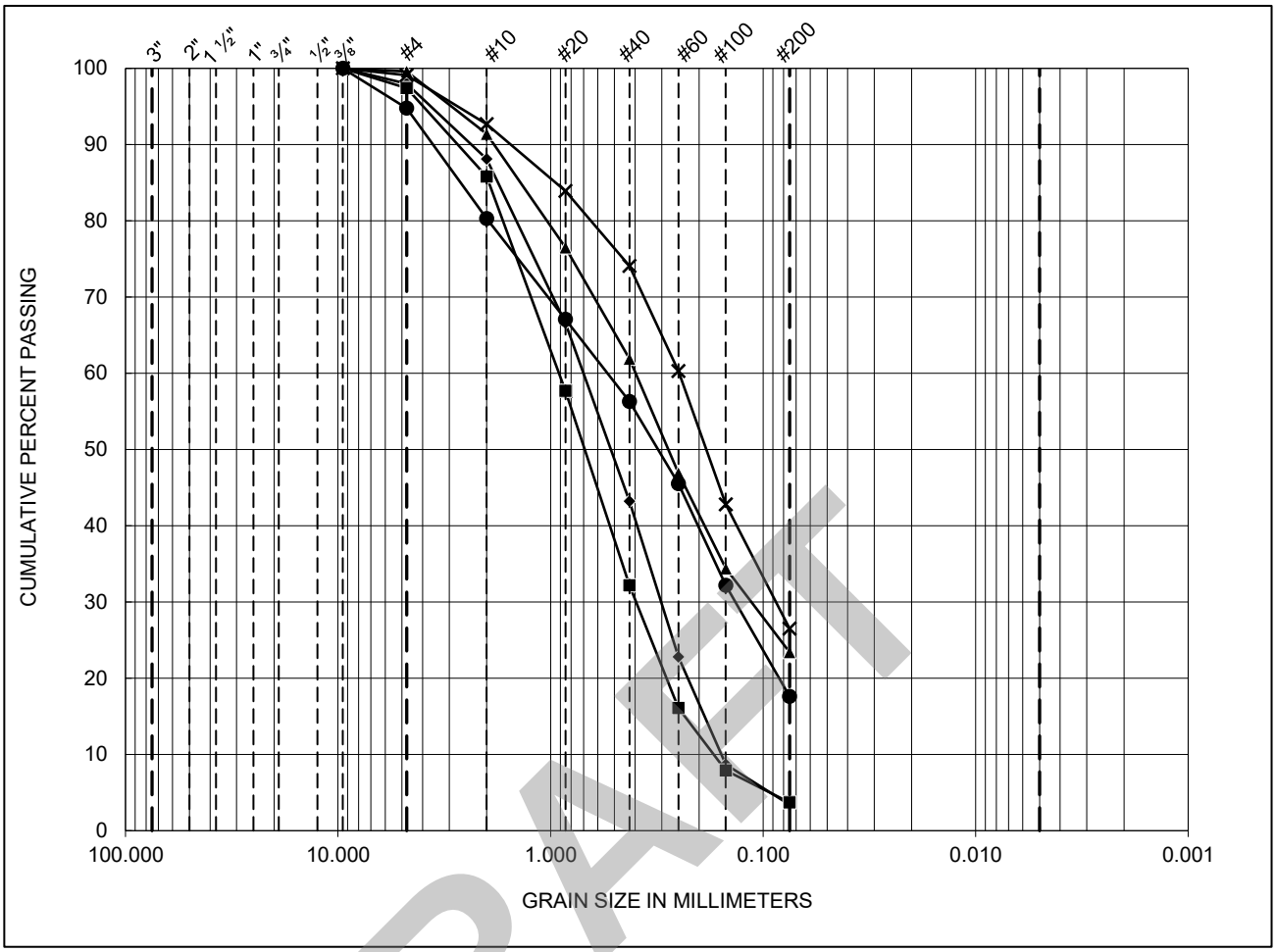
PROJECT NO.:	20234673.001A
TESTED BY:	C.Massa
DATE:	7/13/2023
CHECKED BY:	M.Magaña
DATE:	8/1/2023

GRAIN SIZE DISTRIBUTION

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE

B-4



COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	KB-18	2	5	2.0	94.6	3.4	NM	NM	NM	Poorly Graded Sand (SP)
■	KB-19	1	5	2.6	93.7	3.7	NM	NM	NM	Poorly Graded Sand (SP)
▲	KB-21	1	5	0.4	76.2	23.4	NM	NM	NM	Silty Sand (SM)
×	KB-22	3	10	0.9	72.6	26.5	NM	NM	NM	Silty Sand (SM)
●	KB-23	1	5	5.2	77.2	17.6	NM	NM	NM	Silty Sand (SM)

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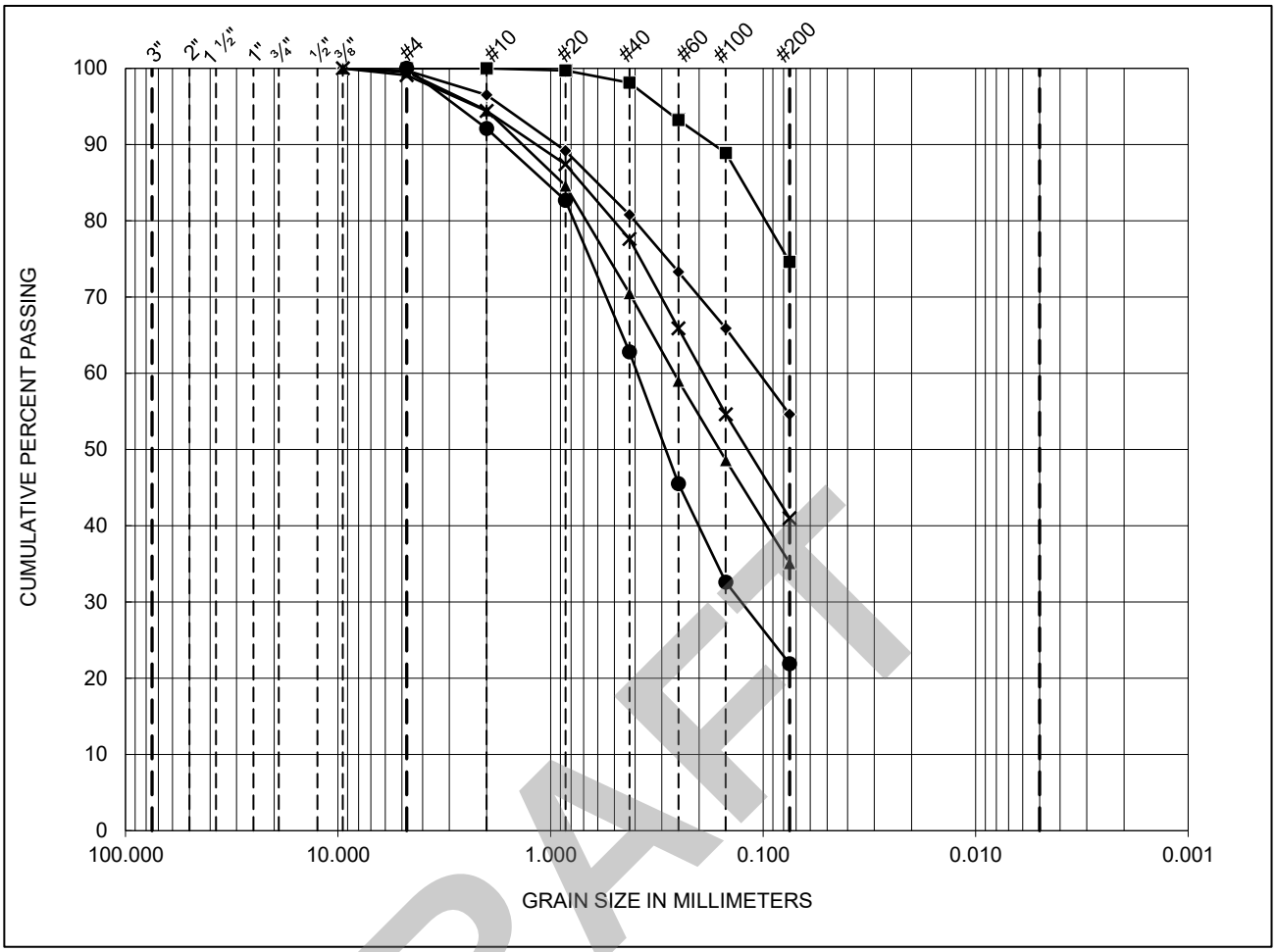
PROJECT NO.:	20234673.001A
TESTED BY:	C.Massa
DATE:	7/13/2023
CHECKED BY:	M.Magaña
DATE:	8/1/2023

GRAIN SIZE DISTRIBUTION

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE

B-5



COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	KB-25	2	10	0.3	45.1	54.6	NM	NM	NM	Sandy Lean Clay (CL)
■	KB-26	3	10	0.0	25.4	74.6	32	21	11	Lean Clay with Sand (CL)
▲	KB-27	1	5	0.5	64.4	35.1	NM	NM	NM	Clayey Sand (SC)
×	KB-28	3	10	0.9	58.1	41.0	NM	NM	NM	Clayey Sand (SC)
●	KB-29	1	5	0	78.1	21.9	NM	NM	NM	Silty Sand (SM)

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PROJECT NO.:	20234673.001A
TESTED BY:	C.Massa
DATE:	7/13/2023
CHECKED BY:	M.Magaña
DATE:	8/1/2023

GRAIN SIZE DISTRIBUTION

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE

B-6

COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	KB-30	3	10	1.6	71.1	27.3	NM	NM	NM	Silty Sand (SM)
■	KB-31	1	5	1.6	55.4	43.0	NM	NM	NM	Clayey Sand (SC)
▲	KB-32	3	10	1.0	60.2	38.8	NM	NM	NM	Clayey Sand (SC)
×	KB-33	1	5	0.6	91.1	8.3	NM	NM	NM	Well Graded Sand w/Silt (SW-SM)
●	KB-34	2	5	25.1	60.7	14.2	NM	NM	NM	Clayey Sand w/Gravel (SC)

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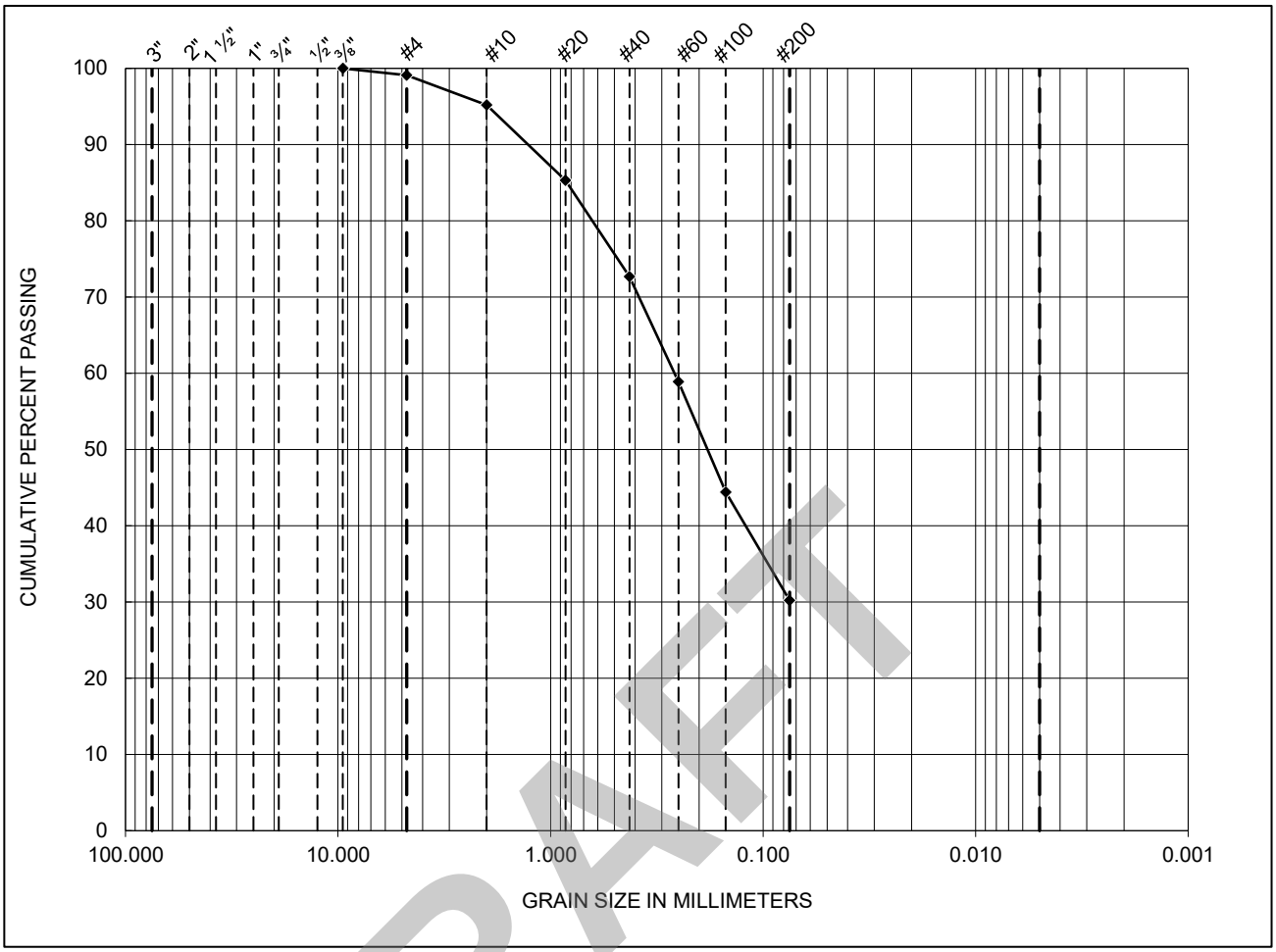
PROJECT NO.:	20234673.001A
TESTED BY:	C.Massa
DATE:	7/13/2023
CHECKED BY:	M.Magaña
DATE:	8/1/2023

GRAIN SIZE DISTRIBUTION

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE

B-7



COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	KB-35	1	5	0.9	68.9	30.2	23	18	5	Silty Clayey Sand (SC-SM)

KLEINFELDER
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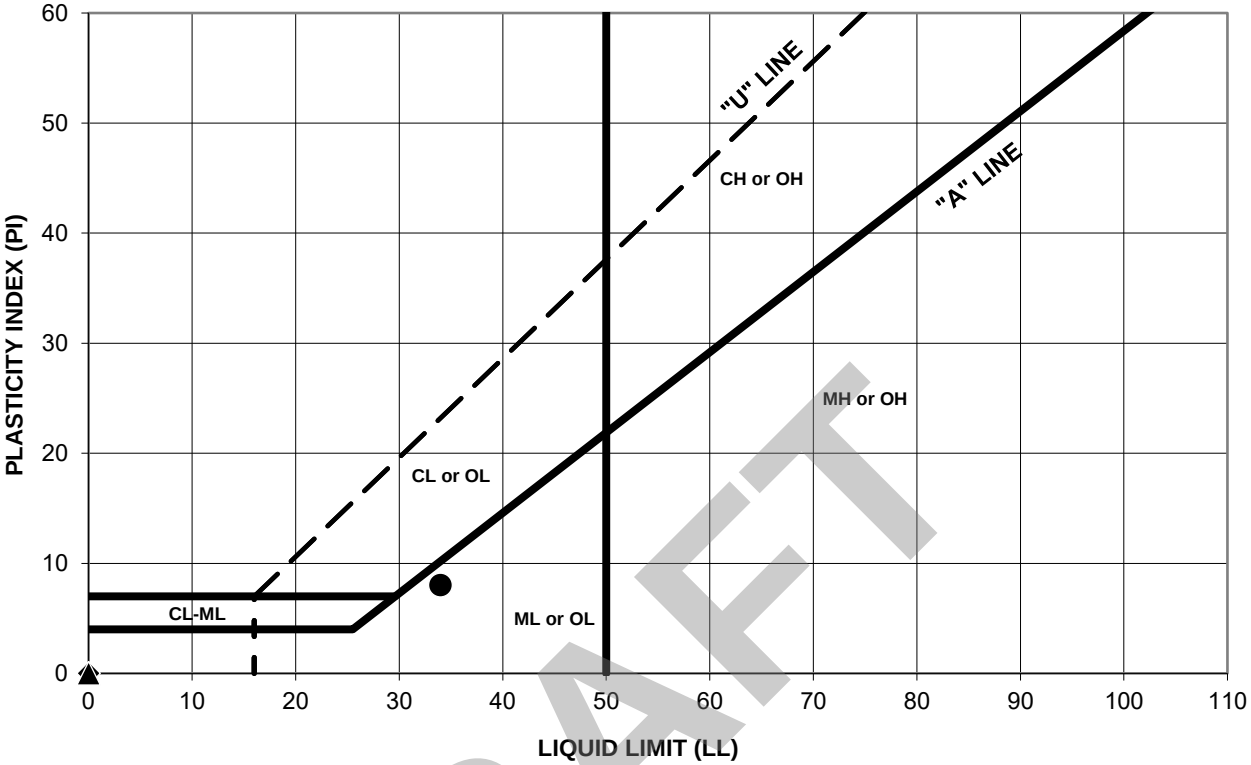
PROJECT NO.:	20234673.001A
TESTED BY:	C.Massa
DATE:	7/13/2023
CHECKED BY:	M.Magaña
DATE:	8/1/2023

GRAIN SIZE DISTRIBUTION

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE

B-8



SYMBOL	SAMPLE IDENTIFICATION			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft)	LL	PL	PI	
◆	KB-3	2	5	NP	NP	NP	Silty Sand (SM)
●	KB-6	3	10	34	26	8	Silty Sand (SM)
▲	KB-7	3	10	NP	NP	NP	Sandy Silt (ML)

NP = Non Plastic

Testing performed in general accordance with ASTM D4318

KLEINFELDER
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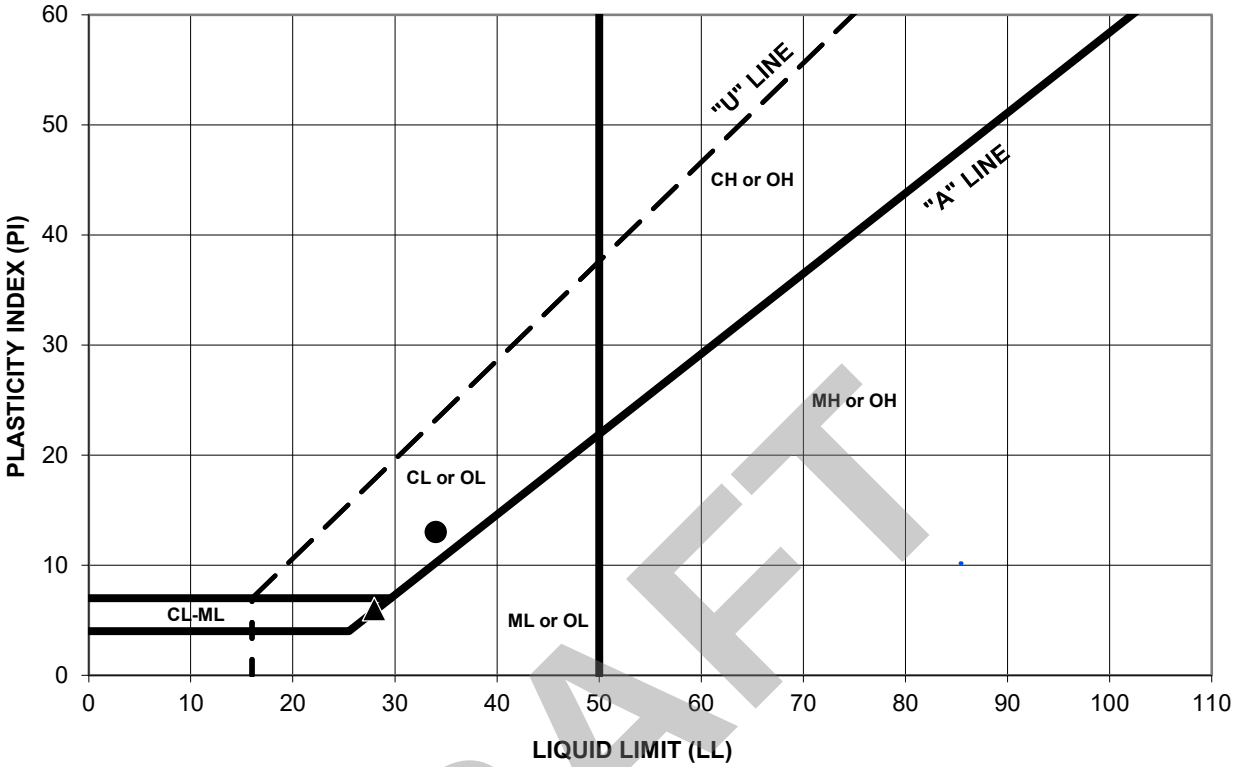
PROJECT NO.:	20234673.001A
TESTED BY:	J.Calderon
DATE:	12/4/2023
CHECKED BY:	M.Magaña
DATE:	12/6/2023

PLASTICITY TESTING

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE

B-9



SYMBOL	SAMPLE IDENTIFICATION			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft)	LL	PL	PI	
◆	KB-20	2	5	NP	NP	NP	Silty Sand (SM)
●	KB-20	5	20	34	21	13	Lean Clay (CL)
▲	KB-20	6	25	28	22	6	Silty Clayey Sand (SC-SM)
×	KB-21	2	10	NP	NP	NP	Silty Sand (SM)
■	KB-22	3	10	NP	NP	NP	Silty Sand (SM)

NP = Non Plastic

Testing performed in general accordance with ASTM D4318

KLEINFELDER
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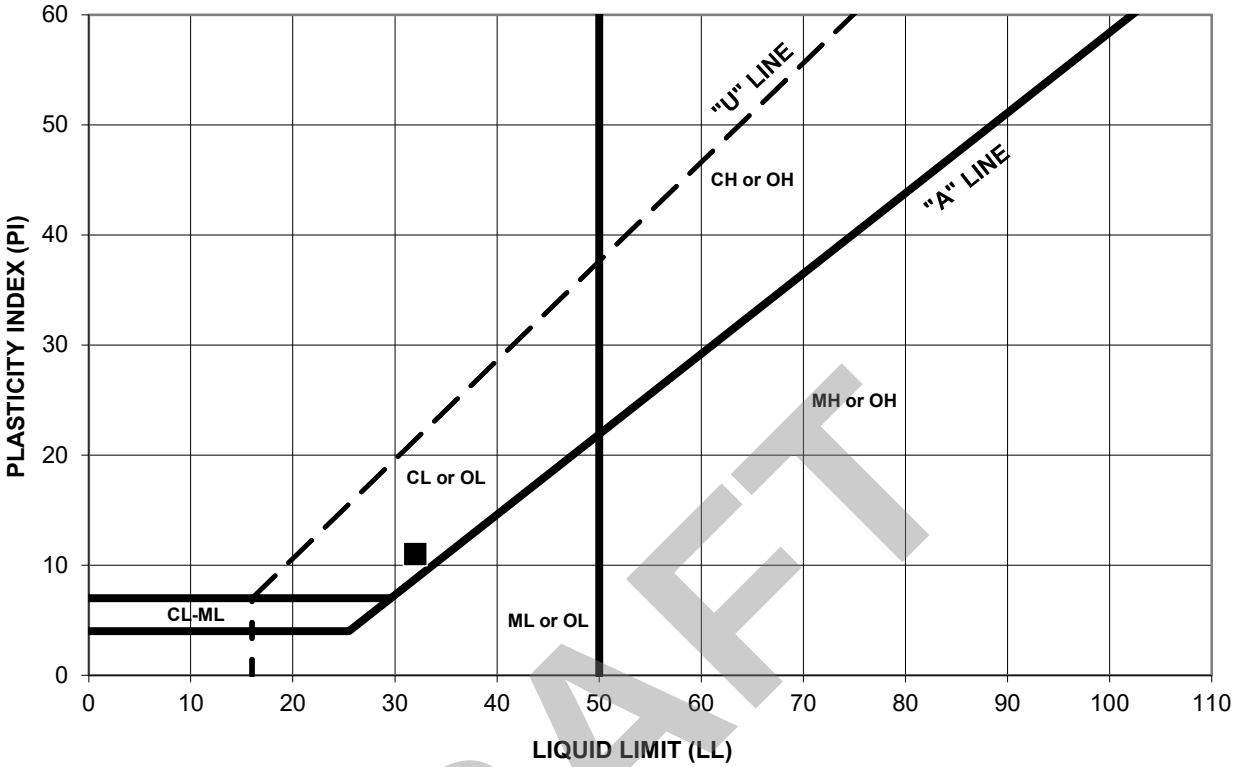
PROJECT NO.:	20234673.001A
TESTED BY:	J.Calderon
DATE:	7/10/2023
CHECKED BY:	M.Magaña
DATE:	8/1/2023

PLASTICITY TESTING

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE

B-10



SYMBOL	SAMPLE IDENTIFICATION			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft)	LL	PL	PI	
◆	KB-23	6	30	NP	NP	NP	Silty Sand (SM)
●	KB-23	7	35	NP	NP	NP	Silty Sand (SM)
▲	KB-25	1	5	NP	NP	NP	Silty Sand (SM)
×	KB-26	1	0-5	NP	NP	NP	Silty Sand (SM)
■	KB-26	3	10	32	21	11	Lean Clay with Sand (CL)

NP = Non Plastic

Testing performed in general accordance with ASTM D4318

KLEINFELDER
Bright People. Right Solutions.

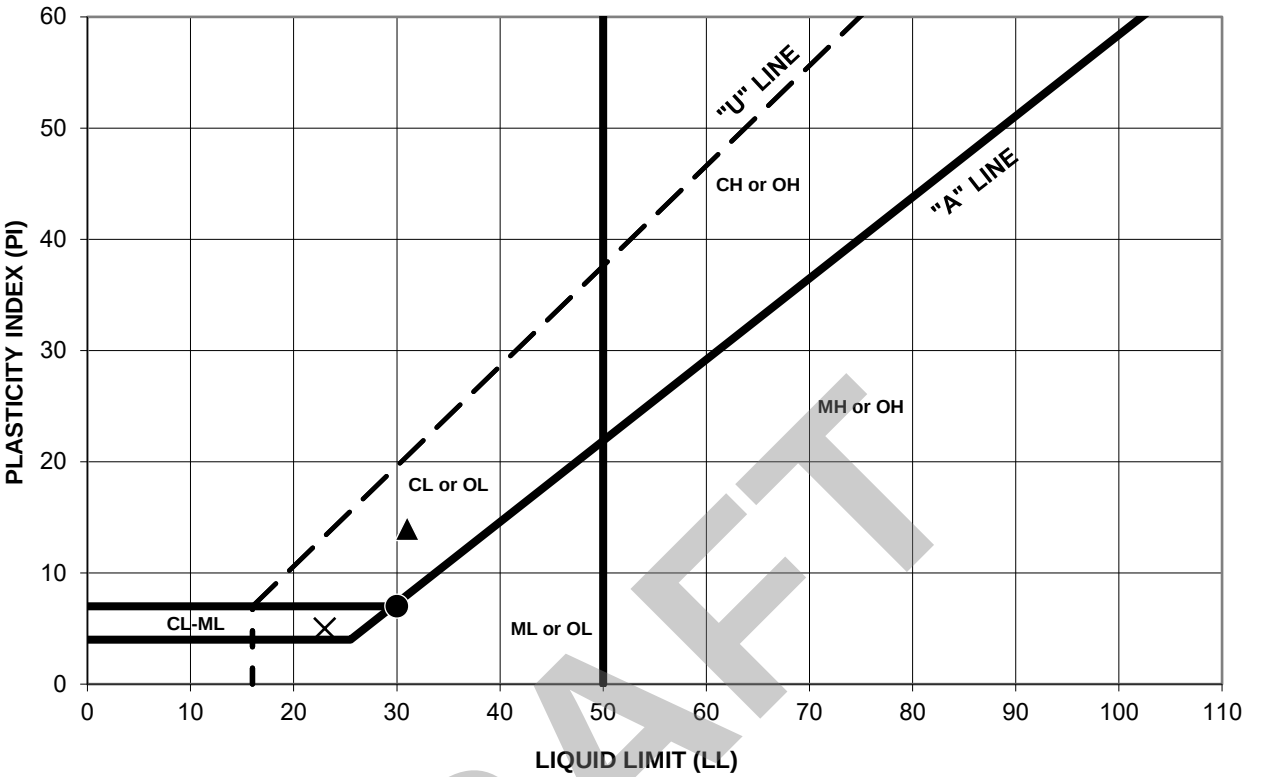
PROJECT NO.:	20234673.001A
TESTED BY:	J.Calderon
DATE:	7/10/2023
CHECKED BY:	M.Magaña
DATE:	8/1/2023

PLASTICITY TESTING

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE

B-11



SYMBOL	SAMPLE IDENTIFICATION			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft)	LL	PL	PI	
◆	KB-28	2	5	NP	NP	NP	Silty Sand (SM)
●	KB-30	5	20	30	23	7	Sandy Silt (ML)
▲	KB-34	3	10	31	17	14	Sandy Lean Clay (CL)
×	KB-35	1	5	23	18	5	Silty Clayey Sand (SC-SM)

NP = Non Plastic

Testing performed in general accordance with ASTM D4318

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20234673.001A
TESTED BY:	J.Calderon
DATE:	7/10/2023
CHECKED BY:	M.Magaña
DATE:	8/1/2023

PLASTICITY TESTING

South/North Wine Country Sewer
Eastern Municipal Water District
Temecula, California

FIGURE

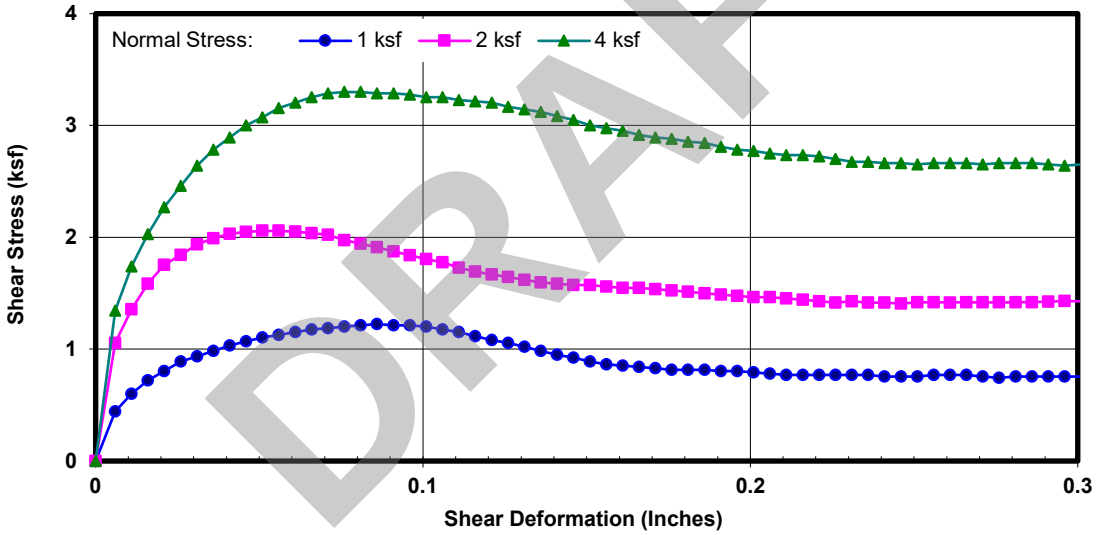
B-12

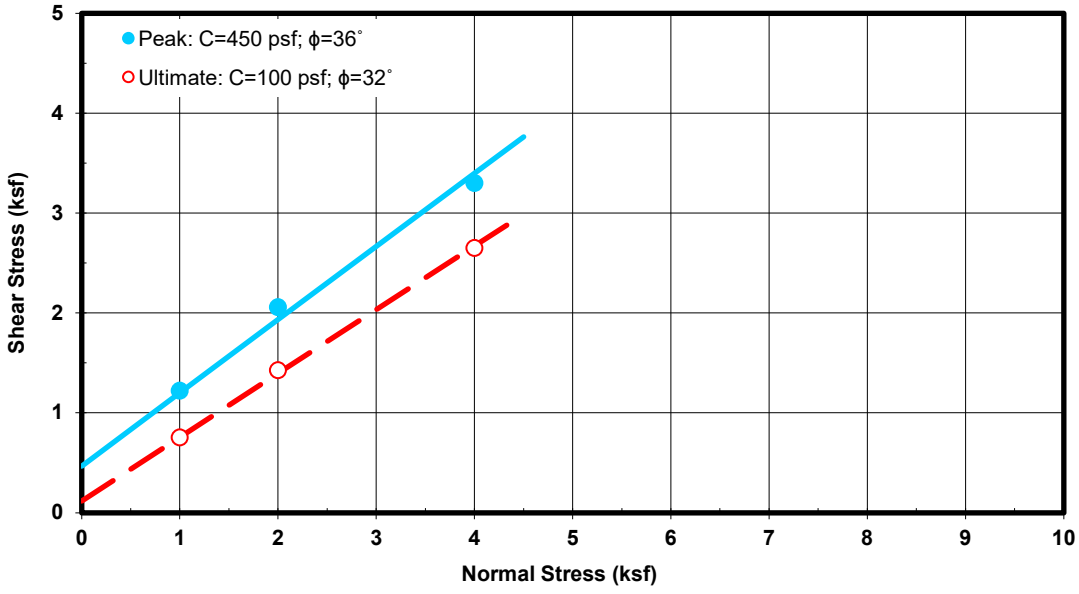
AP Engineering and Testing, Inc.
DBE|MBE|SBE
2607 Pomona Boulevard | Pomona, CA 91768
t. 909.869.6316 | f. 909.869.6318 | www.aplaboratory.com

DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	South/North Wine Country Sewer Eastern Municipal W	**Tested By:**	ST	**Date:**	12/01/23
Project No.:	20234673.001A	**Computed By:**	JP	**Date:**	12/06/23
Boring No.:	KB-2	**Checked by:**	AP	**Date:**	12/06/23
Sample No.:	3	**Depth (ft):**	10		
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:**	Regular		

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
134.4	118.2	13.7	15.7	87	100	1	1.224	0.756
						2	2.058	1.428
						4	3.300	2.652





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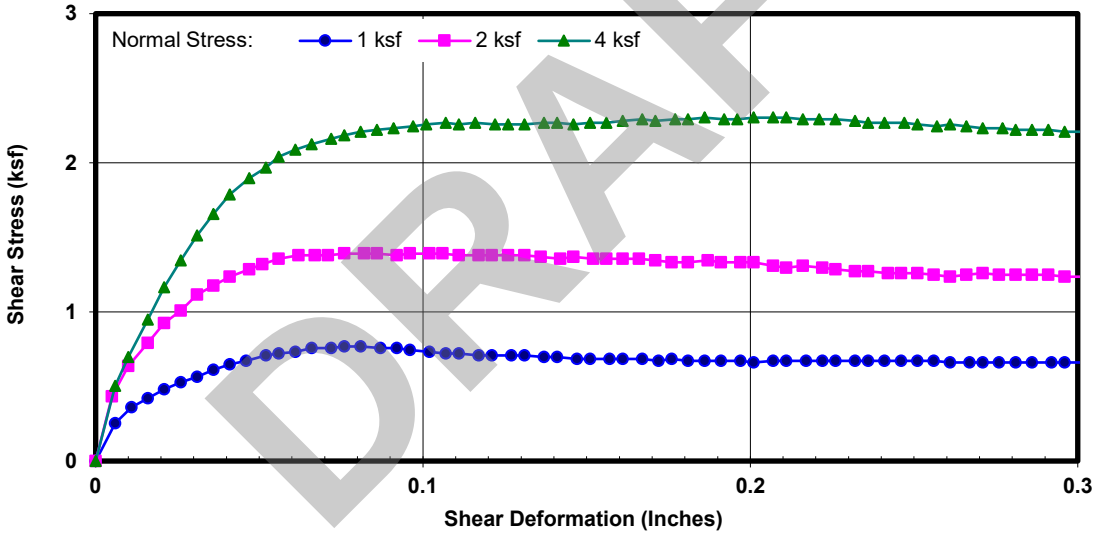
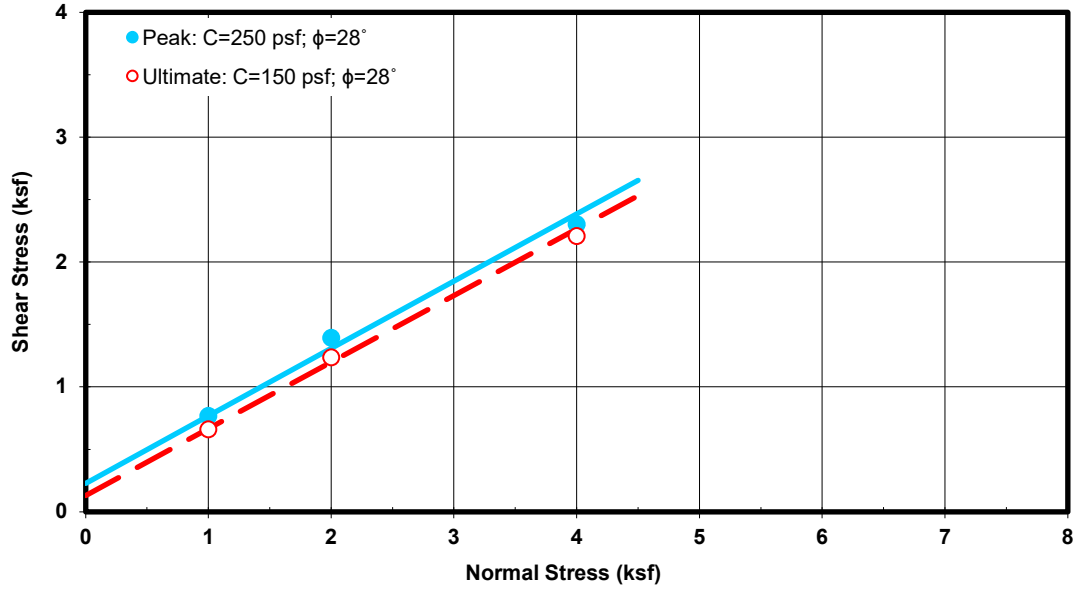
DBE|MBE|SBE
2607 Pomona Boulevard | Pomona, CA 91768
t. 909.869.6316 | f. 909.869.6318 | www.aplaboratory.com

DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name: South/North Wine Country Sewer Eastern Municipal W **Tested By:** ST **Date:** 12/01/23
Project No.: 20234673.001A **Computed By:** JP **Date:** 12/06/23
Boring No.: KB-5 **Checked by:** AP **Date:** 12/06/23
Sample No.: 2 **Depth (ft):** 5
Sample Type: Mod. Cal.
Soil Description: Sandy Silt
Test Condition: Inundated **Shear Type:** Regular

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
112.1	103.3	8.5	22.9	36	98	1	0.768	0.660
						2	1.392	1.236
						4	2.304	2.208





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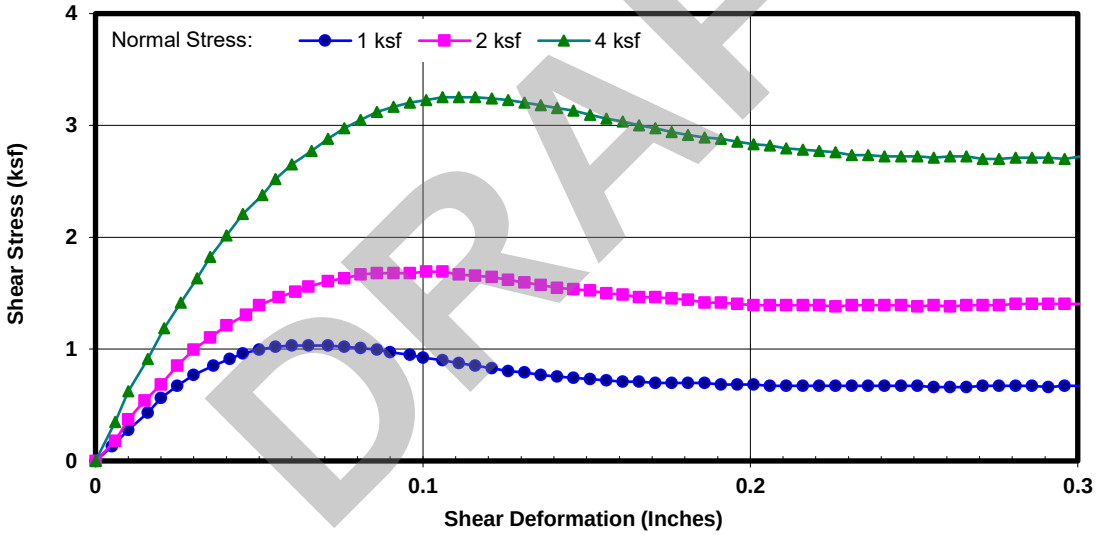
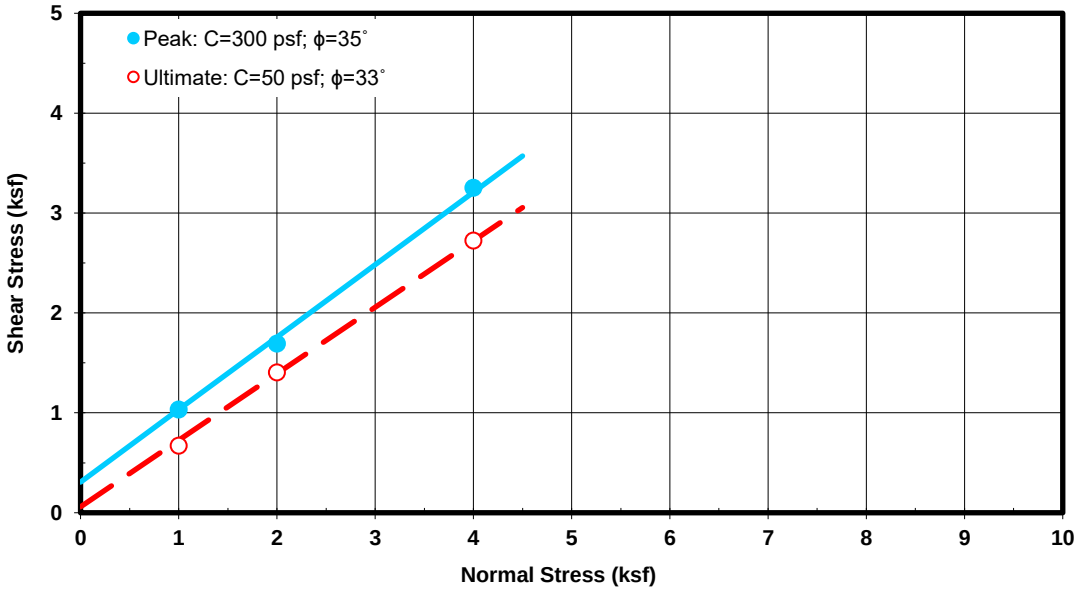
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	South/North Wine Country Sewer Eastern Municipal Water District	**Tested By:**	AP	**Date:**	06/19/23
Project No.:	20234673.001A	**Computed By:**	NR	**Date:**	06/23/23
Boring No.:	KB-8	**Checked by:**	AP	**Date:**	06/23/23
Sample No.:	2	**Depth (ft):**	5		
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:**	Regular		

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
116.1	108.6	6.9	19.0	34	93	1	1.032	0.672
						2	1.692	1.404
						4	3.252	2.724





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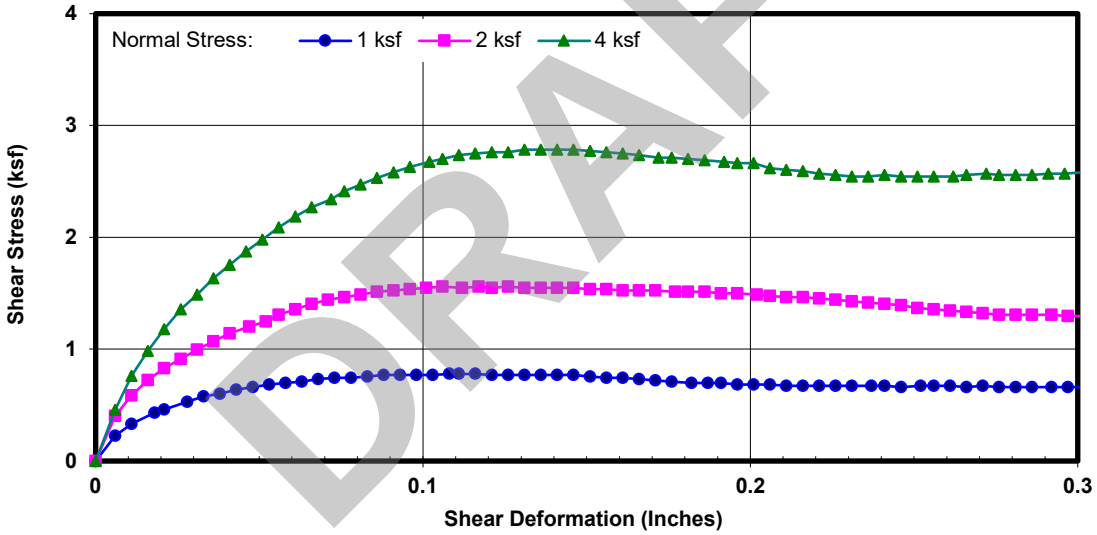
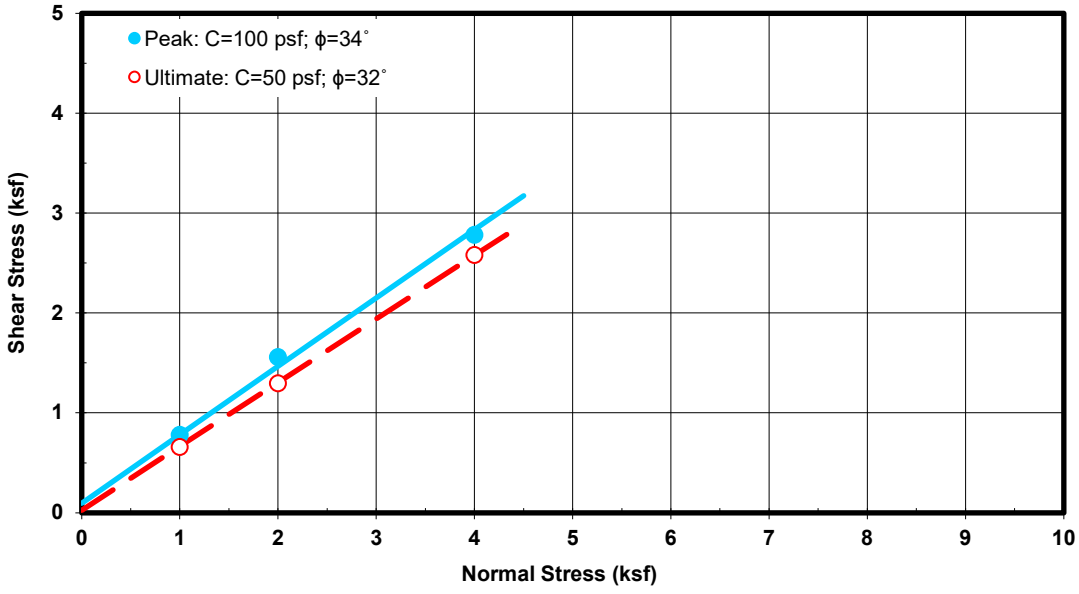
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	South/North Wine Country Sewer Eastern Municipal W	**Tested By:**	ST	**Date:**	12/01/23
Project No.:	20234673.001A	**Computed By:**	JP	**Date:**	12/06/23
Boring No.:	KB-8A	**Checked by:**	AP	**Date:**	12/06/23
Sample No.:	3	**Depth (ft):**	10		
Sample Type:	Mod. Cal.				
Soil Description:	Poorly-Graded Sand w/silt & gravel				
Test Condition:	Inundated	**Shear Type:**	Regular		

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
110.7	108.1	2.4	18.3	12	88	1	0.780	0.660
						2	1.560	1.296
						4	2.784	2.580





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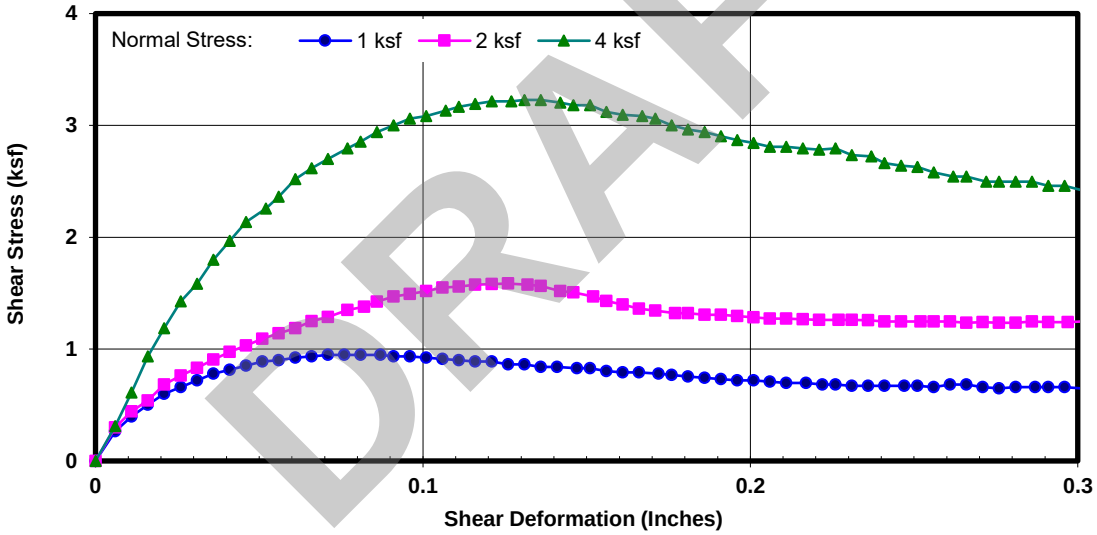
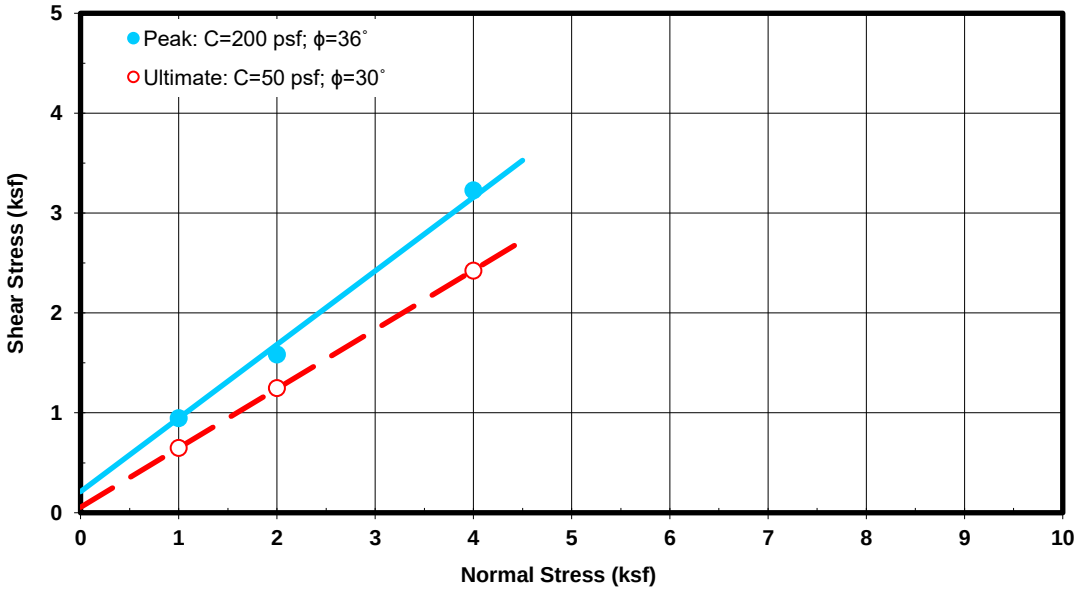
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	South/North Wine Country Sewer Eastern Municipal Water District	**Tested By:**	AP	**Date:**	06/19/23
Project No.:	20234673.001A	**Computed By:**	NR	**Date:**	06/23/23
Boring No.:	KB-11	**Checked by:**	AP	**Date:**	06/23/23
Sample No.:	1	**Depth (ft):**	5		
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:**	Regular		

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
104.3	102.0	2.3	21.9	9	91	1	0.948	0.648
						2	1.586	1.248
						4	3.228	2.424





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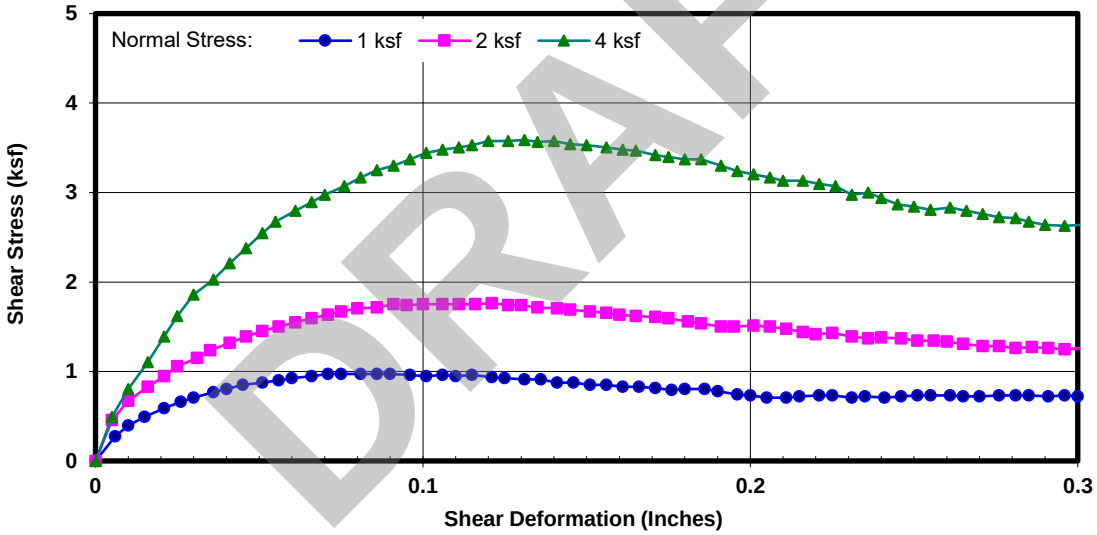
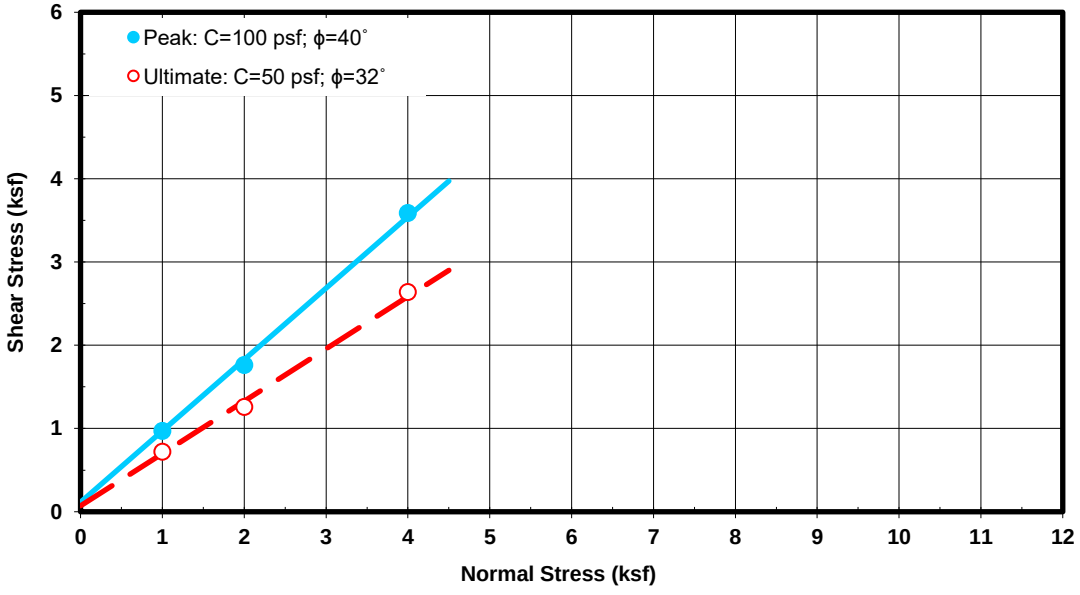
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name: South/North Wine Country Sewer Eastern Municipal Water District
Project No.: 20234673.001A
Boring No.: KB-13
Sample No.: 1 **Depth (ft):** 5
Sample Type: Mod. Cal.
Soil Description: Sand w/silt
Test Condition: Inundated **Shear Type:** Regular

Tested By: LS **Date:** 06/19/23
Computed By: NR **Date:** 06/23/23
Checked by: AP **Date:** 06/23/23

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
109.8	109.4	0.4	17.6	2	88	1	0.972	0.720
						2	1.764	1.260
						4	3.588	2.640





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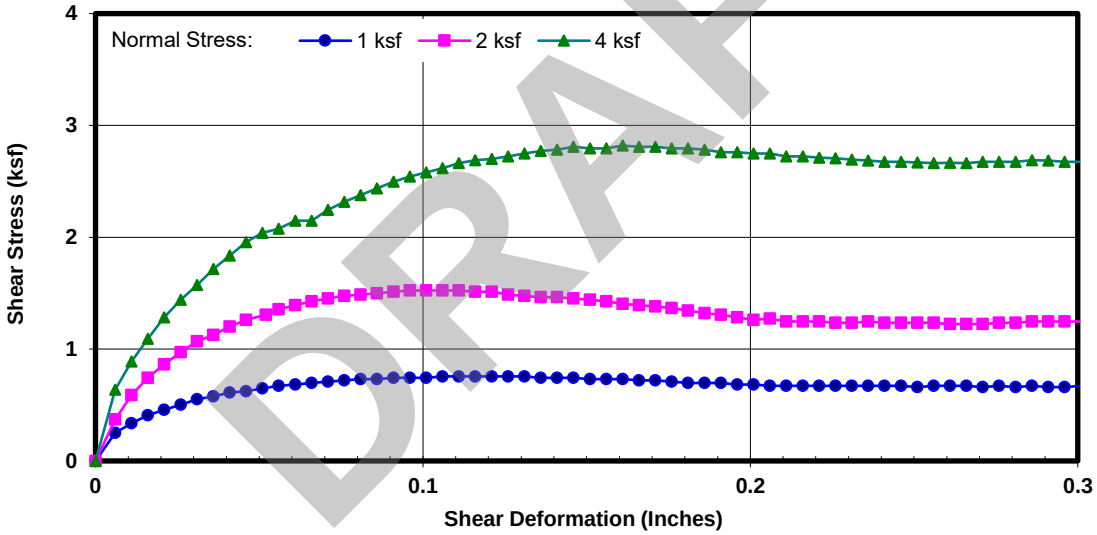
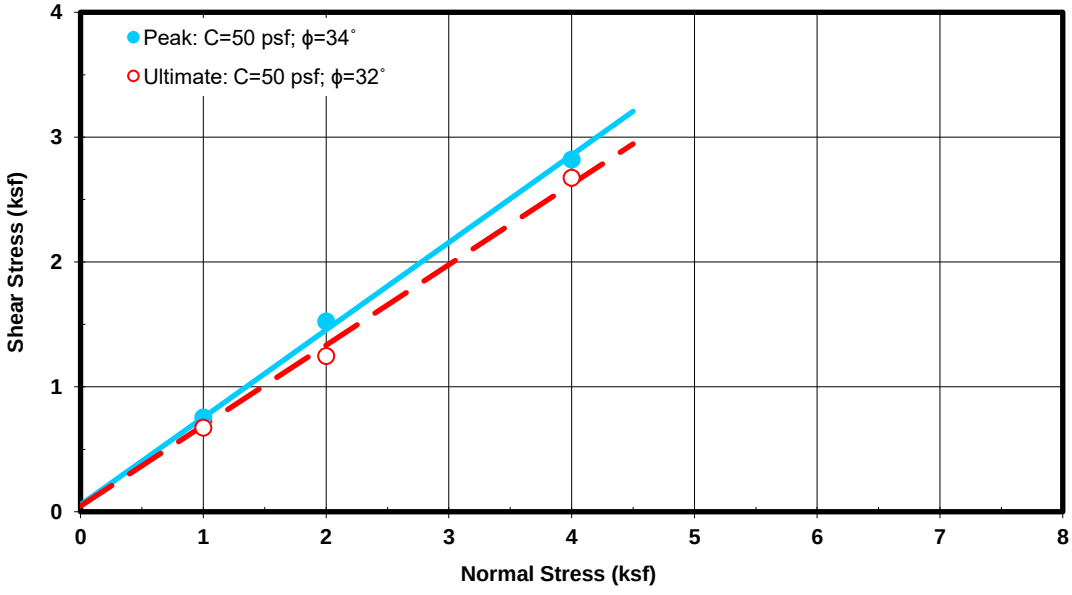
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	South/North Wine Country Sewer Eastern Municipal Water District	**Tested By:**	AP	**Date:**	06/20/23
Project No.:	20234673.001A	**Computed By:**	NR	**Date:**	06/23/23
Boring No.:	KB-16	**Checked by:**	AP	**Date:**	06/23/23
Sample No.:	2	**Depth (ft):**	5		
Sample Type:	Mod. Cal.				
Soil Description:	Sand w/silt				
Test Condition:	Inundated	**Shear Type:**	Regular		

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
97.4	96.9	0.5	24.3	2	89	1	0.756	0.672
						2	1.524	1.248
						4	2.820	2.675





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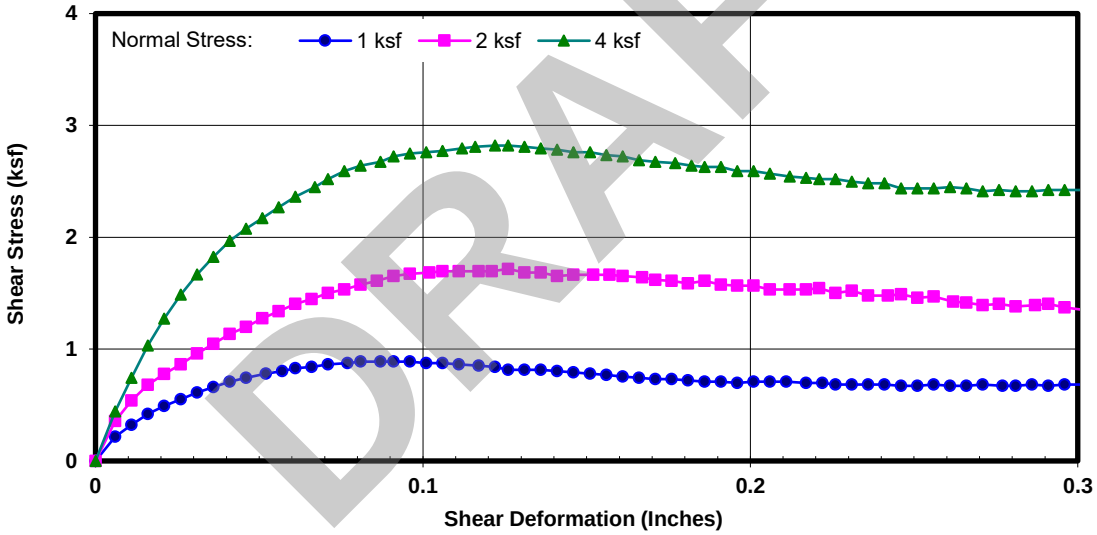
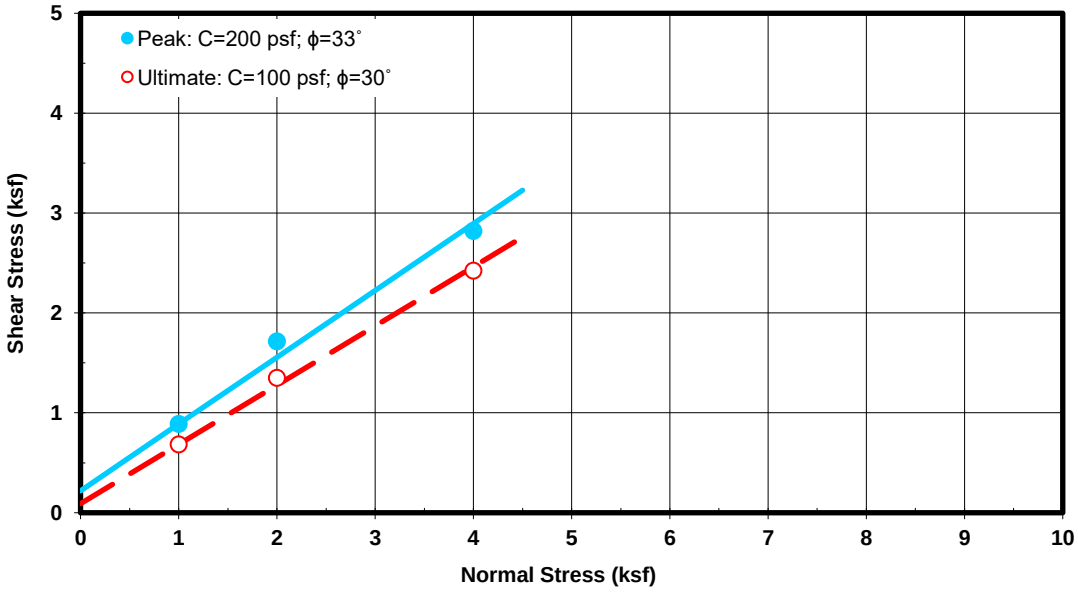
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	South/North Wine Country Sewer Eastern Municipal Water District	**Tested By:**	AP	**Date:**	06/20/23
Project No.:	20234673.001A	**Computed By:**	NR	**Date:**	06/23/23
Boring No.:	KB-17	**Checked by:**	AP	**Date:**	06/23/23
Sample No.:	1	**Depth (ft):**	5		
Sample Type:	Mod. Cal.				
Soil Description:	Sand w/silt				
Test Condition:	Inundated	**Shear Type:**	Regular		

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
116.2	110.1	5.5	17.2	28	88	1	0.888	0.684
						2	1.717	1.350
						4	2.820	2.424





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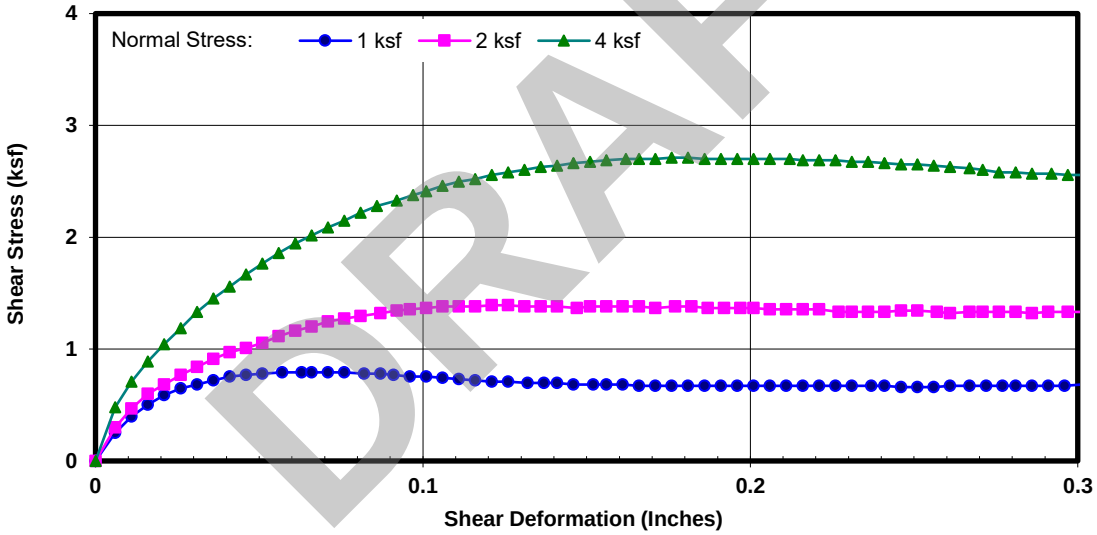
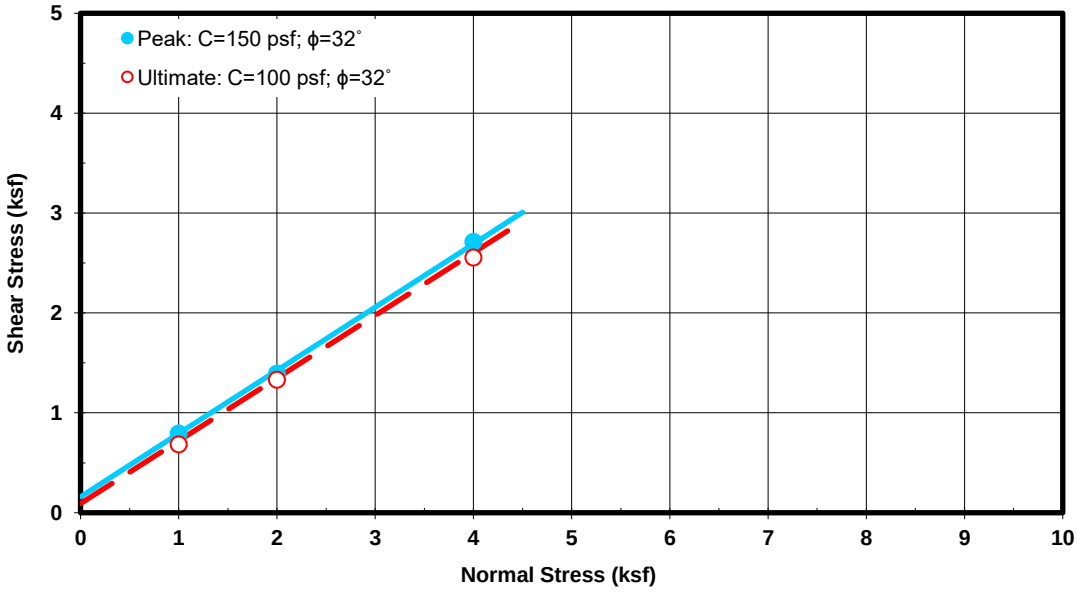
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	South/North Wine Country Sewer Eastern Municipal Water District	**Tested By:**	AP	**Date:**	06/21/23
Project No.:	20234673.001A	**Computed By:**	NR	**Date:**	06/23/23
Boring No.:	KB-20	**Checked by:**	AP	**Date:**	06/23/23
Sample No.:	2	**Depth (ft):**	5		
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:**	Regular		

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
123.5	107.6	14.8	18.7	71	89	1	0.792	0.684
						2	1.392	1.332
						4	2.712	2.556





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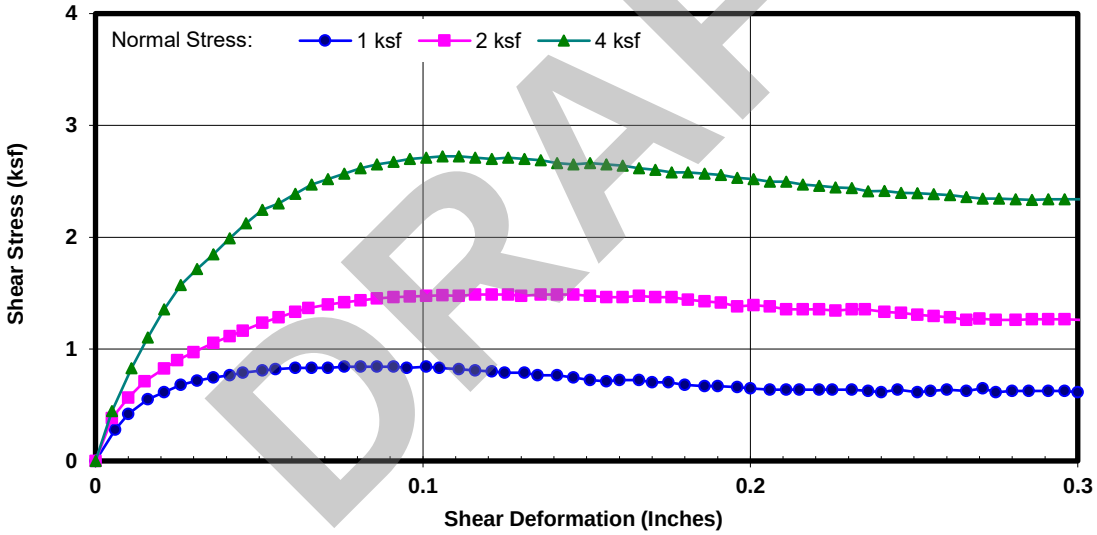
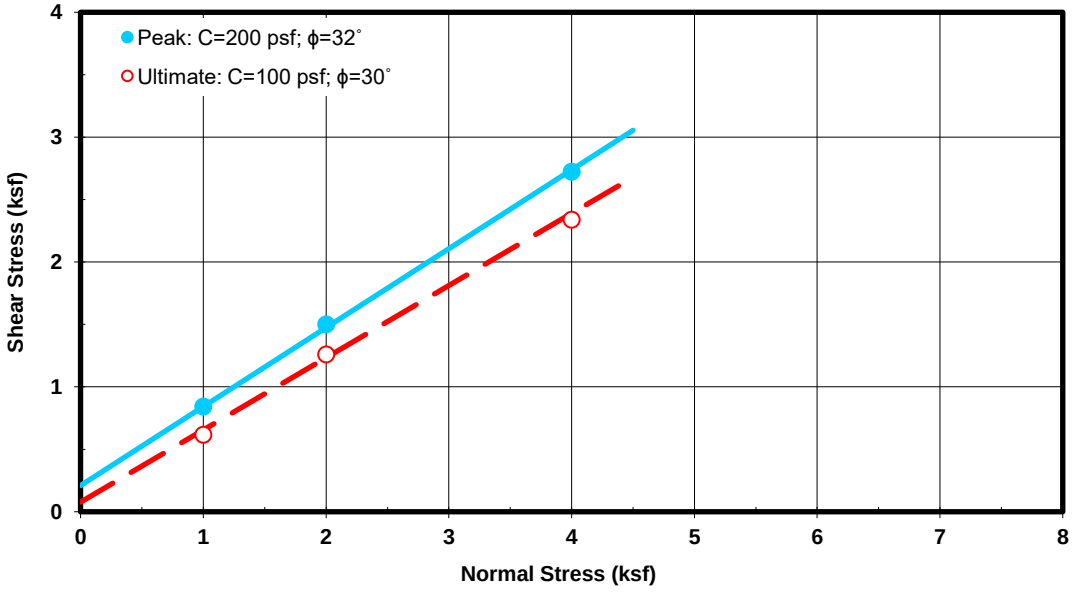
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	South/North Wine Country Sewer Eastern Municipal Water District	**Tested By:**	ST	**Date:**	06/21/23
Project No.:	20234673.001A	**Computed By:**	NR	**Date:**	06/23/23
Boring No.:	KB-22	**Checked by:**	AP	**Date:**	06/23/23
Sample No.:	2	**Depth (ft):**	5		
Sample Type:	Mod. Cal.				
Soil Description:	Sand w/silt				
Test Condition:	Inundated	**Shear Type:**	Regular		

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
111.3	104.7	6.3	20.5	28	91	1	0.842	0.616
						2	1.500	1.260
						4	2.724	2.340





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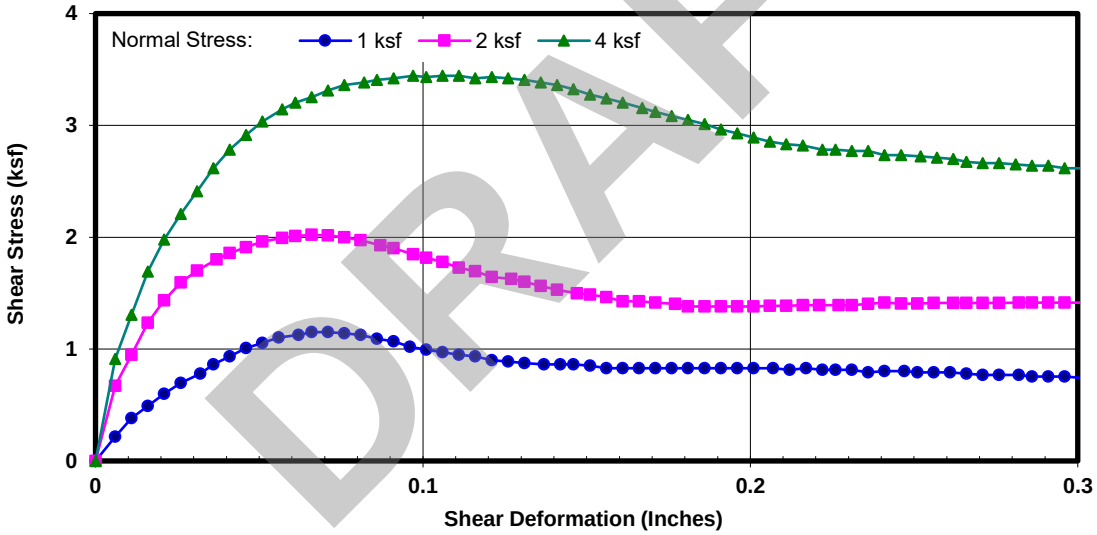
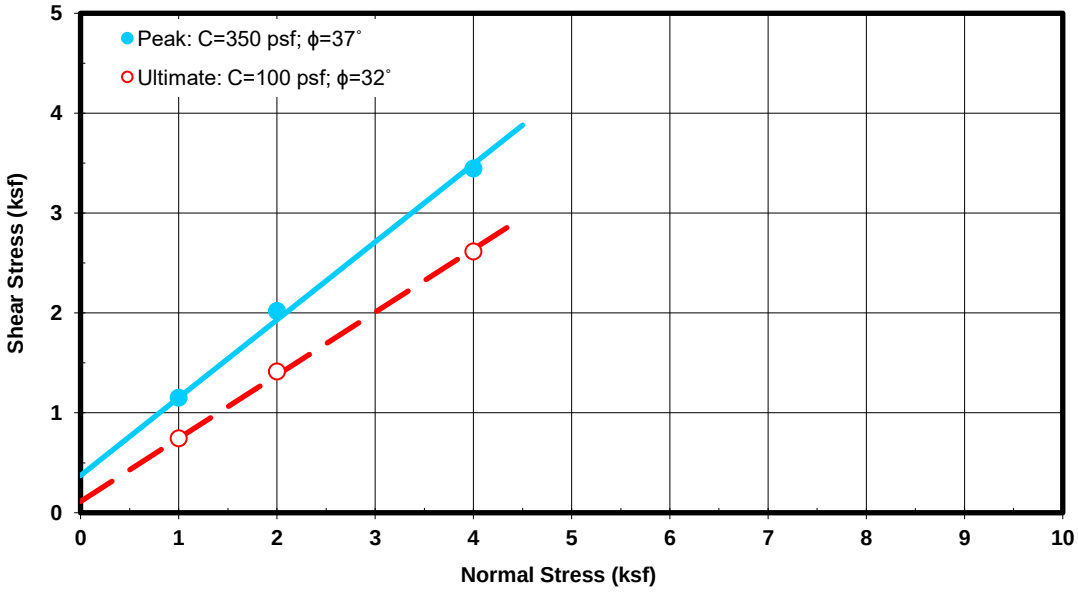
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	South/North Wine Country Sewer Eastern Municipal Water District	**Tested By:**	ST	**Date:**	06/23/23
Project No.:	20234673.001A	**Computed By:**	NR	**Date:**	06/23/23
Boring No.:	KB-24	**Checked by:**	AP	**Date:**	06/23/23
Sample No.:	2	**Depth (ft):**	5		
Sample Type:	Mod. Cal.				
Soil Description:	Sand w/silt				
Test Condition:	Inundated	**Shear Type:**	Regular		

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
127.2	119.9	6.1	14.7	41	98	1	1.152	0.744
						2	2.021	1.416
						4	3.444	2.616





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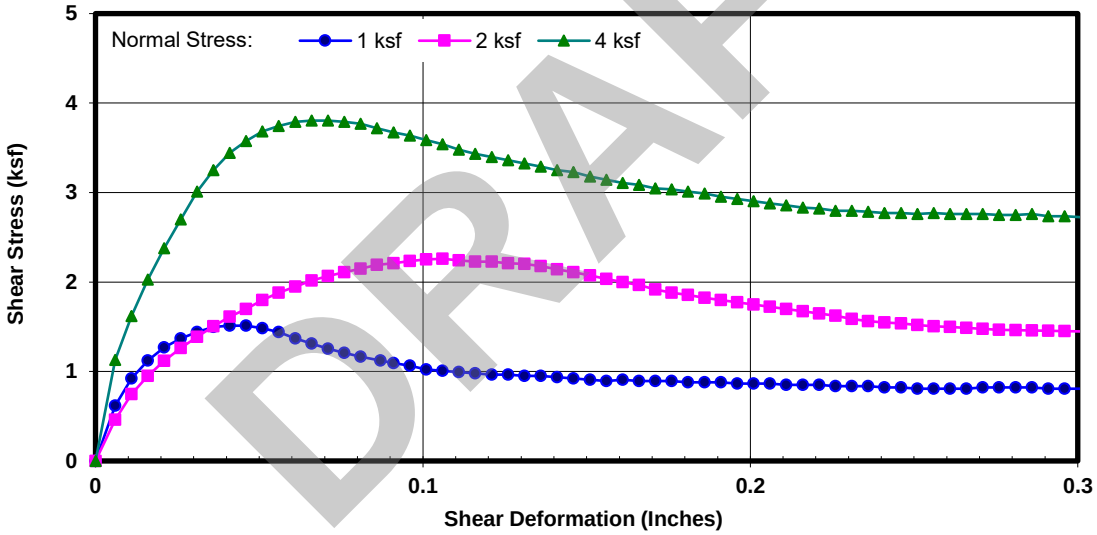
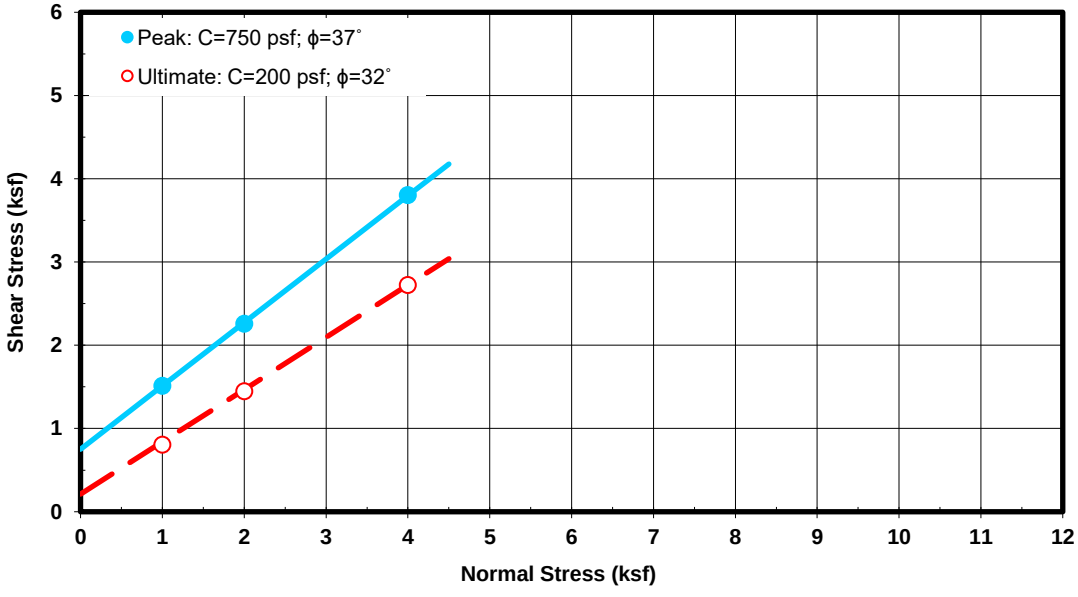
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	South/North Wine Country Sewer Eastern Municipal Water District	**Tested By:**	AP	**Date:**	06/21/23
Project No.:	20234673.001A	**Computed By:**	NR	**Date:**	06/23/23
Boring No.:	KB-25	**Checked by:**	AP	**Date:**	06/23/23
Sample No.:	1	**Depth (ft):**	5		
Sample Type:	Mod. Cal.				
Soil Description:	Sandy Clay				
Test Condition:	Inundated	**Shear Type:**	Regular		

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
133.5	127.6	4.6	11.8	39	99	1	1.512	0.806
						2	2.260	1.448
						4	3.804	2.724





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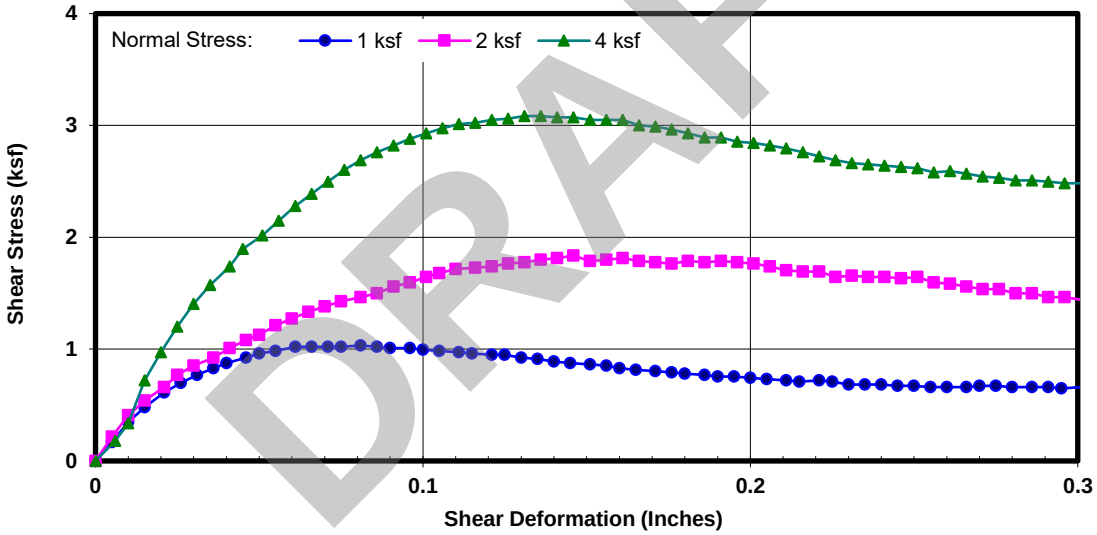
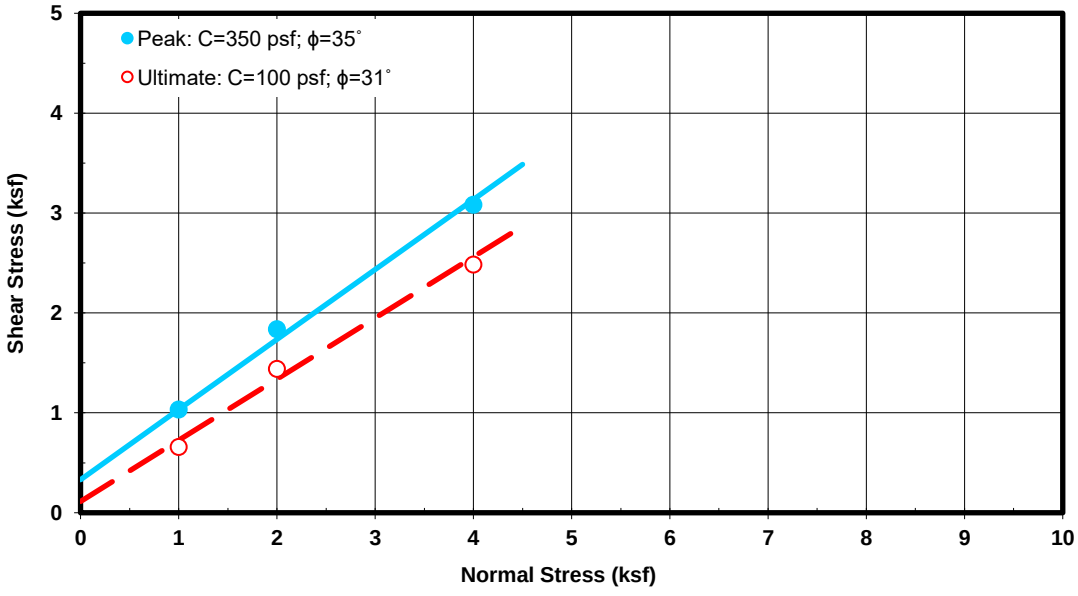
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	South/North Wine Country Sewer Eastern Municipal Water District	**Tested By:**	AP	**Date:**	06/21/23
Project No.:	20234673.001A	**Computed By:**	NR	**Date:**	06/23/23
Boring No.:	KB-31	**Checked by:**	AP	**Date:**	06/23/23
Sample No.:	2	**Depth (ft):**	10		
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:**	Regular		

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
125.1	118.5	5.6	15.5	36	99	1	1.032	0.660
						2	1.836	1.440
						4	3.084	2.484





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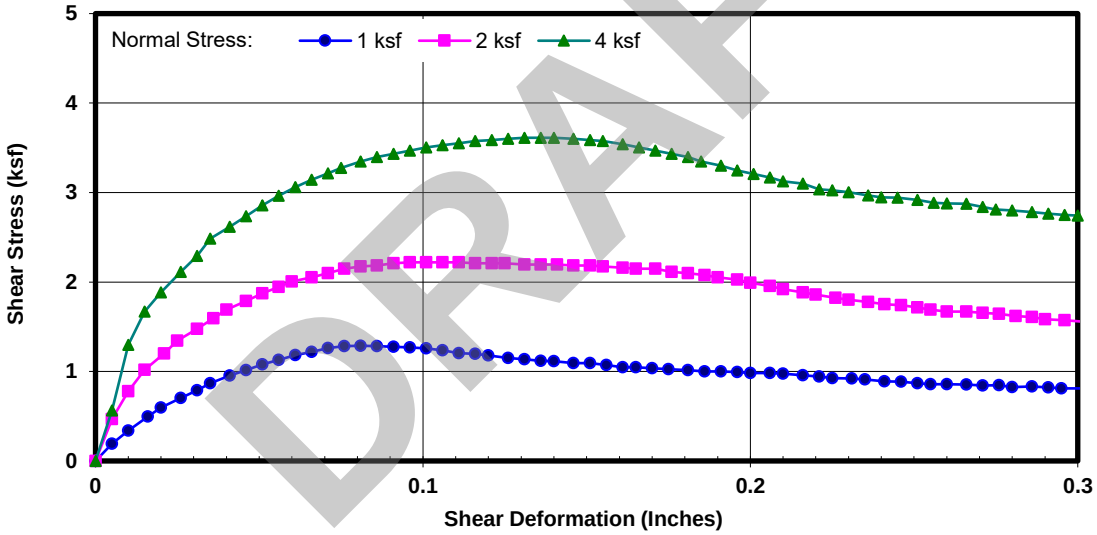
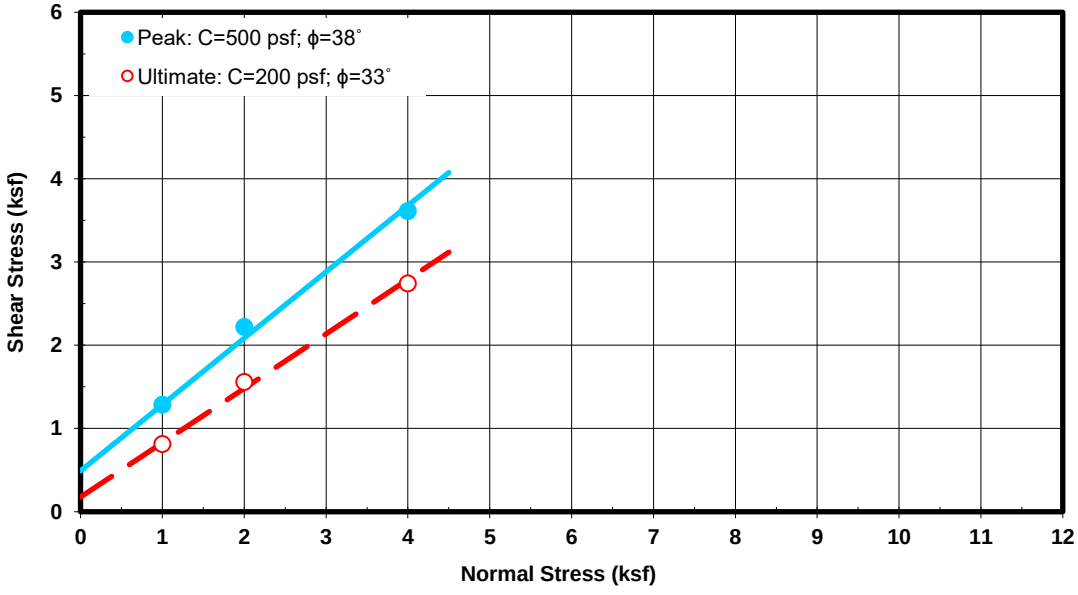
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	South/North Wine Country Sewer Eastern Municipal Water District	**Tested By:**	AP	**Date:**	06/21/23
Project No.:	20234673.001A	**Computed By:**	NR	**Date:**	06/23/23
Boring No.:	KB-34	**Checked by:**	AP	**Date:**	06/23/23
Sample No.:	2	**Depth (ft):**	5		
Sample Type:	Mod. Cal.				
Soil Description:	Clayey Sand				
Test Condition:	Inundated	**Shear Type:**	Regular		

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
138.1	127.1	8.7	11.9	72	98	1	1.288	0.812
						2	2.220	1.560
						4	3.612	2.743





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CORROSION TEST RESULTS

Client Name: Kleinfelder
Project Name: South/North Wine Country Sewer Eastern Municipal Water
Project No.: 20234673.001A
AP Job No.: 23-0628
Date: 12/01/23

Boring No.	Sample No.	Depth (feet)	Soil Description	Minimum Resistivity (ohm-cm)	pH	Sulfate Content (ppm)	Chloride Content (ppm)
KB-2	1	0-5	Clayey Sand	1,736	9.0	80	46
KB-8A	1	0-5	Silty Sand	7,317	9.1	37	26

NOTES:
Resistivity Test and pH: California Test Method 643
Sulfate Content : California Test Method 417
Chloride Content : California Test Method 422
ND = Not Detectable
NA = Not Sufficient Sample
NR = Not Requested

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CORROSION TEST RESULTS

Client Name: Kleinfelder
Project Name: South/North Wine Country Sewer Eastern Municipal Water District
Project No.: 20234673.001A

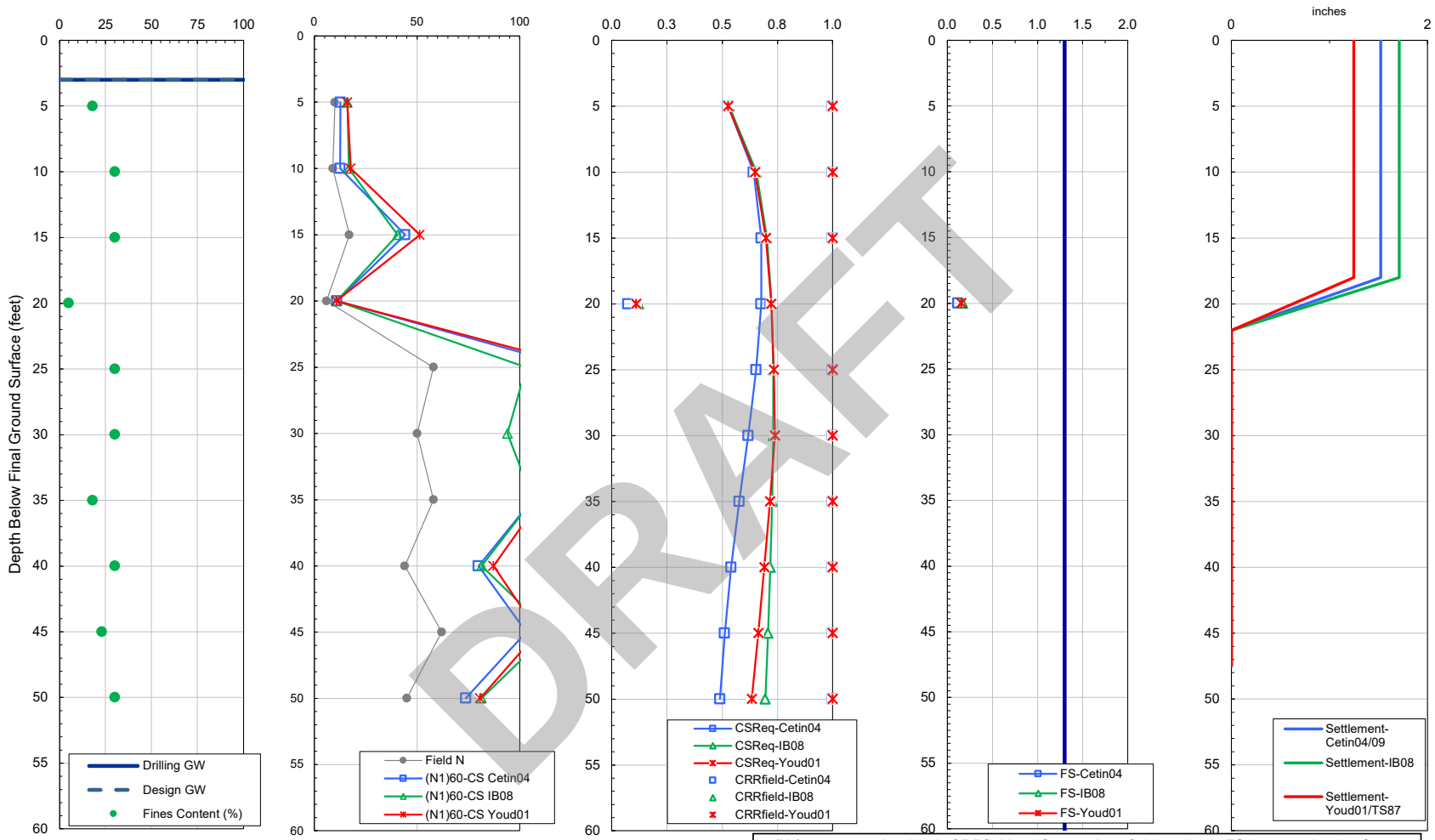
AP Job No.: 23-0628
Date: 06/22/23

Boring No.	Sample No.	Depth (feet)	Soil Description	Minimum Resistivity (ohm-cm)	pH	Sulfate Content (ppm)	Chloride Content (ppm)
KB-10	1	0-5	Silty Sand w/ gravel	4,392	7.5	33	20
KB-14	1	0-5	Silty Sand w/ gravel	3,677	7.4	33	23
KB-18	1	0-5	Silty Sand w/ gravel	17,478	7.4	16	16
KB-20	1	0-5	Silty Sand w/ gravel	15,916	7.4	17	16
KB-26	1	0-5	Clayey Sand	1,443	7.9	41	54
KB-30	1	0-5	Sandy silt w/ gravel	1,669	7.0	40	58
KB-34	1	0-5	Clayey Sand w/gravel	876	7.3	59	38

NOTES:
Resistivity Test and pH: California Test Method 643
Sulfate Content : California Test Method 417
Chloride Content : California Test Method 422
ND = Not Detectable
NA = Not Sufficient Sample
NR = Not Requested

APPENDIX C
LIQUEFACTION ANALYSIS

Boring ID:	KB-23	M_w=	7.7	Groundwater Depth During Drilling (ft) =	3.0 ft	Existing Ground Elevation =	0.0 ft	Ana. by:	HM
		PGA=	0.65g	Design Groundwater Depth (ft) =	3.0 ft	Final Ground Elevation =	0.0 ft	Checked by:	DE



1. $(N_1)_{60\text{-}CS}$ capped at 60; 2. CRRfield = 1 for non-liquefiable soils; 3. FS is capped at 2.0 for liquefiable soils and not plotted for non-liquefiable soils including soils above G.W.T.

KLEINFELDER
Bright People. Right Solutions.

Project Name:	**South/North Wine Country Sewer**
Project No.:	**20234673.001A**
Project Location:	**Temecula, CA**

LIQUEFACTION ANALYSIS

APPENDIX E-1

Greenhouse Gas Analysis for the Wine Country Sewer Project, Northern Alignment

RECON

An Employee-Owned Company

December 6, 2023

Mr. Joseph Broadhead
Eastern Municipal Water District
2270 Trumble Road
P.O. Box 8300
Perris, CA 92572

Reference: Greenhouse Gas Analysis for the Wine Country Sewer Project, Northern Alignment (RECON Number 9878-21)

Dear Mr. Broadhead:

The purpose of this report is to assess potential greenhouse gas (GHG) impacts resulting from development of the Wine Country Sewer Project, Northern Alignment (project). The analysis of impacts is based on regional guidelines, policies, and standards established by the South Coast Air Quality Management District (SCAQMD) screening level thresholds.

1.0 Project Description

The Eastern Municipal Water District (District) is proposing to construct a new sewer transmission line and associated laterals that would provide sewer service to an area within the County that is currently utilizing septic systems (Figure 1). Regional access to the project is provided via Interstate 15, located approximately 7.5 miles to the west, and local access is provided via Rancho California Road. The project site is located within the rights-of-way (ROW) of the following roadway segments, which are presented in Figure 2:

- Rancho California Road, Lomo Ventoso Lane to Buck Road
- Glenoaks Road, Rancho California Road to Camino del Vino
- Buck Road, Rancho California Road to Otis Street
- Warren Road, Otis Street to East Benton Road
- East Benton Road, Warren Road to Bella Vista Road

The project is generally bounded by residential developments, agricultural land, and disturbed land, with sparse native habitats occurring along the project alignment.

Figure 3 presents the location of the proposed sewer transmission lines, which would be constructed within the ROW of paved roadways. The approximate locations of the sewer transmission lines are shown with a red line, and the aboveground work areas, including trenching and potential construction staging areas, are shown in black cross-hatching. The sewer transmission lines would be constructed primarily with open trench construction, and culvert crossings would be protected in place with supports that allow for undercrossing. Laterals for future connections would be constructed to adjacent property lines. Potential construction staging areas would be located in disturbed land within the ROW adjacent to the roadway, subject to access agreements with private property owners. Roadways impacted during construction would be returned to original grade, and adjacent natural soils impacted during construction would be revegetated with hydroseeding. No night work would occur, nor would temporary/permanent lighting be used. The project would not construct any aboveground structures.

Pipeline installation would occur at 80 feet per day for pipe with standard cover (7.5-foot depth), and at 50 feet per day for pipe deeper than standard cover (greater than 7.5-foot depth). Construction is anticipated to last 13 months. Operation would involve routine sewer video inspections approximately every three years. Operational cleaning using a Vactor truck (sewage vacuum truck) would occur every 3 to 5 years.

It is anticipated that the District would implement the project. This report provides the necessary GHG data and background information required for environmental analysis of the project subject to the California Environmental Quality Act (CEQA).

2.0 Environmental Setting

2.1 GHG Inventories

2.1.1 State GHG Inventory

The California Air Resources Board (CARB) performs statewide GHG inventories. The inventory is divided into nine broad sectors of economic activity: agriculture, commercial, electricity generation, forestry, high global warming potential (GWP) emitters, industrial, recycling and waste, residential, and transportation. Emissions are quantified in million metric tons of CO_2 equivalent (MMT CO_2E). Table 1 shows the estimated statewide GHG emissions for the years 1990, 2010, 2017, and 2020. Although annual GHG inventory data is available for years 2000 through 2020, the years 1990, 2010, 2017, and 2020 are highlighted in Table 1 because 1990 is the baseline year for established reduction targets, 2010 and 2017 correspond to the same years for which inventory data for the County and the region is available, and 2020 is the most recent data available.

Table 1
California GHG Emissions by Sector

Sector	1990[1] Emissions in MMT CO_2E (% total)[2]	2010[3] Emissions in MMT CO_2E (% total)[2]	2017[3] Emissions in MMT CO_2E (% total)[2]	2020[3] Emissions in MMT CO_2E (% total)[2]
Electricity Generation	110.5 (25.7%)	90.5 (20.2%)	64.4 (15.7%)	59.8 (16.2%)
Transportation	150.6 (35.0%)	170.2 (38.0%)	171.0 (41.6%)	139.9 (37.9%)
Industrial	105.3 (24.4%)	101.3 (22.6%)	93.3 (22.7%)	85.3 (23.1%)
Commercial	14.4 (3.4%)	20.1 (4.5%)	21.8 (5.3%)	22.0 (6.0%)
Residential	29.7 (6.9%)	32.1 (7.2%)	28.4 (6.9%)	30.7 (8.3%)
Agriculture & Forestry	18.9 (4.4%)	33.7 (7.5%)	31.7 (7.7%)	31.6 (8.6%)
Not Specified	1.3 (0.3%)	-	-	-
Total[4]	**430.7**	**447.9**	**410.6**	**369.3**

SOURCE: CARB 2007 and 2022a.
[1]1990 data was obtained from the CARB 2007 source and are based on IPCC fourth assessment report GWPs.
[2]Percentages may not total 100 due to rounding.
[3]2010, 2017, and 2020 data was retrieved from the CARB 2022 source and are based on IPCC fourth assessment report GWPs.
[4]Totals may vary due to independent rounding.

As shown in Table 1, statewide GHG source emissions totaled approximately 431 MMT CO_2E in 1990, 448 MMT CO_2E in 2010, 411 MMT CO_2E in 2017, and 369 MMT CO_2E in 2020. Many factors affect year-to-year changes in GHG emissions, including economic activity, demographic influences, environmental conditions such as drought, and the impact of regulatory efforts to control GHG emissions. As shown in Table 1, transportation-related emissions consistently contribute to the most GHG emissions.

2.1.2 Regional GHG Inventory

In September 2014, the Western Riverside Council of Governments adopted the *Subregional Climate Action Plan* (Western Riverside Council of Governments 2014). The plan inventoried existing emissions within western Riverside County and outlines measures to reduce future emissions. The communitywide GHG emissions were calculated using the International Council for Local Environmental Initiatives U.S. Community Protocol. The results of the community inventory for 2010 are summarized in Table 2. Similar to the statewide emissions, transportation-related GHG emissions contributed the most countywide, followed by emissions associated with energy use.

Table 2
Western Riverside County GHG Emissions in 2010

Source	2010 Baseline Emissions	
	MT CO_2E	%
Transportation	3,317,387	56.9%
Commercial/Industrial Energy	1,226,479	21.0%
Residential Energy	1,167,843	20.0%
Waste	112,161	1.9%
Wastewater	10,531	0.2%
Total Inventory	**5,834,400**	-

SOURCE: Western Riverside Council of Governments 2014.
NOTE: Total may vary due to independent rounding.

2.1.3 Local GHG Inventory

A 2017 GHG emissions inventory was conducted in conjunction with preparation of the County's CAP. The results are summarized in Table 3.

Table 3
2017 Communitywide GHG Emissions by Source

Source	2017 Baseline Emissions	
	MT CO_2E	%
Transportation (on-road)	1,766,784	36.02
Agriculture	1,670,954	34.06
Energy (Electricity and Natural Gas)	1,188,138	24.22
Solid Waste	204,365	4.17
Water and Wastewater	44,606	0.91
Aviation	26,786	0.55
Off-Road Sources	3,883	0.08
Total	**4,905,516***	**100**

MT CO_2E = metric tons of carbon dioxide equivalent
*CAP reports a total of 4,905,518. This is likely due to rounding.
SOURCE: County of Riverside 2019

2.2 Regulatory Background

In response to rising concern associated with increasing GHG emissions and global climate change impacts, several plans and regulations have been adopted at the international, national, and state levels with the aim of reducing GHG emissions. The following is a discussion of the federal, state, and local plans and regulations most applicable to the project.

2.2.1 Federal

The federal government, U.S. Environmental Protection Agency (U.S. EPA), and other federal agencies have many federal level programs and projects to reduce GHG emissions. In June 2012, the Council on Environmental Quality revised the Federal Greenhouse Gas Accounting and Reporting Guidance originally issued in October 2010. The Council on Environmental Quality guidance identifies ways in which federal agencies can improve consideration of GHG emissions and climate change for federal actions. The guidance states that National Environmental Policy Act documents should provide decision makers with relevant and timely information and should consider (1) GHG emissions of a Proposed Action and alternative actions and (2) the relationship of climate change effects to a Proposed Action or alternatives. Specifically, if a Proposed Action would be reasonably anticipated to cause direct emissions of 25,000 MT CO_2E GHG emissions on an annual basis, agencies should consider this as an indicator that a quantitative assessment may be meaningful to decision makers and the public (Council on Environmental Quality 2012).

2.2.1.1 U.S. Environmental Protection Agency

In 2009, the U.S. EPA issued its science-based finding that the buildup of heat-trapping GHGs in the atmosphere endangers public health and welfare. The "Endangerment Finding" reflects the overwhelming scientific evidence on the causes and impacts of climate change. It was made after a thorough rulemaking process considering thousands of public comments and was upheld by the federal courts.

The U.S. EPA has many federal level programs and projects to reduce GHG emissions. The U.S. EPA provides technical expertise and encourages voluntary reductions from the private sector. The U.S. EPA also collaborates with the public sector, including states, tribes, localities, and resource managers, to encourage smart growth, sustainability preparation, and renewable energy and climate change preparation. These initiatives include the Clean Energy – Environment State Partnership Program, the Climate Ready Water Utilities Initiative, the Climate Ready Estuaries Program, and the Sustainable Communities Partnership (U.S. EPA 2020).

2.2.1.2 Corporate Average Fuel Economy Standards

The federal Corporate Average Fuel Economy (CAFE) standards determine the fuel efficiency of certain vehicle classes in the U.S. The National Highway Traffic Safety Administration (NHTSA) sets CAFE standards for passenger cars and for light trucks (collectively, light-duty vehicles) and separately sets fuel consumption standards for medium- and heavy-duty trucks and engines. With improved gas mileage, fewer gallons of transportation fuel would be combusted to travel the same distance, thereby reducing nationwide GHG emissions associated with vehicle travel. The most recent standards require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8 percent annually for model years 2024 and 2025 and 10 percent annually for model year 2026.

2.2.2 State

The State of California has adopted a number of plans and regulations aimed at identifying statewide and regional GHG emissions caps, GHG emissions reduction targets, and actions and timelines to achieve the target GHG reductions.

2.2.2.1 Executive Orders and Statewide GHG Emission Targets

Executive Order S-3-05

Executive Order (EO) S-3-05 established the following GHG emission reduction targets for the State of California:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels;
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

This EO also directs the secretary of the California Environmental Protection Agency (CalEPA) to oversee the efforts made to reach these targets, and to prepare biannual reports on the progress made toward meeting the targets and on the impacts to California related to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. With regard to impacts, the report shall also prepare and document mitigation and adaptation plans to combat the impacts. The first Climate Action Team Assessment Report was produced in March 2006, and has since been updated every two years.

Executive Order B-30-15

EO B-30-15, issued on April 29, 2015, establishes an interim GHG emission reduction goal for the state of California by 2030 of 40 percent below 1990 levels. This EO also directed all state agencies with jurisdiction over GHG emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in EO S-3-05. Additionally, this EO directed CARB to update its Climate Change Scoping Plan to address the 2030 goal.

Assembly Bill 1279

Assembly Bill (AB) 1279, approved in September 2022, requires the state to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter, and to ensure that by 2045, statewide anthropogenic GHG emissions are reduced to at least 85 percent below 1990 levels. The bill would require the state board to work with relevant state agencies to ensure that updates to the scoping plan identify and recommend measures to achieve these policy goals and to identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies.

2.2.2.2 California Global Warming Solutions Act

In response to EO S-3-05, the California Legislature passed AB 32, the California Global Warming Solutions Act of 2006, and thereby enacted Sections 38500–38599 of the California Health and Safety Code. The heart of AB 32 is its requirement that CARB establish an emissions cap and adopt rules and regulations that would reduce GHG emissions to 1990 levels by 2020. AB 32 also required CARB to adopt a plan by January 1, 2009, indicating how emission reductions would be achieved from significant GHG sources via regulations, market mechanisms, and other actions.

In 2008, CARB estimated that annual statewide GHG emissions were 427 MMT CO_2E in 1990 and would reach 596 MMT CO_2E by 2020 under a business as usual (BAU) condition (CARB 2008). To achieve the mandate of AB 32, CARB determined that a 169 MMT CO_2E (or approximate 28.5 percent) reduction in BAU emissions was needed by 2020. In 2010, CARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. CARB determined that the economic downturn reduced the 2020 BAU by 55 MMT CO_2E; as a result, achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 (not 28.5) percent from the 2020 BAU. California has achieved its 2020 goal.

Approved in September 2016, Senate Bill (SB) 32 updates the California Global Warming Solutions Act of 2006 and enacts EO B-30-15. Under SB 32, the state would reduce its GHG emissions to 40 percent below 1990 levels by 2030. This is equivalent to an emissions level of approximately 260 MMT CO_2e for 2030. In implementing the 40 percent reduction goal, CARB is required to prioritize emissions reductions to consider the social costs of the emissions of GHGs; where "social costs" is defined as "an estimate of the economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such as property damages from increased flood risk; and changes in energy system costs, per metric ton of greenhouse gas emission per year."

2.2.2.3 Climate Change Scoping Plan

As directed by the California Global Warming Solutions Act of 2006, in 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan), which identifies the main strategies California will implement to achieve the GHG reductions necessary to reduce forecasted BAU emissions in 2020 to the state's historic 1990 emissions level (CARB 2008). In November 2017, CARB released the *2017 Climate Change Scoping Plan Update, the Strategy for Achieving California's 2030 Greenhouse Gas Target* (2017 Scoping Plan; CARB 2017). The 2017 Scoping Plan identifies state strategies for achieving the state's 2030 GHG emissions reduction target codified by SB 32. Measures under the 2017 Scoping Plan Scenario build on existing programs such as the Low Carbon Fuel Standard, Advanced Clean Cars Program, Renewables Portfolio Standard (RPS), Sustainable Communities Strategy (SCS), Short-Lived Climate Pollutant Reduction Strategy, and the Cap-and-Trade Program. Additionally, the 2017 Scoping Plan proposes new policies to address GHG emissions from natural and working lands. The *2022 Scoping Plan Update for Achieving Carbon Neutrality* (2022 Scoping Plan; CARB 2022b) was adopted in December 2022. The 2022 Scoping Plan assesses the progress towards the 2030 GHG emissions reduction target identified in the 2017 Scoping Plan and lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by AB 1279. The 2022 Scoping Plan identifies strategies related to clean technology, energy development, natural and working lands, and others, and is designed to meet the state's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

2.2.2.4 Regional Emissions Targets – Senate Bill 375

SB 375, the 2008 Sustainable Communities and Climate Protection Act, was signed into law in September 2008 and requires CARB to set regional targets for reducing passenger vehicle GHG emissions in accordance with the Scoping Plan. The purpose of SB 375 is to align regional transportation planning efforts, regional GHG reduction targets, and fair-share housing allocations under state housing law. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a SCS or Alternative Planning Strategy to address GHG reduction targets from cars and light-duty trucks in the context of that MPO's Regional Transportation Plan. Southern California Association of Governments (SCAG) is the region's MPO. In 2018, CARB set targets for the SCAG region of an 8 percent reduction in GHG emissions per capita from automobiles and light-duty trucks compared to 2005 levels by 2020 and a 19 percent reduction by 2035. These targets are periodically reviewed and updated.

2.2.2.5 Renewables Portfolio Standard

The RPS promotes diversification of the state's electricity supply and decreased reliance on fossil fuel energy sources. Renewable energy includes (but is not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas. Originally adopted in 2002 with a goal to achieve a 20 percent renewable energy mix by 2020 (referred to as the "Initial RPS"), the goal has been accelerated and increased by EOs S-14-08 and S-21-09 to a goal of 33 percent by 2020. In April 2011, SB 2 (1X) codified California's 33 percent RPS goal. SB 350 (2015) increased California's renewable energy mix goal to 50 percent by year 2030. SB 100 (2018) further increased the standard set by SB 350 establishing the RPS goal of 44 percent by the end of 2024, 52 percent by the end of 2027, and 60 percent by 2030.

2.2.3 Local

2.2.3.1 South Coast Air Quality Management District

The SCAQMD is the agency responsible for air quality planning and regulation in the South Coast Air Basin. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the South Coast Air Basin. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – *Interim CEQA GHG Significance Thresholds for Stationary Sources, Rules, and Plans*, which could be applied by lead agencies. The working group met again in 2010 to review the guidance. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach (SCAQMD 2008, 2010):

- Tier 1 – The project is exempt from the California Environmental Quality Act (CEQA).
- Tier 2 – The project is consistent with an applicable regional GHG emissions reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 – Project GHG emissions represent an incremental increase below or mitigated to less than Significance Screening Levels, where
    - Residential/Commercial Screening Level
        - Option 1: 3,000 MT CO2E screening level for all residential/commercial land uses
        - Option 2: Screening level thresholds for land use type acceptable if used consistently by a lead agency:
            - Residential: 3,500 MT CO_2E
            - Commercial: 1,400 MT CO_2E
            - Mixed-Use: 3,000 MT CO_2E
    - 10,000 MT CO_2E is the Permitted Industrial Screening Level
- Tier 4 – The project achieves performance standards, where performance standards may include:
    - Option 1: Percent emission reduction target. SCAQMD has no recommendation regarding this approach at this time.
    - Option 2: The project would implement substantial early implementation of measures identified in the CARB's Scoping Plan. This option has been folded into Option 3.
    - Option 3: SCAQMD Efficiency Targets.
        - 2020 Targets: 4.8 MT CO_2E per service population for project-level analyses or 6.6 MT CO_2E per service population for plan level analyses where service population includes residential and employment populations provided by a project.
        - 2035 Targets: 3.0 MT CO_2E per service population for project-level analyses or 4.1 MT CO_2E per service population for plan level analyses.

- Tier 5 – Offsets along or in combination with the above target Significance Screening Level. Offsets must be provided for a 30-year project life, unless the project life is limited by permit, lease, or other legally binding condition.

If a project complies with any one of these tiers, its impacts related to GHG emissions would be considered less than significant.

The SCAQMD's interim thresholds used the EO S-3-05 year 2050 goal as the basis for the Tier 3 screening level. Achieving the EO's objective would contribute to worldwide efforts to cap CO_2 concentrations at 450 parts per million, thus stabilizing global climate.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

SCAQMD Regulation XXVII, adopted in 2009, includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.
- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

2.2.3.2 Southern California Association of Governments

In September 2020, SCAG adopted Connect SoCal, the 2020-2045 Regional Transportation Plan/SCS South Coast Air Basin. The Connect SoCal plan identifies that land use strategies that focus on new housing and job growth in areas with a variety of destinations and mobility options would support and complement the proposed transportation network. The overarching strategy in Connect SoCal is to provide for a plan that allows the southern California region to grow in more compact communities in transit priority areas and priority growth areas; provide neighborhoods with efficient and plentiful public transit; establish abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and preserve more of the region's remaining natural lands and farmlands (SCAG 2020). The Connect SoCal plan contains transportation projects to help more efficiently distribute population, housing, and employment growth as well as projected development that promotes active transport and reduces GHG emissions.

2.2.3.3 County of Riverside

The Air Quality Element of the County's General Plan (County of Riverside 2018) contains the following policies related to GHG emissions:

> AQ 18.1 **Baseline emissions inventory and forecast**. Riverside County CAP has included baseline emissions inventory with data from the County's CO2e emissions, for specific sectors and specific years. The carbon inventory greatly aids the process of determining the type, scope and number of GHG reduction policies needed. It also facilitates the tracking of policy implementation and effectiveness. The carbon inventory for the County consists of two distinct components; one inventory is for the County as a whole, as defined by its geographical borders and the other inventory is for the emissions resulting from the County's municipal operations.

AQ 18.2 **Adopt GHG emissions reduction targets**. Pursuant to the results of the Carbon Inventory and Greenhouse Gas Analysis for Riverside County, future development proposed as a discretionary project pursuant to the General Plan shall achieve sufficient reductions in greenhouse gas emissions in order to be found consistent with the County's Climate Action Plan.

AQ 18.3 **Develop a Climate Action Plan for reducing GHG emissions**. The Riverside County CAP has been developed to formalize the measure necessary to achieve County GHG emissions reduction targets. The CAP includes both the policies necessary to meet stated targets and objectives are met. These targets, objectives and Implementation Measures may be refined, superseded or supplemented as warranted in the future.

AQ 18.4 **Implement policies and measures to achieve reduction targets**. The County shall implement the greenhouse gas reduction policies and measures established under the County Climate Action Plan for all new discretionary development proposals.

AQ 18.5 **Monitor and verify results.** The County shall monitor and verify the progress and results, and make any necessary revisions to, the CAP by 2020 and a minimum every four years thereafter. The progress and results of, and revisions to, the CAP will be made available to the public for review prior to approval. If monitoring reveals that the targets of the CAP are not being met, the CAP shall be revised to ensure that any changes needed to stay 'on target' with the stated goals are accomplished.

AQ 19.1 Continue to coordinate with CARB, SCAQMD, and the State Attorney General's office to ensure that the milestones and reduction strategies presented in the General Plan and the CAP adequately address the county's GHG emissions.

AQ 19.2 Utilize County's CAP as the guiding document for determining County's greenhouse gas reduction thresholds and implementation programs. Implementation of the CAP and its monitoring program shall include the ability to expand upon, or where appropriate, update or replace the Implementation Measures established herein such that the implementation of the CAP accomplishes the greenhouse gas reduction targets.

2.2.3.4 County of Riverside Climate Action Plan (CAP)

The CAP Update (November 2019) establishes GHG emission reduction programs and regulations that correlate with and support evolving State GHG emissions reduction goals and strategies. The CAP Update includes reduction targets for year 2030 and year 2050. These reduction targets require the County to reduce emissions by at least 525,511 MT CO_2E below the adjusted business-as-usual scenario by 2030 and at least 2,982,948 MT CO_2E below the adjusted business-as-usual scenario by 2050.

To evaluate consistency with the CAP Update, the County has implemented CAP Update Screening Tables (Screening Tables) to aid in measuring the reduction of GHG emissions attributable to certain design and construction measures incorporated in development projects. To this end, the Screening Tables establish categories of GHG Implementation Measures. Under each Implementation Measure category, mitigation, or project design feature (collectively "features") are assigned point values that correspond to the minimum GHG emissions reduction that would result from each feature. Projects that yield at least 100 points are considered to be consistent with the GHG emissions reduction quantities anticipated in the County's GHG Technical Report and support the GHG emissions reduction targets established under the CAP Update. The potential for such projects to generate direct or indirect GHG emissions that would result in a significant impact on the environment; or conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs would be considered less than significant.

3.0 Thresholds of Significance

Based on the CEQA Guidelines Appendix G, impacts related to GHG emissions would be significant if the project would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs.

As stated in the State CEQA Guidelines, these questions are "intended to encourage thoughtful assessment of impacts and do not necessarily represent thresholds of significance" (Title 14, Division 6, Chapter 3 Guidelines for Implementation of the CEQA, Appendix G, Environmental Checklist Form). The State CEQA Guidelines encourage lead agencies to adopt regionally specific thresholds of significance. When adopting these thresholds, the amended Guidelines allow lead agencies to consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, provided that the thresholds are supported by substantial evidence.

The District has not adopted its own GHG thresholds of significance for CEQA. The SCAQMD published its Interim CEQA GHG Significance Thresholds for Stationary Sources, Rules, and Plans in 2008 (SCAQMD 2008). The interim thresholds are a tiered approach: projects may be determined to be less than significant under each tier or require further analysis under subsequent tiers. For the project, the most appropriate screening threshold for determining GHG emissions is the SCAQMD proposed Tier 3 screening threshold (SCAQMD 2010); therefore, a significant impact would occur if the project would exceed the SCAQMD proposed Tier 3 screening threshold of 3,000 metric tons carbon dioxide equivalent (MT CO_2E) per year. Although the project is not subject to the requirements of the County's CAP, it should be noted that this is also the screening threshold utilized by the CAP, and therefore is considered most appropriate for evaluating project impacts. Based on guidance from the SCAQMD, total construction GHG emissions resulting from a project should be amortized over the lifetime of a project, which is defined as 30 years (SCAQMD 2009).

4.0 GHG Calculations

4.1 Construction Emissions

Emissions associated with pipeline construction were modeled using the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Roadway Construction Emissions Model (RCEM) Version 9.0.1 (SMAQMD 2022). The RCEM is a spreadsheet-based model that is able to use basic project information (e.g., total construction months, project type, total project area) to estimate a construction schedule and quantify exhaust emissions from heavy-duty construction equipment, haul trucks, and worker commute trips associated with linear construction projects. Version 9.0.1 of the model incorporates the most currently approved 2017 Emission Factor (EMFAC2017) model and Off-Road emissions factors model. The 2021 Emission Factor (EMFAC2021) model was released in January 2021; however, EMFAC2021 has not yet been approved for use by the U.S. Environmental Protection Agency (U.S EPA). EMFAC2017 is the most recent version of the model approved by the U.S. EPA, and was therefore used in this analysis. Use of EMFAC2021 would not result in emissions that are substantially different than those calculated in this analysis, particularly since the main source of emissions would be construction equipment which are calculated using the Off-Road emissions factor model methodologies incorporated into RCEM. Although RCEM was developed by SMAQMD, it is appropriate for use in the SCAQMD jurisdiction because it is applicable for all statewide construction projects that involve construction equipment that is subject to California Air Resources Board (CARB) construction equipment emissions standards and incorporates statewide emission factor models (EMFAC2017 and Off-Road). RCEM calculates fugitive dust, exhaust, and off-gas emissions from grubbing/land clearing, grading/excavation, drainage/utilities/sub-

grade, and paving activities associated with construction projects that are linear in nature (e.g., road or levee construction, pipeline installation, transmission lines).

Construction is expected to begin in 2024 and last approximately 13 months. The pipeline alignment would consist of a total of approximately 2.74 miles (14,467 linear feet) of sewer transmission lines. The total project area is 20.0 acres. Excavated soil would likely be replaced in the trench once the new pipeline is replaced; however, to be conservative, hauling was included in the analysis. Hauling emissions associated with asphalt removal were calculated assuming a total of 670 cubic yards of asphalt export (2.74 miles of paved road, 5 feet wide, and 3 inches deep). Hauling emissions associated with soil removal were calculated assuming half the excavated soil would be hauled, for a total of 13,395 cubic yards of soil export (2.74 miles long, 5 feet wide, and 10 feet deep). Asphalt hauling was modeled over the duration of the 1.3-month grubbing/land clear phase, and soil hauling was modeled over the duration of the 5.9-month grading/excavation phase. Modeled construction equipment is summarized in Table 4. This equipment was modeled during each phase of construction. Two signal boards, a water truck, dump trucks used for asphalt and soil hauling, and employee vehicles were also included in the emission calculations. Based on RCEM default values, project construction would require up to 27 workers per day.

Table 4
Construction Equipment

Equipment	Number
Backhoe/loader	1
Hydraulic excavator	1
Utility truck	2
Water truck	1
Compressor	1
Pump	1
Pick-up trucks	1
Concrete saw	1
Pavement breaker	1
Sweeper	1
Paver	1
Generator	1
NOTE: Each phase would also include vehicles associated with work commutes, a water truck, and dump trucks for hauling.	

Based on guidance from the SCAQMD, total construction GHG emissions resulting from a project should be amortized over 30 years and added to operational GHG emissions to account for their contribution to GHG emissions over the lifetime of a project (SCAQMD 2009). Table 5 summarizes the total and amortized construction emissions. The complete RCEM inputs and outputs for the project are included in Attachment 1.

Table 5
Construction GHG Emissions

Phase	Construction GHG Emissions ($MT CO_2E$)
Grubbing/Land Clearing	103
Grading/Excavation	515
Drainage/Utilities/Subgrade	308
Paving	152
Total Construction Emissions	**1,079**
Amortized over 30 Years	*36*

4.2 Operational Emissions

Project operation would result in emissions related to minor vehicle/equipment use associated with routine inspection and maintenance. Routine sewer video inspection would occur approximately every three years, and cleaning would occur every five to ten years. These operational activities would be conducted by existing District employees. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible.

The amount of wastewater generated by a land use has indirect GHG emissions associated with it. These emissions are a result of the energy used to move and treat wastewater. Anaerobic decomposition in septic tanks produces fugitive emissions of methane and results in GHG emissions greater than those associated with the municipal sewer system. The project would reduce the reliance on septic systems thereby reducing GHG emissions related to wastewater.

5.0 Impact Analysis

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

As shown in Table 5, the project would result in a total of 1,079 MT CO_2E over the entire construction period, which would be 36 MT CO_2E per year when amortized over the lifetime of the project. After installation of the underground pipeline, there would be occasional inspection and maintenance trips. There would also be minimal emissions associated with wastewater treatment. However, as discussed above, inspection and maintenance trips would be conducted by existing District employees, and vehicle emissions would be negligible. Additionally, the project would reduce the reliance on septic systems, thereby reducing GHG emissions related to wastewater. Overall, GHG emissions generated during construction and operation would be less than the 3,000 MT CO_2E annual screening threshold. Therefore, the project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant.

2. *Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?*

Executive Order (EO) S-3-05 and EO B-30-15 established GHG emission reduction targets for the state, and Assembly Bill 32 launched the CARB Climate Change Scoping Plan that outlined the reduction measures needed to reach the 2020 target, which the state has achieved. As required by Senate Bill 32, CARB's 2017 Scoping Plan outlines reduction measures needed to achieve the interim 2030 target, and the 2022 Scoping Plan outlines the path towards carbon neutrality by 2045. As detailed in the response under Threshold 1 above, the project would result in construction GHG emissions below the SCAQMD proposed Tier 3 screening threshold of 3,000 MT CO_2E per year. Project construction would not result in emissions that would adversely affect statewide attainment of GHG emission reduction goals as described in Assembly Bill 32, EOs S-3-05 and B-30-15, and Senate Bill 32. Therefore, construction emissions would have a less than cumulatively considerable contribution to global climate change.

Anaerobic decomposition in septic tanks produces fugitive emissions of methane. The project would reduce the reliance on septic systems, thereby reducing GHG emissions related to wastewater. The project would not result in a significant increase in regional vehicle miles traveled since vehicle trips would be limited to occasional maintenance trips that would be performed by existing District employees. The project would be consistent with land use designations, as it would provide sewer connections to existing residential uses. Because the project would provide

sewer service for existing development, and because project trips would be limited to occasional maintenance activities, it would not conflict with the transportation-related GHG reduction goals outlined in the Regional Transportation Plan. Further, the project would not conflict with energy efficiency standards or conflict with Southern California Edison's Renewables Portfolio Standard renewable energy goals, as these are not applicable to construction and operational activities associated with the project. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and impacts would be less than significant.

6.0 Conclusions

GHG emissions would be generated during construction of the project. Construction activities emit GHGs primarily through the combustion of fuels in on- and off-road equipment and vehicles. As shown in Table 5, the project would result in a total of 1,079 MT CO_2E over the entire construction period, which would be 36 MT CO_2E per year when amortized over the lifetime of the project. After installation of the underground pipeline, there would be occasional inspection and maintenance trips. There would also be minimal emissions associated with wastewater treatment. However, as discussed, inspection and maintenance trips would be conducted by existing District employees and vehicle emissions would be negligible. Additionally, the project would reduce the reliance on septic systems thereby reducing GHG emissions related to wastewater. Overall, GHG emissions generated during construction and operation would be less than the 3,000 MT CO_2E annual screening threshold. Therefore, the project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant. Additionally, project construction would not result in emissions that would adversely affect statewide attainment of GHG emission reduction goals as described in Assembly Bill 32, EOs S-3-05 and B-30-15, and Senate Bill 32. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and impacts would be less than significant.

If you have any questions about the results of this analysis, please contact me at jfleming@reconenvironmental.com or (619) 308-9333 extension 177.

Sincerely,

Jessica Fleming
Senior Air Quality Specialist

JLF:sh

Attachment

7.0 References Cited

California Air Resources Board (CARB)

2007 California Greenhouse Gas Inventory – Summary by Economic Sector. Last updated November 19, 2007.

2008 *Climate Change Scoping Plan: A Framework for Change*. http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. December.

2017 *2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target*. January 20.

2022a Greenhouse Gas Inventory Data—2000 to 2020 (last updated October 26, 2022). https://ww2.arb.ca.gov/ghg-inventory-data.

2022b *Scoping Plan Update for Achieving Carbon Neutrality.* December.

Council on Environmental Quality (CEQ)
2012 Federal Greenhouse Gas Accounting and Reporting Guidance, June 4. Accessed June 24, 2016. https://www.whitehouse.gov/sites/default/files/microsites/ceq/ ghg_guidance_document_0.pdf.

Riverside, County of
2018 General Plan Air Quality Element. July.

2019 Climate Action Plan Update. November. https://planning.rctlma.org/sites/g/files/aldnop416/files/migrated/Portals-14-CAP-2019-2019-CAP-Update-Full.pdf

Sacramento Metropolitan Air Quality Management District (SMAQMD)
2022 Road Construction Emissions Model, Version 9.0.1.

South Coast Air Quality Management District (SCAQMD)
2008 Draft Guidance Document – *Interim CEQA GHG Significance Thresholds for Stationary Sources, Rules, and Plans*. October.

2009 Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group 14. November 19, 2009.

2010 Greenhouse Gas CEQA Significance Thresholds Stakeholder Working Group 15. September 28, 2010.

Southern California Association of Governments (SCAG)
2020 Connect SoCal: The 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy of the Southern California Association of Governments. Adopted on September 3, 2020.

U.S. Environmental Protection Agency (U.S. EPA)
2020 U.S. EPA State and Local Climate and Energy Program. Accessed June 17, 2020. http://www.epa.gov/statelocalclimate/index.html.

Western Riverside Council of Governments (WRCOG)
2014 *Subregional Climate Action Plan*. Final Report. September 2014.

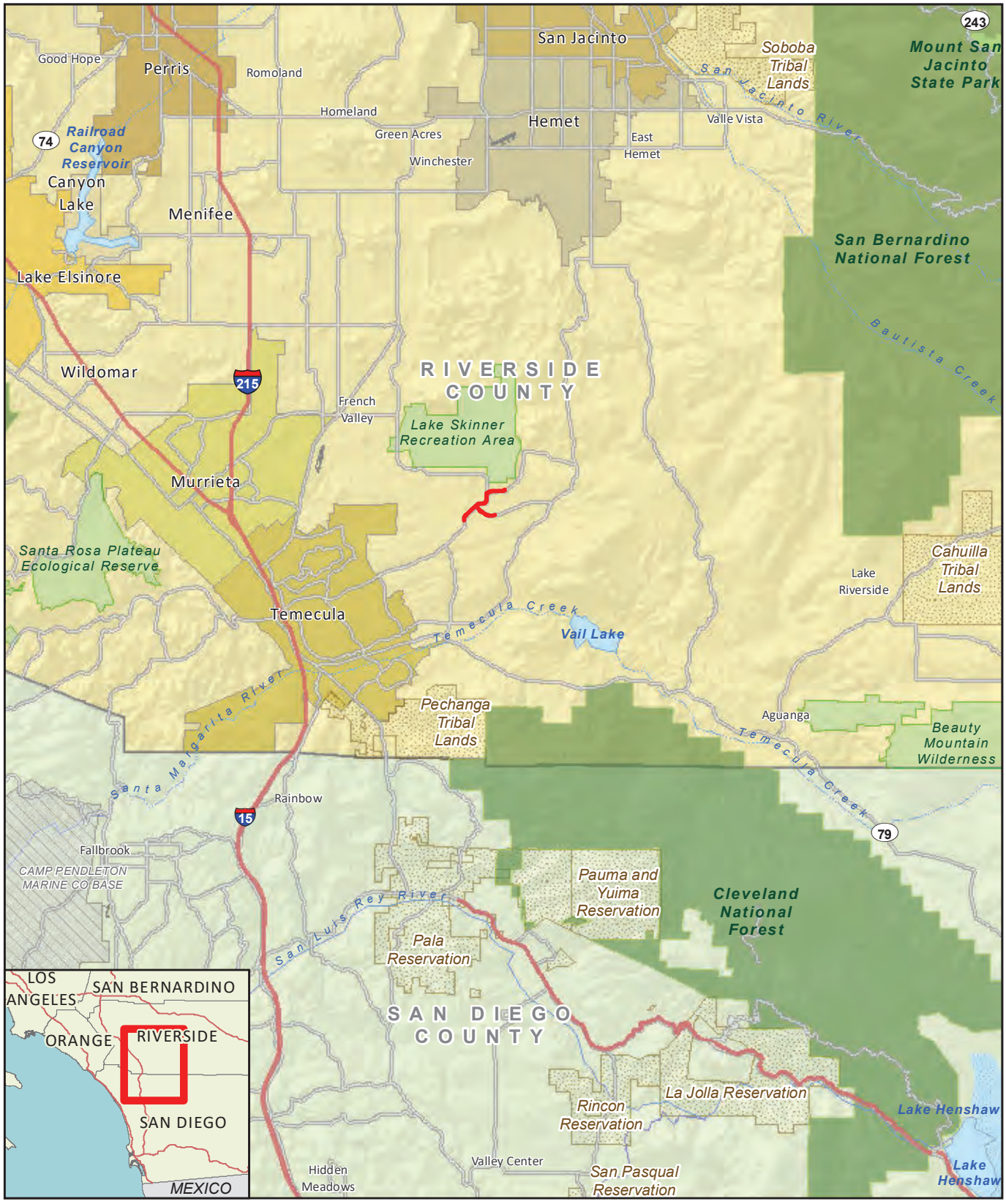


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FIGURE 1
Regional Location

Image Source: NearMap (flown September 2023)

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FIGURE 2
Project Location on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.1
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.2
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.3
Northern Alignment

Image Source: NearMap (flown September 2023)

0 Feet 100

Project Alignment
Project Impact Area

RECON

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FIGURE 3.4
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.5
Northern Alignment

Image Source: NearMap (flown September 2023)

0 Feet 100

Project Alignment
Project Impact Area

RECON

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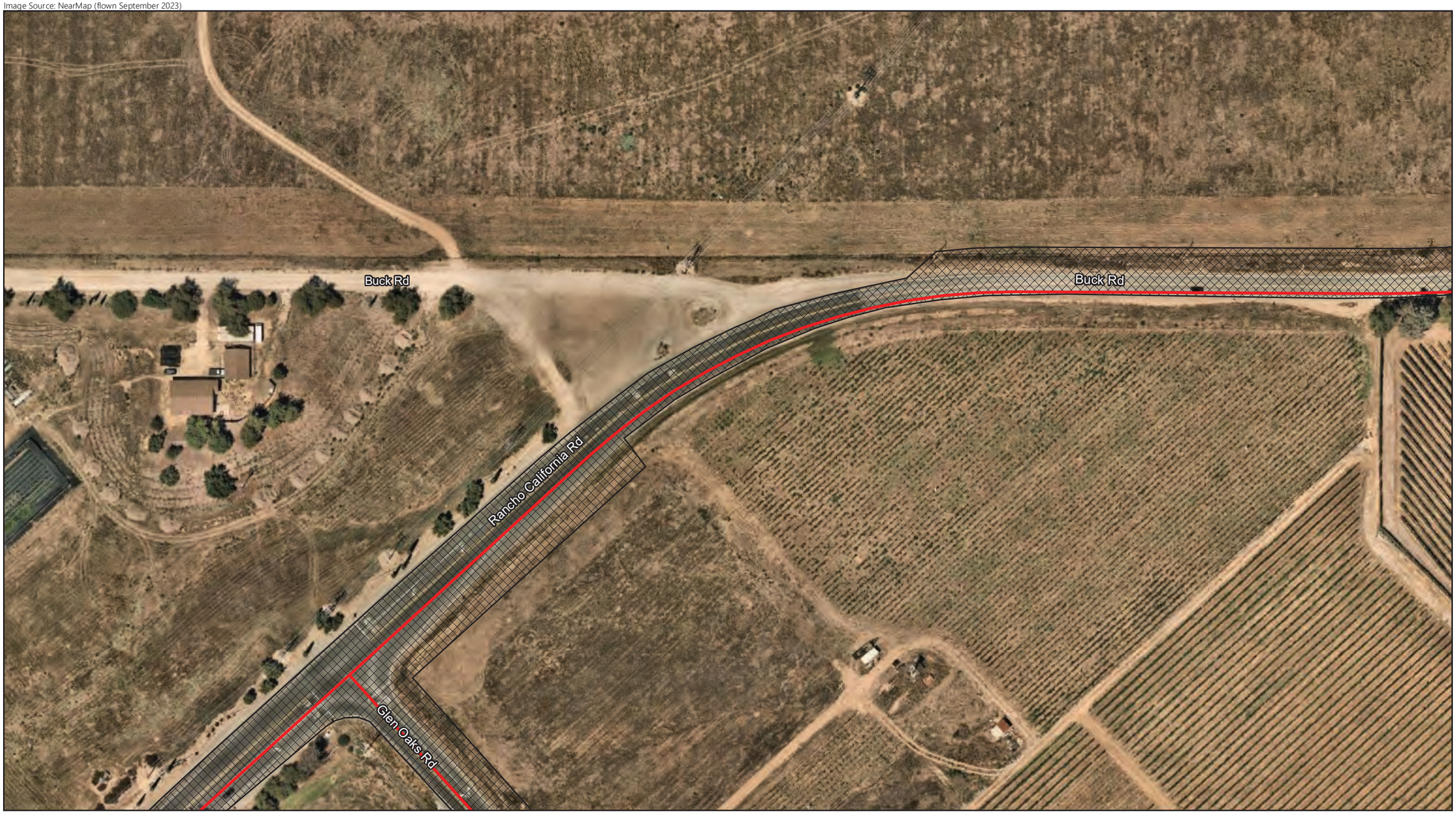
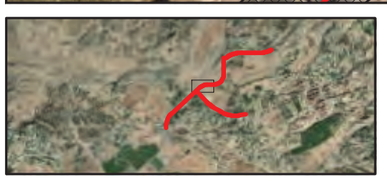
FIGURE 3.6
Northern Alignment

Image Source: NearMap (flown September 2023)





Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.7
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.8
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.9
Northern Alignment

Image Source: NearMap (flown September 2023)

0 Feet 100

Project Alignment
Project Impact Area

RECON

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FIGURE 3.10
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.11
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.12
Northern Alignment

ATTACHMENT 1

CalEEMod Output

Wine Country Sewer - Northern Alignment
Calculation Details

Pipeline Length:

14,467	feet
5,280	feet/mile
2.74	miles

Project Area:

20.00	acres

Area Disturbed per Day

80.00	linear feet per day
35.00	feet wide
2800.00	square feet
0.06	acres

Asphalt Export:

14,467	feet paved
5	feet wide
0.25	feet deep (3 inch asphalt depth)
18,084	cubic feet
27	cubic feet/cubic yard
669.78	cubic yards
20	cubic yard truck capacity
34	hauling trips (rounded up)
1.3	month grubbing/land clearing phase
22	work days/month
28.6	days
24	cubic yards/day (rounded up)

Soil Export

14,467	feet long
5	feet wide
10	feet deep
723,360	cubic feet
27	cubic feet/cubic yard
26,791.11	cubic yards
13,395.56	cubic yards hauled away (half)
20	cubic yard truck capacity
670	hauling trips (rounded up)
5.85	month grading/excavation phase
22	work days/month
128.7	days
105	cubic yards/day (rounded up)

Road Construction Emissions Model, Version 9.0.1

Daily Emission Estimates for -> Wine Country Sewer - Northern Alignment

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	3.21	33.99	25.18	2.13	1.13	1.00	1.25	1.04	0.21	0.08	7,864.80	1.73	0.11	7,940.36
Grading/Excavation	3.31	35.38	26.12	2.22	1.22	1.00	1.29	1.08	0.21	0.09	8,722.90	1.74	0.19	8,822.59
Drainage/Utilities/Sub-Grade	3.25	34.62	24.82	2.15	1.15	1.00	1.26	1.05	0.21	0.08	7,859.48	1.73	0.08	7,926.21
Paving	3.15	34.22	23.68	1.06	1.06	0.00	0.97	0.97	0.00	0.08	7,767.99	1.73	0.08	7,833.84
Maximum (pounds/day)	3.31	35.38	26.12	2.22	1.22	1.00	1.29	1.08	0.21	0.09	8,722.90	1.74	0.19	8,822.59
Total (tons/construction project)	0.47	4.98	3.61	0.29	0.17	0.12	0.18	0.15	0.03	0.01	1,177.58	0.25	0.02	1,189.35

Notes:

Project Start Year ->	2024
Project Length (months) ->	13
Total Project Area (acres) ->	20
Maximum Area Disturbed/Day (acres) ->	0
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	24	0	60	480	5
Grading/Excavation	105	0	180	0	1,080	5
Drainage/Utilities/Sub-Grade	0	0	0	0	800	5
Paving	0	0	0	0	680	5

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Wine Country Sewer - Northern Alignment

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.05	0.49	0.36	0.03	0.02	0.01	0.02	0.01	0.00	0.00	112.47	0.02	0.00	103.01
Grading/Excavation	0.21	2.28	1.68	0.14	0.08	0.06	0.08	0.07	0.01	0.01	561.32	0.11	0.01	515.04
Drainage/Utilities/Sub-Grade	0.14	1.49	1.06	0.09	0.05	0.04	0.05	0.05	0.01	0.00	337.17	0.07	0.00	308.48
Paving	0.07	0.73	0.51	0.02	0.02	0.00	0.02	0.02	0.00	0.00	166.62	0.04	0.00	152.44
Maximum (tons/phase)	0.21	2.28	1.68	0.14	0.08	0.06	0.08	0.07	0.01	0.01	561.32	0.11	0.01	515.04
Total (tons/construction project)	0.47	4.98	3.61	0.29	0.17	0.12	0.18	0.15	0.03	0.01	1177.58	0.25	0.02	1,078.97

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Data Entry Worksheet

Version 9.0.1

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a
yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Wine Country Sewer - Northern Alignment	
Construction Start Year	2024	Enter a Year between 2014 and 2040 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	13.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	2.74	miles
Total Project Area	20.00	acres
Maximum Area Disturbed/Day	0.10	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County. NEW LINK 8-2-2022.

https://maps.conservation.ca.gov/cgs/gmc/

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation	20.00		105.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing	20.00		24.00
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			

Mitigation Options

On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation		Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		1.30		1/1/2024
Grading/Excavation		5.85		2/10/2024
Drainage/Utilities/Sub-Grade		3.90		8/6/2024
Paving		1.95		12/3/2024
Totals (Months)	13			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	30.00			0	0.00
Miles/round trip: Grading/Excavation	30.00			6	180.00
Miles/round trip: Drainage/Utilities/Sub-Grade	30.00			0	0.00
Miles/round trip: Paving	30.00			0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Paving (grams/mile)	0.03	0.41	3.04	0.11	0.05	0.02	1,682.64	0.00	0.26	1,761.49
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.01	0.16	1.26	0.04	0.02	0.01	672.06	0.00	0.11	703.55
Tons per const. Period - Grading/Excavation	0.00	0.01	0.08	0.00	0.00	0.00	43.25	0.00	0.01	45.27
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.01	0.08	0.00	0.00	0.00	43.25	0.00	0.01	45.27

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	30.00			2	60.00
Miles/round trip: Grading/Excavation	30.00			0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade	30.00			0	0.00
Miles/round trip: Paving	30.00			0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Paving (grams/mile)	0.03	0.41	3.04	0.11	0.05	0.02	1,682.64	0.00	0.26	1,761.49
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.05	0.42	0.01	0.01	0.00	224.02	0.00	0.04	234.52
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.01	0.00	0.00	0.00	3.20	0.00	0.00	3.35
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	3.20	0.00	0.00	3.35

Note: Worker commute default values can be overridden in cells D121 through D126.

Worker Commute Emissions	User Override of Worker			
User Input	Commute Default Values	Default Values		
Miles/ one-way trip	20		Calculated	Calculated
One-way trips/day	2		Daily Trips	Daily VMT
No. of employees: Grubbing/Land Clearing	12		24	480.00
No. of employees: Grading/Excavation	27		54	1,080.00
No. of employees: Drainage/Utilities/Sub-Grade	20		40	800.00
No. of employees: Paving	17		34	680.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Grading/Excavation (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Draining/Utilities/Sub-Grade (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Paving (grams/mile)	0.01	0.81	0.06	0.05	0.02	0.00	300.96	0.00	0.01	302.72
Grubbing/Land Clearing (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Grading/Excavation (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Draining/Utilities/Sub-Grade (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Paving (grams/trip)	0.95	2.61	0.26	0.00	0.00	0.00	64.80	0.06	0.03	75.11
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.07	1.03	0.08	0.05	0.02	0.00	328.05	0.01	0.01	330.56
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	4.69	0.00	0.00	4.73
Pounds per day - Grading/Excavation	0.15	2.31	0.18	0.11	0.05	0.01	738.11	0.02	0.02	743.75
Tons per const. Period - Grading/Excavation	0.01	0.15	0.01	0.01	0.00	0.00	47.50	0.00	0.00	47.86
Pounds per day - Drainage/Utilities/Sub-Grade	0.11	1.71	0.14	0.08	0.03	0.01	546.75	0.01	0.01	550.93
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.07	0.01	0.00	0.00	0.00	23.46	0.00	0.00	23.63
Pounds per day - Paving	0.09	1.40	0.11	0.07	0.03	0.00	456.05	0.01	0.01	459.46
Tons per const. Period - Paving	0.00	0.03	0.00	0.00	0.00	0.00	9.78	0.00	0.00	9.86
Total tons per construction project	0.02	0.27	0.02	0.01	0.01	0.00	85.43	0.00	0.00	86.08

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated	User Override of	Default Values	Calculated
User Input	Default # Water Trucks	Number of Water Trucks	Round Trips/Vehicle/Day	Round Trips/Vehicle/Day	Trips/day	Miles/Round Trip	Miles/Round Trip	Daily VMT
Grubbing/Land Clearing - Exhaust	1		1.00			5.00		5.00
Grading/Excavation - Exhaust	1		1.00			5.00		5.00
Drainage/Utilities/Subgrade	1		1.00			5.00		5.00
Paving	1		1.00			5.00		5.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Paving (grams/mile)	0.03	0.41	3.04	0.11	0.05	0.02	1,682.64	0.00	0.26	1,761.49
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.04	0.00	0.00	0.00	18.67	0.00	0.00	19.54
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.28
Pounds per day - Grading/Excavation	0.00	0.00	0.04	0.00	0.00	0.00	18.67	0.00	0.00	19.54
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.00	1.26
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.04	0.00	0.00	0.00	18.67	0.00	0.00	19.54
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.84
Pounds per day - Paving	0.00	0.00	0.04	0.00	0.00	0.00	18.55	0.00	0.00	19.42
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.42
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	2.67	0.00	0.00	2.79

Note: Fugitive dust default values can be overridden in cells D183 through D185.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing			1.00	0.01	0.21	0.00
Fugitive Dust - Grading/Excavation			1.00	0.06	0.21	0.01
Fugitive Dust - Drainage/Utilities/Subgrade			1.00	0.04	0.21	0.01

Values in cells D195 through D228, D246 through D279, D297 through D330, and D348 through D381 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.24	2.41	1.63	0.08	0.08	0.00	375.26	0.02	0.00	376.63
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.90	0.06	0.06	0.01	917.36	0.30	0.01	927.26
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.31	3.65	2.41	0.11	0.11	0.01	592.67	0.03	0.00	594.70
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.18	3.27	1.40	0.07	0.06	0.01	500.27	0.16	0.00	505.66
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.29	3.66	2.54	0.11	0.11	0.01	623.04	0.03	0.00	625.06
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Off-Highway Trucks	0.99	6.50	6.66	0.24	0.22	0.03	2,560.70	0.83	0.02	2,588.27
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.74	0.08	0.07	0.00	455.16	0.15	0.00	460.07
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.31	3.72	2.58	0.12	0.12	0.01	623.04	0.03	0.00	625.12
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.17	1.92	1.61	0.10	0.09	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.24	1.45	0.07	0.06	0.00	301.77	0.10	0.00	305.01
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	3.14	32.90	24.64	1.06	1.02	0.08	7,294.07	1.72	0.06	7,355.74
Grubbing/Land Clearing	tons per phase	0.04	0.47	0.35	0.02	0.01	0.00	104.31	0.02	0.00	105.19

Grading/Excavation	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.24	2.41	1.63	0.08	0.08	0.00	375.26	0.02	0.00	376.63
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.90	0.06	0.06	0.01	917.36	0.30	0.01	927.26
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.31	3.65	2.41	0.11	0.11	0.01	592.67	0.03	0.00	594.70
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.18	3.27	1.40	0.07	0.06	0.01	500.27	0.16	0.00	505.66
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.29	3.66	2.54	0.11	0.11	0.01	623.04	0.03	0.00	625.06
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Off-Highway Trucks	0.99	6.50	6.66	0.24	0.22	0.03	2,560.70	0.83	0.02	2,588.27
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.74	0.08	0.07	0.00	455.16	0.15	0.00	460.07
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.31	3.72	2.58	0.12	0.12	0.01	623.04	0.03	0.00	625.12
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.17	1.92	1.61	0.10	0.09	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.24	1.45	0.07	0.06	0.00	301.77	0.10	0.00	305.01
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	3.14	32.90	24.64	1.06	1.02	0.08	7,294.07	1.72	0.06	7,355.74
Grading/Excavation	tons per phase	0.20	2.12	1.59	0.07	0.07	0.00	469.37	0.11	0.00	473.34

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.24	2.41	1.63	0.08	0.08	0.00	375.26	0.02	0.00	376.63
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.90	0.06	0.06	0.01	917.36	0.30	0.01	927.26
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.31	3.65	2.41	0.11	0.11	0.01	592.67	0.03	0.00	594.70
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.18	3.27	1.40	0.07	0.06	0.01	500.27	0.16	0.00	505.66
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.29	3.66	2.54	0.11	0.11	0.01	623.04	0.03	0.00	625.06
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Off-Highway Trucks	0.99	6.50	6.66	0.24	0.22	0.03	2,560.70	0.83	0.02	2,588.27
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.74	0.08	0.07	0.00	455.16	0.15	0.00	460.07
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.31	3.72	2.58	0.12	0.12	0.01	623.04	0.03	0.00	625.12
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.17	1.92	1.61	0.10	0.09	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.24	1.45	0.07	0.06	0.00	301.77	0.10	0.00	305.01
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	3.14	32.90	24.64	1.06	1.02	0.08	7,294.07	1.72	0.06	7,355.74
Drainage/Utilities/Sub-Grade	tons per phase	0.13	1.41	1.06	0.05	0.04	0.00	312.92	0.07	0.00	315.56

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.23	2.41	1.57	0.07	0.07	0.00	375.26	0.02	0.00	376.62
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.88	0.06	0.06	0.01	917.30	0.30	0.01	927.20
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.30	3.65	2.34	0.10	0.10	0.01	592.67	0.03	0.00	594.67
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.17	3.26	1.31	0.06	0.06	0.01	500.30	0.16	0.00	505.70
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.28	3.66	2.47	0.10	0.10	0.01	623.04	0.02	0.00	625.03
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Off-Highway Trucks	0.97	6.43	6.17	0.22	0.20	0.03	2,559.99	0.83	0.02	2,587.55
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.66	0.08	0.07	0.00	455.07	0.15	0.00	459.98
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.30	3.72	2.50	0.11	0.11	0.01	623.04	0.03	0.00	625.09
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.16	1.91	1.53	0.09	0.08	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.23	1.39	0.06	0.06	0.00	301.92	0.10	0.00	305.17
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Paving	pounds per day	3.06	32.81	23.53	0.99	0.94	0.08	7,293.40	1.72	0.06	7,354.97
	Paving	tons per phase	0.07	0.70	0.50	0.02	0.02	0.00	156.44	0.04	0.00	157.76
Total Emissions all Phases (tons per construction period) =>			0.45	4.70	3.50	0.15	0.14	0.01	1,043.04	0.25	0.01	1,051.85

Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		221		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		231		8
Crawler Tractors		212		8
Crushing/Proc. Equipment		85		8
Excavators		158		8
Forklifts		89		8
Generator Sets		84		8
Graders		187		8
Off-Highway Tractors		124		8
Off-Highway Trucks		402		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		168		8
Pavers		130		8
Paving Equipment		132		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		80		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		247		8
Rubber Tired Loaders		203		8
Scrapers		367		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		263		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		97		8
Trenchers		78		8
Welders		46		8

END OF DATA ENTRY SHEET

APPENDIX E-2

Greenhouse Gas Analysis for the Wine Country Sewer Project, Southern Alignment

RECON

An Employee-Owned Company

December 7, 2023

Mr. Joseph Broadhead
Eastern Municipal Water District
2270 Trumble Road
P.O. Box 8300
Perris, CA 92572

Reference: Greenhouse Gas Analysis for the Wine Country Sewer Project, Southern Alignment (RECON Number 9878-21)

Dear Mr. Broadhead:

The purpose of this report is to assess potential greenhouse gas (GHG) impacts resulting from development of the Wine Country Sewer Project, Southern Alignment (project) located within the city of Temecula and an unincorporated portion of Riverside County, California. The analysis of impacts is based on regional guidelines, policies, and standards established by the South Coast Air Quality Management District (SCAQMD).

1.0 Project Description

The Eastern Municipal Water District (District) is proposing to construct a new sewer transmission line and associated laterals that would provide sewer service to an area within the County and the City that is currently utilizing septic systems (Figure 1). Regional access to the project is provided via Interstate 15, located approximately 3.6 miles to the west, and local access is provided via State Route 79. The project site consists of an approximately 4.34-mile segment of De Portola Road, beginning at the intersection with Butterfield Stage Road and extending eastward to the intersection with Pulgas Creek Road (Figure 2). The project is generally bounded by residential developments, agricultural land, and disturbed land, with sparse native habitats occurring along the project alignment.

Figure 3 presents the location of the proposed sewer transmission line within De Portola Road. The sewer transmission line would be constructed primarily within the rights-of-way (ROW) of paved roadways, with the exception of an approximately 1.15-mile segment of De Portola Road that is unpaved. The approximate locations of the sewer transmission lines are shown with a red line, and the aboveground work areas, including trenching and potential construction staging areas, are shown in black cross-hatching. The sewer transmission lines would be constructed primarily with open trench construction, and culvert crossings would be protected in place with supports that allow for undercrossing. Laterals for future connections would be constructed to adjacent property lines. Potential construction staging areas would be located within disturbed land within the ROW adjacent to the roadway, subject to access agreements with private property owners. Roadways impacted during construction would be returned to original grade, and adjacent natural soils impacted during construction would be revegetated with hydroseeding. No night work would occur, nor would temporary/permanent lighting be used. The project would not construct any aboveground structures.

Pipeline installation would occur at 80 feet per day for pipe with standard cover (7.5-foot depth), and at 50 feet per day for pipe deeper than standard cover (greater than 7.5-foot depth). Construction is anticipated to last 18 months. Operation would involve routine sewer video inspections approximately every three years. Operational cleaning using a Vactor truck (sewage vacuum truck) would occur every 3 to 5 years.

It is anticipated that the District would implement the project. This report provides the necessary GHG data and background information required for environmental analysis of the project subject to the California Environmental Quality Act (CEQA). In addition, because the project will be partially funded with the State and Tribal Assistance Grants account of the U.S. Environmental Protection Agency's section of the Consolidated Appropriations Act, the project is subject to federal regulations, including the National Environmental Policy Act (NEPA).

2.0 Environmental Setting

2.1 GHG Inventories

2.1.1 State GHG Inventory

The California Air Resources Board (CARB) performs statewide GHG inventories. The inventory is divided into nine broad sectors of economic activity: agriculture, commercial, electricity generation, forestry, high global warming potential (GWP) emitters, industrial, recycling and waste, residential, and transportation. Emissions are quantified in million metric tons of CO_2 equivalent (MMT CO_2E). Table 1 shows the estimated statewide GHG emissions for the years 1990, 2010, 2017, and 2020. Although annual GHG inventory data is available for years 2000 through 2020, the years 1990, 2010, 2017, and 2020 are highlighted in Table 1 because 1990 is the baseline year for established reduction targets, 2010 and 2017 correspond to the same years for which inventory data for the County and the region is available, and 2020 is the most recent data available.

Table 1
California GHG Emissions by Sector

Sector	1990[1] Emissions in MMT CO_2E (% total)[2]	2010[3] Emissions in MMT CO_2E (% total)[2]	2017[3] Emissions in MMT CO_2E (% total)[2]	2020[3] Emissions in MMT CO_2E (% total)[2]
Electricity Generation	110.5 (25.7%)	90.5 (20.2%)	64.4 (15.7%)	59.8 (16.2%)
Transportation	150.6 (35.0%)	170.2 (38.0%)	171.0 (41.6%)	139.9 (37.9%)
Industrial	105.3 (24.4%)	101.3 (22.6%)	93.3 (22.7%)	85.3 (23.1%)
Commercial	14.4 (3.4%)	20.1 (4.5%)	21.8 (5.3%)	22.0 (6.0%)
Residential	29.7 (6.9%)	32.1 (7.2%)	28.4 (6.9%)	30.7 (8.3%)
Agriculture & Forestry	18.9 (4.4%)	33.7 (7.5%)	31.7 (7.7%)	31.6 (8.6%)
Not Specified	1.3 (0.3%)	-	-	-
Total[4]	**430.7**	**447.9**	**410.6**	**369.3**

SOURCE: CARB 2007 and 2022a.
[1]1990 data was obtained from the CARB 2007 source and are based on IPCC fourth assessment report GWPs.
[2]Percentages may not total 100 due to rounding.
[3]2010, 2017, and 2020 data was retrieved from the CARB 2022 source and are based on IPCC fourth assessment report GWPs.
[4]Totals may vary due to independent rounding.

As shown in Table 1, statewide GHG source emissions totaled approximately 431 MMT CO_2E in 1990, 448 MMT CO_2E in 2010, 411 MMT CO_2E in 2017, and 369 MMT CO_2E in 2020. Many factors affect year-to-year changes in GHG emissions, including economic activity, demographic influences, environmental conditions such as drought, and the impact of regulatory efforts to control GHG emissions. As shown in Table 1, transportation-related emissions consistently contribute to the most GHG emissions.

2.1.2 Regional GHG Inventory

In September 2014, the Western Riverside Council of Governments adopted the *Subregional Climate Action Plan* (Western Riverside Council of Governments 2014). The plan inventoried existing emissions within western Riverside

County and outlines measures to reduce future emissions. The communitywide GHG emissions were calculated using the International Council for Local Environmental Initiatives U.S. Community Protocol. The results of the community inventory for 2010 are summarized in Table 2. Similar to the statewide emissions, transportation-related GHG emissions contributed the most countywide, followed by emissions associated with energy use.

Table 2
Western Riverside County GHG Emissions in 2010

Source	2010 Baseline Emissions	
	MT CO_2E	%
Transportation	3,317,387	56.9%
Commercial/Industrial Energy	1,226,479	21.0%
Residential Energy	1,167,843	20.0%
Waste	112,161	1.9%
Wastewater	10,531	0.2%
Total Inventory	**5,834,400**	-

SOURCE: Western Riverside Council of Governments 2014.
NOTE: Total may vary due to independent rounding.

2.1.3 Local GHG Inventory

A 2017 GHG emissions inventory was conducted in conjunction with preparation of the County's CAP. The results are summarized in Table 3. The City does not have an adopted CAP or recent GHG communitywide GHG inventory.

Table 3
2017 Communitywide GHG Emissions by Source

Source	2017 Baseline Emissions	
	MT CO_2E	%
Transportation (on-road)	1,766,784	36.02
Agriculture	1,670,954	34.06
Energy (Electricity and Natural Gas)	1,188,138	24.22
Solid Waste	204,365	4.17
Water and Wastewater	44,606	0.91
Aviation	26,786	0.55
Off-Road Sources	3,883	0.08
Total	**4,905,516***	**100.00**

MT CO_2E = metric tons of carbon dioxide equivalent
*CAP reports a total of 4,905,518. This is likely due to rounding.
SOURCE: County of Riverside 2019

2.2 Regulatory Background

In response to rising concern associated with increasing GHG emissions and global climate change impacts, several plans and regulations have been adopted at the international, national, and state levels with the aim of reducing GHG emissions. The following is a discussion of the federal, state, and local plans and regulations most applicable to the project.

2.2.1 Federal

The federal government, U.S. Environmental Protection Agency (U.S. EPA), and other federal agencies have many federal level programs and projects to reduce GHG emissions. In June 2012, the Council on Environmental Quality

revised the Federal Greenhouse Gas Accounting and Reporting Guidance originally issued in October 2010. The Council on Environmental Quality guidance identifies ways in which federal agencies can improve consideration of GHG emissions and climate change for federal actions. The guidance states that National Environmental Policy Act documents should provide decision makers with relevant and timely information and should consider (1) GHG emissions of a Proposed Action and alternative actions and (2) the relationship of climate change effects to a Proposed Action or alternatives. Specifically, if a Proposed Action would be reasonably anticipated to cause direct emissions of 25,000 MT CO_2E GHG emissions on an annual basis, agencies should consider this as an indicator that a quantitative assessment may be meaningful to decision makers and the public (Council on Environmental Quality 2012).

2.2.1.1 U.S. Environmental Protection Agency

In 2009, the U.S. EPA issued its science-based finding that the buildup of heat-trapping GHGs in the atmosphere endangers public health and welfare. The "Endangerment Finding" reflects the overwhelming scientific evidence on the causes and impacts of climate change. It was made after a thorough rulemaking process considering thousands of public comments and was upheld by the federal courts.

The U.S. EPA has many federal level programs and projects to reduce GHG emissions. The U.S. EPA provides technical expertise and encourages voluntary reductions from the private sector. The U.S. EPA also collaborates with the public sector, including states, tribes, localities, and resource managers, to encourage smart growth, sustainability preparation, and renewable energy and climate change preparation. These initiatives include the Clean Energy – Environment State Partnership Program, the Climate Ready Water Utilities Initiative, the Climate Ready Estuaries Program, and the Sustainable Communities Partnership (U.S. EPA 2020).

2.2.1.2 Corporate Average Fuel Economy Standards

The federal Corporate Average Fuel Economy (CAFE) standards determine the fuel efficiency of certain vehicle classes in the U.S. The National Highway Traffic Safety Administration (NHTSA) sets CAFE standards for passenger cars and for light trucks (collectively, light-duty vehicles) and separately sets fuel consumption standards for medium- and heavy-duty trucks and engines. With improved gas mileage, fewer gallons of transportation fuel would be combusted to travel the same distance, thereby reducing nationwide GHG emissions associated with vehicle travel. The most recent standards require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8 percent annually for model years 2024 and 2025 and 10 percent annually for model year 2026.

2.2.2 State

The State of California has adopted a number of plans and regulations aimed at identifying statewide and regional GHG emissions caps, GHG emissions reduction targets, and actions and timelines to achieve the target GHG reductions.

2.2.2.1 Executive Orders and Statewide GHG Emission Targets

Executive Order S-3-05

Executive Order (EO) S-3-05 established the following GHG emission reduction targets for the State of California:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels;
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

This EO also directs the secretary of the California Environmental Protection Agency (CalEPA) to oversee the efforts made to reach these targets, and to prepare biannual reports on the progress made toward meeting the targets and on the impacts to California related to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. With regard to impacts, the report shall also prepare and document mitigation and adaptation plans to combat the impacts. The first Climate Action Team Assessment Report was produced in March 2006, and has since been updated every two years.

Executive Order B-30-15

EO B-30-15, issued on April 29, 2015, establishes an interim GHG emission reduction goal for the state of California by 2030 of 40 percent below 1990 levels. This EO also directed all state agencies with jurisdiction over GHG emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in EO S-3-05. Additionally, this EO directed CARB to update its Climate Change Scoping Plan to address the 2030 goal.

Assembly Bill 1279

Assembly Bill (AB) 1279, approved in September 2022, requires the state to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter, and to ensure that by 2045, statewide anthropogenic GHG emissions are reduced to at least 85 percent below 1990 levels. The bill would require the state board to work with relevant state agencies to ensure that updates to the scoping plan identify and recommend measures to achieve these policy goals and to identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies.

2.2.2.2 California Global Warming Solutions Act

In response to EO S-3-05, the California Legislature passed AB 32, the California Global Warming Solutions Act of 2006, and thereby enacted Sections 38500–38599 of the California Health and Safety Code. The heart of AB 32 is its requirement that CARB establish an emissions cap and adopt rules and regulations that would reduce GHG emissions to 1990 levels by 2020. AB 32 also required CARB to adopt a plan by January 1, 2009, indicating how emission reductions would be achieved from significant GHG sources via regulations, market mechanisms, and other actions.

In 2008, CARB estimated that annual statewide GHG emissions were 427 MMT CO_2E in 1990 and would reach 596 MMT CO_2E by 2020 under a business as usual (BAU) condition (CARB 2008). To achieve the mandate of AB 32, CARB determined that a 169 MMT CO_2E (or approximate 28.5 percent) reduction in BAU emissions was needed by 2020. In 2010, CARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. CARB determined that the economic downturn reduced the 2020 BAU by 55 MMT CO_2E; as a result, achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 (not 28.5) percent from the 2020 BAU. California has achieved its 2020 goal.

Approved in September 2016, Senate Bill (SB) 32 updates the California Global Warming Solutions Act of 2006 and enacts EO B-30-15. Under SB 32, the state would reduce its GHG emissions to 40 percent below 1990 levels by 2030. This is equivalent to an emissions level of approximately 260 MMT CO_2e for 2030. In implementing the 40 percent reduction goal, CARB is required to prioritize emissions reductions to consider the social costs of the emissions of GHGs; where "social costs" is defined as "an estimate of the economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such as property damages from increased flood risk; and changes in energy system costs, per metric ton of greenhouse gas emission per year."

2.2.2.3 Climate Change Scoping Plan

As directed by the California Global Warming Solutions Act of 2006, in 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan), which identifies the main strategies California will implement to achieve the GHG reductions necessary to reduce forecasted BAU emissions in 2020 to the state's historic 1990 emissions level (CARB 2008). In November 2017, CARB released the *2017 Climate Change Scoping Plan Update, the Strategy for Achieving California's 2030 Greenhouse Gas Target* (2017 Scoping Plan; CARB 2017). The 2017 Scoping Plan identifies state strategies for achieving the state's 2030 GHG emissions reduction target codified by SB 32. Measures under the 2017 Scoping Plan Scenario build on existing programs such as the Low Carbon Fuel Standard, Advanced Clean Cars Program, Renewables Portfolio Standard (RPS), Sustainable Communities Strategy (SCS), Short-Lived Climate Pollutant Reduction Strategy, and the Cap-and-Trade Program. Additionally, the 2017 Scoping Plan proposes new policies to address GHG emissions from natural and working lands. The *2022 Scoping Plan Update for Achieving Carbon Neutrality* (2022 Scoping Plan; CARB 2022b) was adopted in December 2022. The 2022 Scoping Plan assesses the progress towards the 2030 GHG emissions reduction target identified in the 2017 Scoping Plan and lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by AB 1279. The 2022 Scoping Plan identifies strategies related to clean technology, energy development, natural and working lands, and others, and is designed to meet the state's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

2.2.2.4 Regional Emissions Targets – Senate Bill 375

SB 375, the 2008 Sustainable Communities and Climate Protection Act, was signed into law in September 2008 and requires CARB to set regional targets for reducing passenger vehicle GHG emissions in accordance with the Scoping Plan. The purpose of SB 375 is to align regional transportation planning efforts, regional GHG reduction targets, and fair-share housing allocations under state housing law. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a SCS or Alternative Planning Strategy to address GHG reduction targets from cars and light-duty trucks in the context of that MPO's Regional Transportation Plan. Southern California Association of Governments (SCAG) is the region's MPO. In 2018, CARB set targets for the SCAG region of an 8 percent reduction in GHG emissions per capita from automobiles and light-duty trucks compared to 2005 levels by 2020 and a 19 percent reduction by 2035. These targets are periodically reviewed and updated.

2.2.2.5 Renewables Portfolio Standard

The RPS promotes diversification of the state's electricity supply and decreased reliance on fossil fuel energy sources. Renewable energy includes (but is not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas. Originally adopted in 2002 with a goal to achieve a 20 percent renewable energy mix by 2020 (referred to as the "Initial RPS"), the goal has been accelerated and increased by EOs S-14-08 and S-21-09 to a goal of 33 percent by 2020. In April 2011, SB 2 (1X) codified California's 33 percent RPS goal. SB 350 (2015) increased California's renewable energy mix goal to 50 percent by year 2030. SB 100 (2018) further increased the standard set by SB 350 establishing the RPS goal of 44 percent by the end of 2024, 52 percent by the end of 2027, and 60 percent by 2030.

2.2.3 Local

2.2.3.1 South Coast Air Quality Management District

The SCAQMD is the agency responsible for air quality planning and regulation in the South Coast Air Basin. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use

agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the South Coast Air Basin. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – *Interim CEQA GHG Significance Thresholds for Stationary Sources, Rules, and Plans*, which could be applied by lead agencies. The working group met again in 2010 to review the guidance. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach (SCAQMD 2008, 2010):

- Tier 1 – The project is exempt from the California Environmental Quality Act (CEQA).
- Tier 2 – The project is consistent with an applicable regional GHG emissions reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 – Project GHG emissions represent an incremental increase below or mitigated to less than Significance Screening Levels, where
    - Residential/Commercial Screening Level
        - Option 1: 3,000 MT CO2E screening level for all residential/commercial land uses
        - Option 2: Screening level thresholds for land use type acceptable if used consistently by a lead agency:
            - Residential: 3,500 MT CO_2E
            - Commercial: 1,400 MT CO_2E
            - Mixed-Use: 3,000 MT CO_2E
    - 10,000 MT CO_2E is the Permitted Industrial Screening Level
- Tier 4 – The project achieves performance standards, where performance standards may include:
    - Option 1: Percent emission reduction target. SCAQMD has no recommendation regarding this approach at this time.
    - Option 2: The project would implement substantial early implementation of measures identified in the CARB's Scoping Plan. This option has been folded into Option 3.
    - Option 3: SCAQMD Efficiency Targets.
        - 2020 Targets: 4.8 MT CO_2E per service population for project-level analyses or 6.6 MT CO_2E per service population for plan level analyses where service population includes residential and employment populations provided by a project.
        - 2035 Targets: 3.0 MT CO_2E per service population for project-level analyses or 4.1 MT CO_2E per service population for plan level analyses.
- Tier 5 – Offsets along or in combination with the above target Significance Screening Level. Offsets must be provided for a 30-year project life, unless the project life is limited by permit, lease, or other legally binding condition.

If a project complies with any one of these tiers, its impacts related to GHG emissions would be considered less than significant.

The SCAQMD's interim thresholds used the EO S-3-05 year 2050 goal as the basis for the Tier 3 screening level. Achieving the EO's objective would contribute to worldwide efforts to cap CO_2 concentrations at 450 parts per million, thus stabilizing global climate.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

SCAQMD Regulation XXVII, adopted in 2009, includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.
- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

2.2.3.2 Southern California Association of Governments

In September 2020, SCAG adopted Connect SoCal, the 2020-2045 Regional Transportation Plan/SCS South Coast Air Basin. The Connect SoCal plan identifies that land use strategies that focus on new housing and job growth in areas with a variety of destinations and mobility options would support and complement the proposed transportation network. The overarching strategy in Connect SoCal is to provide for a plan that allows the southern California region to grow in more compact communities in transit priority areas and priority growth areas; provide neighborhoods with efficient and plentiful public transit; establish abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and preserve more of the region's remaining natural lands and farmlands (SCAG 2020). The Connect SoCal plan contains transportation projects to help more efficiently distribute population, housing, and employment growth as well as projected development that promotes active transport and reduces GHG emissions.

2.2.3.3 County of Riverside

The Air Quality Element of the County's General Plan (County of Riverside 2018) contains the following policies related to GHG emissions:

> AQ 18.1 **Baseline emissions inventory and forecast**. Riverside County CAP has included baseline emissions inventory with data from the County's CO2e emissions, for specific sectors and specific years. The carbon inventory greatly aids the process of determining the type, scope and number of GHG reduction policies needed. It also facilitates the tracking of policy implementation and effectiveness. The carbon inventory for the County consists of two distinct components; one inventory is for the County as a whole, as defined by its geographical borders and the other inventory is for the emissions resulting from the County's municipal operations.
>
> AQ 18.2 **Adopt GHG emissions reduction targets**. Pursuant to the results of the Carbon Inventory and Greenhouse Gas Analysis for Riverside County, future development proposed as a discretionary project pursuant to the General Plan shall achieve sufficient reductions in greenhouse gas emissions in order to be found consistent with the County's Climate Action Plan.
>
> AQ 18.3 **Develop a Climate Action Plan for reducing GHG emissions**. The Riverside County CAP has been developed to formalize the measure necessary to achieve County GHG emissions reduction targets. The

CAP includes both the policies necessary to meet stated targets and objectives are met. These targets, objectives and Implementation Measures may be refined, superseded or supplemented as warranted in the future.

AQ 18.4 **Implement policies and measures to achieve reduction targets**. The County shall implement the greenhouse gas reduction policies and measures established under the County Climate Action Plan for all new discretionary development proposals.

AQ 18.5 **Monitor and verify results.** The County shall monitor and verify the progress and results, and make any necessary revisions to, the CAP by 2020 and a minimum every four years thereafter. The progress and results of, and revisions to, the CAP will be made available to the public for review prior to approval. If monitoring reveals that the targets of the CAP are not being met, the CAP shall be revised to ensure that any changes needed to stay 'on target' with the stated goals are accomplished.

AQ 19.1 Continue to coordinate with CARB, SCAQMD, and the State Attorney General's office to ensure that the milestones and reduction strategies presented in the General Plan and the CAP adequately address the county's GHG emissions.

AQ 19.2 Utilize County's CAP as the guiding document for determining County's greenhouse gas reduction thresholds and implementation programs. Implementation of the CAP and its monitoring program shall include the ability to expand upon, or where appropriate, update or replace the Implementation Measures established herein such that the implementation of the CAP accomplishes the greenhouse gas reduction targets.

2.2.3.4 County of Riverside Climate Action Plan (CAP)

The CAP Update (November 2019) establishes GHG emission reduction programs and regulations that correlate with and support evolving State GHG emissions reduction goals and strategies. The CAP Update includes reduction targets for year 2030 and year 2050. These reduction targets require the County to reduce emissions by at least 525,511 MT CO_2E below the adjusted business-as-usual scenario by 2030 and at least 2,982,948 MT CO_2E below the adjusted business-as-usual scenario by 2050.

To evaluate consistency with the CAP Update, the County has implemented CAP Update Screening Tables (Screening Tables) to aid in measuring the reduction of GHG emissions attributable to certain design and construction measures incorporated in development projects. To this end, the Screening Tables establish categories of GHG Implementation Measures. Under each Implementation Measure category, mitigation, or project design feature (collectively "features") are assigned point values that correspond to the minimum GHG emissions reduction that would result from each feature. Projects that yield at least 100 points are considered to be consistent with the GHG emissions reduction quantities anticipated in the County's GHG Technical Report and support the GHG emissions reduction targets established under the CAP Update. The potential for such projects to generate direct or indirect GHG emissions that would result in a significant impact on the environment; or conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs would be considered less than significant.

3.0 Thresholds of Significance

The significance of the project's GHG impacts were evaluated using CEQA Guidelines. In addition, because the project will be partially funded with the State and Tribal Assistance Grants account of the U.S. Environmental Protection Agency's section of the Consolidated Appropriations Act, the project is subject to federal regulations, including NEPA.

3.1 CEQA

Based on the CEQA Guidelines Appendix G, impacts related to GHG emissions would be significant if the project would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs.

As stated in the State CEQA Guidelines, these questions are "intended to encourage thoughtful assessment of impacts and do not necessarily represent thresholds of significance" (Title 14, Division 6, Chapter 3 Guidelines for Implementation of the CEQA, Appendix G, Environmental Checklist Form). The State CEQA Guidelines encourage lead agencies to adopt regionally specific thresholds of significance. When adopting these thresholds, the amended Guidelines allow lead agencies to consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, provided that the thresholds are supported by substantial evidence.

The District has not adopted its own GHG thresholds of significance for CEQA. The SCAQMD published its Interim CEQA GHG Significance Thresholds for Stationary Sources, Rules, and Plans in 2008 (SCAQMD 2008). The interim thresholds are a tiered approach: projects may be determined to be less than significant under each tier or require further analysis under subsequent tiers. For the project, the most appropriate screening threshold for determining GHG emissions is the SCAQMD proposed Tier 3 screening threshold (SCAQMD 2010); therefore, a significant impact would occur if the project would exceed the SCAQMD proposed Tier 3 screening threshold of 3,000 metric tons carbon dioxide equivalent (MT CO_2E) per year. Although the project is not subject to the requirements of the County's CAP, it should be noted that this is also the screening threshold utilized by the CAP, and therefore is considered most appropriate for evaluating project impacts. Based on guidance from the SCAQMD, total construction GHG emissions resulting from a project should be amortized over the lifetime of a project, which is defined as 30 years (SCAQMD 2009).

3.2 NEPA

There are currently no federal quantitative significance thresholds. However, emissions associated with the project were calculated for informational purposes. The Council on Environmental Quality (CEQ) has issued interim guidance to assist agencies in analyzing GHGs and climate change effects of their proposed actions under NEPA (CEQ 2023). The guidance states "NEPA reviews should quantify proposed actions' GHG emissions, place GHG emissions in appropriate context and disclose relevant GHG emissions and relevant climate impacts, and identify alternatives and mitigation measures to avoid or reduce GHG emissions. CEQ encourages agencies to mitigate GHG emissions associated with their proposed actions to the greatest extent possible, consistent with national, science-based GHG reduction policies established to avoid the worst impacts of climate change." The guidance goes on to say that "when conducting climate change analyses in NEPA reviews, agencies should consider: (1) the potential effects of a proposed action on climate change, including by assessing both GHG emissions and reductions from the proposed action; and (2) the effects of climate change on a proposed action and its environmental impacts."

4.0 GHG Calculations

4.1 Construction Emissions

Emissions associated with pipeline construction were modeled using the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Roadway Construction Emissions Model (RCEM) Version 9.0.1 (SMAQMD 2022).

The RCEM is a spreadsheet-based model that is able to use basic project information (e.g., total construction months, project type, total project area) to estimate a construction schedule and quantify exhaust emissions from heavy-duty construction equipment, haul trucks, and worker commute trips associated with linear construction projects. Version 9.0.1 of the model incorporates the most currently approved 2017 Emission Factor (EMFAC2017) model and Off-Road emissions factors model. The 2021 Emission Factor (EMFAC2021) model was released in January 2021; however, EMFAC2021 has not yet been approved for use by the U.S. Environmental Protection Agency (U.S EPA). EMFAC2017 is the most recent version of the model approved by the U.S. EPA, and was therefore used in this analysis. Use of EMFAC2021 would not result in emissions that are substantially different than those calculated in this analysis, particularly since the main source of emissions would be construction equipment which are calculated using the Off-Road emissions factor model methodologies incorporated into RCEM. Although RCEM was developed by SMAQMD, it is appropriate for use in the SCAQMD jurisdiction because it is applicable for all statewide construction projects that involve construction equipment that is subject to California Air Resources Board (CARB) construction equipment emissions standards and incorporates statewide emission factor models (EMFAC2017 and Off-Road). RCEM calculates fugitive dust, exhaust, and off-gas emissions from grubbing/land clearing, grading/excavation, drainage/utilities/sub-grade, and paving activities associated with construction projects that are linear in nature (e.g., road or levee construction, pipeline installation, transmission lines).

Construction is expected to begin in 2024 and last approximately 18 months. The pipeline alignment would consist of a total of approximately 4.34 miles (22,915 linear feet) of sewer transmission lines. The total project area is 5.24 acres. Excavated soil would likely be replaced in the trench once the new pipeline is replaced; however, to be conservative, hauling was included in the analysis. Hauling emissions associated with asphalt removal were calculated assuming a total of 780 cubic yards of asphalt export (3.19 miles of paved road, 5 feet wide, and 3 inches deep). Hauling emissions associated with soil removal were calculated assuming half the excavated soil would be hauled, for a total of 21,218 cubic yards of soil export (4.34 miles long, 5 feet wide, and 10 feet deep). Asphalt hauling was modeled over the duration of the 1.8-month grubbing/land clear phase, and soil hauling was modeled over the duration of the 8.1-month grading/excavation phase. Modeled construction equipment is summarized in Table 4. This equipment was modeled during each phase of construction. Two signal boards, a water truck, dump trucks used for asphalt and soil hauling, and employee vehicles were also included in the emission calculations. Based on RCEM default values, project construction would require up to 27 workers per day.

Table 4
Construction Equipment

Equipment	Number
Backhoe/loader	1
Hydraulic excavator	1
Utility truck	1
Water truck	1
Compressor	1
Pick-up trucks	1
Concrete saw	1
Pavement breaker	1
Sweeper	1
Paver	1
Generator	1
NOTE: Each phase would also include vehicles associated with work commutes, a water truck, and dump trucks for hauling.	

Based on guidance from the SCAQMD, total construction GHG emissions resulting from a project should be amortized over 30 years and added to operational GHG emissions to account for their contribution to GHG emissions

over the lifetime of a project (SCAQMD 2009). Table 5 summarizes the total and amortized construction emissions. The complete RCEM inputs and outputs for the project are included in Attachment 1.

Table 5 Construction GHG Emissions	
Phase	Construction GHG Emissions (MT CO_2E)
Grubbing/Land Clearing	108
Grading/Excavation	565
Drainage/Utilities/Subgrade	329
Paving	161
Total Construction Emissions	**1,162**
Amortized over 30 Years	*39*
Note: Total varies due to independent rounding.	

4.2 Operational Emissions

Project operation would result in emissions related to minor vehicle/equipment use associated with routine inspection and maintenance. Routine sewer video inspection would occur approximately every three years, and cleaning would occur every five to ten years. These operational activities would be conducted by existing District employees. Operational emissions associated with vehicle emissions from these maintenance activities would be negligible.

The amount of wastewater generated by a land use has indirect GHG emissions associated with it. These emissions are a result of the energy used to move and treat wastewater. Anaerobic decomposition in septic tanks produces fugitive emissions of methane and results in GHG emissions greater than those associated with the municipal sewer system. The project would reduce the reliance on septic systems thereby reducing GHG emissions related to wastewater.

5.0 Impact Analysis

5.1 CEQA

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

As shown in Table 5, the project would result in a total of 1,162 MT CO_2E over the entire construction period, which would be 39 MT CO_2E per year when amortized over the lifetime of the project. After installation of the underground pipeline, there would be occasional inspection and maintenance trips. There would also be minimal emissions associated with wastewater treatment. However, as discussed above, inspection and maintenance trips would be conducted by existing District employees, and vehicle emissions would be negligible. Additionally, the project would reduce the reliance on septic systems, thereby reducing GHG emissions related to wastewater. Overall, GHG emissions generated during construction and operation would be less than the 3,000 MT CO_2E annual screening threshold. Therefore, the project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant.

2. *Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?*

Executive Order (EO) S-3-05 and EO B-30-15 established GHG emission reduction targets for the state, and Assembly Bill 32 launched the CARB Climate Change Scoping Plan that outlined the reduction measures needed to reach the 2020 target, which the state has achieved. As required by Senate Bill 32, CARB's 2017 Scoping Plan outlines reduction measures needed to achieve the interim 2030 target, and the 2022 Scoping Plan outlines the path towards carbon neutrality by 2045. As detailed in the response under Threshold 1 above, the project would result in construction GHG emissions below the SCAQMD proposed Tier 3 screening threshold of 3,000 MT CO_2E per year. Project construction would not result in emissions that would adversely affect statewide attainment of GHG emission reduction goals as described in Assembly Bill 32, EOs S-3-05 and B-30-15, and Senate Bill 32. Therefore, construction emissions would have a less than cumulatively considerable contribution to global climate change.

Anaerobic decomposition in septic tanks produces fugitive emissions of methane. The project would reduce the reliance on septic systems, thereby reducing GHG emissions related to wastewater. The project would not result in a significant increase in regional vehicle miles traveled since vehicle trips would be limited to occasional maintenance trips that would be performed by existing District employees. The project would be consistent with land use designations, as it would provide sewer connections to existing residential uses. Because the project would provide sewer service for existing development, and because project trips would be limited to occasional maintenance activities, it would not conflict with the transportation-related GHG reduction goals outlined in the Regional Transportation Plan. Further, the project would not conflict with energy efficiency standards or conflict with Southern California Edison's Renewables Portfolio Standard renewable energy goals, as these are not applicable to construction and operational activities associated with the project. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and impacts would be less than significant.

5.2 NEPA

As discussed in Section 3.2 above, there are currently no federal quantitative significance thresholds. CEQ guidance requires project to consider "(1) the potential effects of a proposed action on climate change, including by assessing both GHG emissions and reductions from the proposed action; and (2) the effects of climate change on a proposed action and its environmental impacts."

GHG emissions associated with temporary construction activities have been calculated and are summarized in Table 5. Project GHG emissions would be temporary and would cease after construction activities are complete. All construction equipment is subject to the CARB In-Use Off-Road Diesel-Fueled Fleets Regulation, which limits unnecessary idling to 5 minutes, requires all construction fleets to be labeled and reported to CARB, bans Tier 0 equipment and phases out Tier 1 and 2 equipment (thereby replacing fleets with cleaner equipment), and requires that fleets comply with Best Available Control Technology requirements. Implementation of these CARB regulations would reduce GHG emissions. After installation of the underground pipeline, there would be occasional inspection and maintenance trips. There would also be minimal emissions associated with wastewater treatment. However, as discussed above, inspection and maintenance trips would be conducted by existing District employees, and vehicle emissions would be negligible. Additionally, the project would reduce the reliance on septic systems, thereby reducing GHG emissions related to wastewater. Therefore, the project would not have a significant effect on climate change.

Climate change adaptation means altering behaviors and systems to protect from the impacts of climate change including precipitation, temperature, wildfire, drought, floods, storm surge, and sea level rise. The project would

construct underground sewer infrastructure. It does not include the introduction of new sensitive receptors that would be susceptible to the impacts resulting from climate change. Roadways impacted during construction would be returned to original grade, and adjacent natural soils impacted during construction would be revegetated with hydroseeding. Therefore, the effects of climate change on the project are not expected.

6.0 Conclusions

GHG emissions would be generated during construction of the project. Construction activities emit GHGs primarily through the combustion of fuels in on- and off-road equipment and vehicles. As shown in Table 5, the project would result in a total of 1,162 MT CO_2E over the entire construction period, which would be 39 MT CO_2E per year when amortized over the lifetime of the project. After installation of the underground pipeline, there would be occasional inspection and maintenance trips. There would also be minimal emissions associated with wastewater treatment. However, as discussed, inspection and maintenance trips would be conducted by existing District employees and vehicle emissions would be negligible. Additionally, the project would reduce the reliance on septic systems thereby reducing GHG emissions related to wastewater. Overall, GHG emissions generated during construction and operation would be less than the 3,000 MT CO_2E annual screening threshold. Therefore, the project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant. Additionally, project construction would not result in emissions that would adversely affect statewide attainment of GHG emission reduction goals as described in Assembly Bill 32, EOs S-3-05 and B-30-15, and Senate Bill 32. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and impacts would be less than significant.

If you have any questions about the results of this analysis, please contact me at jfleming@reconenvironmental.com or (619) 308-9333 extension 177.

Sincerely,

Jessica Fleming
Senior Air Quality Specialist

JLF:sh

Attachment

7.0 References Cited

California Air Resources Board (CARB)

2007 California Greenhouse Gas Inventory – Summary by Economic Sector. Last updated November 19, 2007.

2008 *Climate Change Scoping Plan: A Framework for Change*. http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. December.

2017 *2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target*. January 20.

2022a Greenhouse Gas Inventory Data—2000 to 2020 (last updated October 26, 2022). https://ww2.arb.ca.gov/ghg-inventory-data.

2022b *Scoping Plan Update for Achieving Carbon Neutrality*. December.

Council on Environmental Quality (CEQ)
2012 Federal Greenhouse Gas Accounting and Reporting Guidance, June 4. Accessed June 24, 2016. https://www.whitehouse.gov/sites/default/files/microsites/ceq/ ghg_guidance_document_0.pdf.

2023 National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change. 88 Federal Register 1196. January 9, 2023.

Riverside, County of
2018 General Plan Air Quality Element. July.

2019 Climate Action Plan Update. November. https://planning.rctlma.org/sites/g/files/aldnop416/files/migrated/Portals-14-CAP-2019-2019-CAP-Update-Full.pdf

Sacramento Metropolitan Air Quality Management District (SMAQMD)
2022 Road Construction Emissions Model, Version 9.0.1.

South Coast Air Quality Management District (SCAQMD)
2008 Draft Guidance Document – *Interim CEQA GHG Significance Thresholds for Stationary Sources, Rules, and Plans*. October.

2009 Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group 14. November 19, 2009.

2010 Greenhouse Gas CEQA Significance Thresholds Stakeholder Working Group 15. September 28, 2010.

Southern California Association of Governments (SCAG)
2020 Connect SoCal: The 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy of the Southern California Association of Governments. Adopted on September 3, 2020.

U.S. Environmental Protection Agency (U.S. EPA)
2020 U.S. EPA State and Local Climate and Energy Program. Accessed June 17, 2020. http://www.epa.gov/statelocalclimate/index.html.

Western Riverside Council of Governments (WRCOG)
2014 *Subregional Climate Action Plan*. Final Report. September 2014.

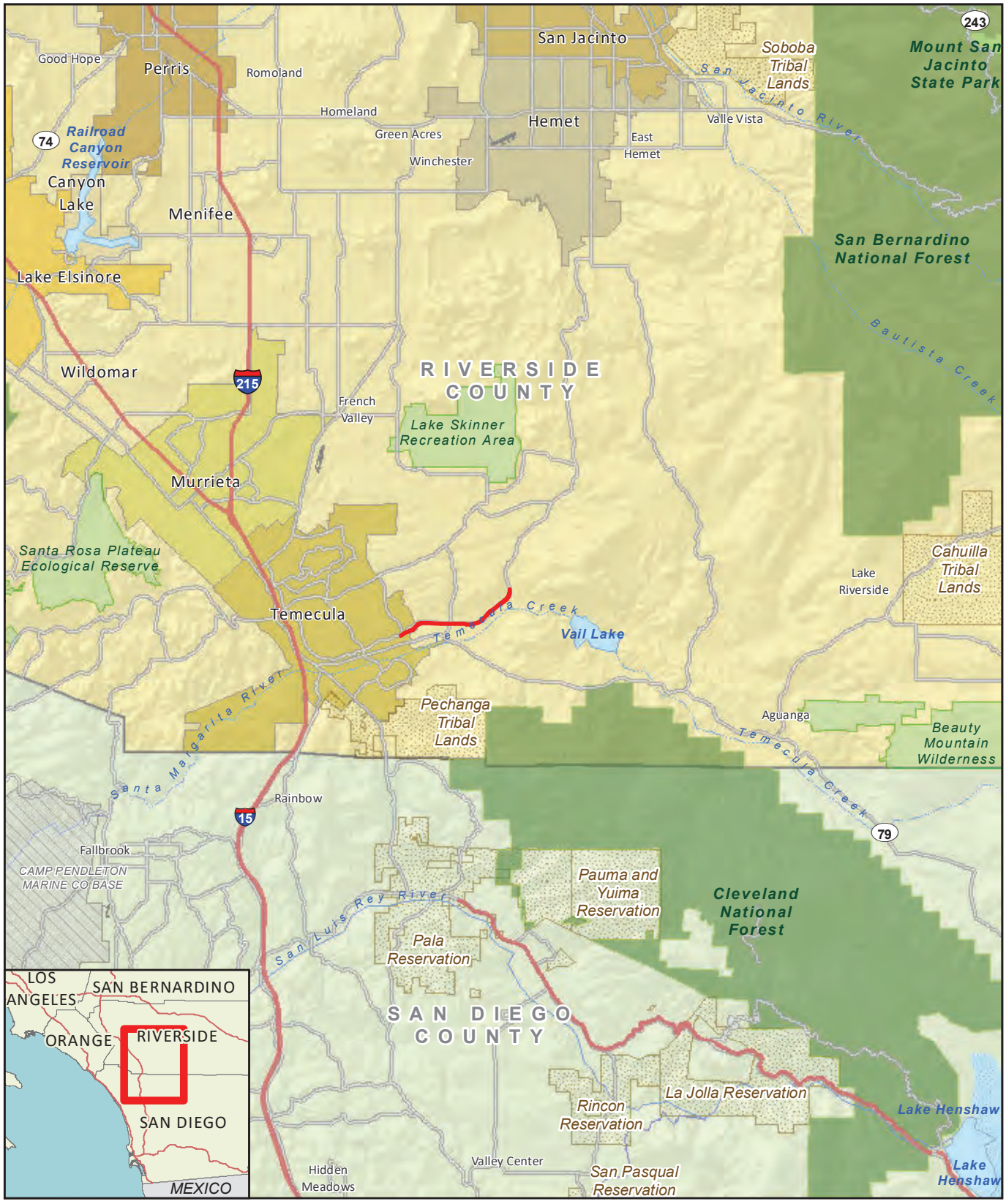

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FIGURE 1
Regional Location

Image Source: NearMap (flown September 2023)

FIGURE 2
Project Location on Aerial Photograph

RECON

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Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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FIGURE 3.1
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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FIGURE 3.2
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

RECON

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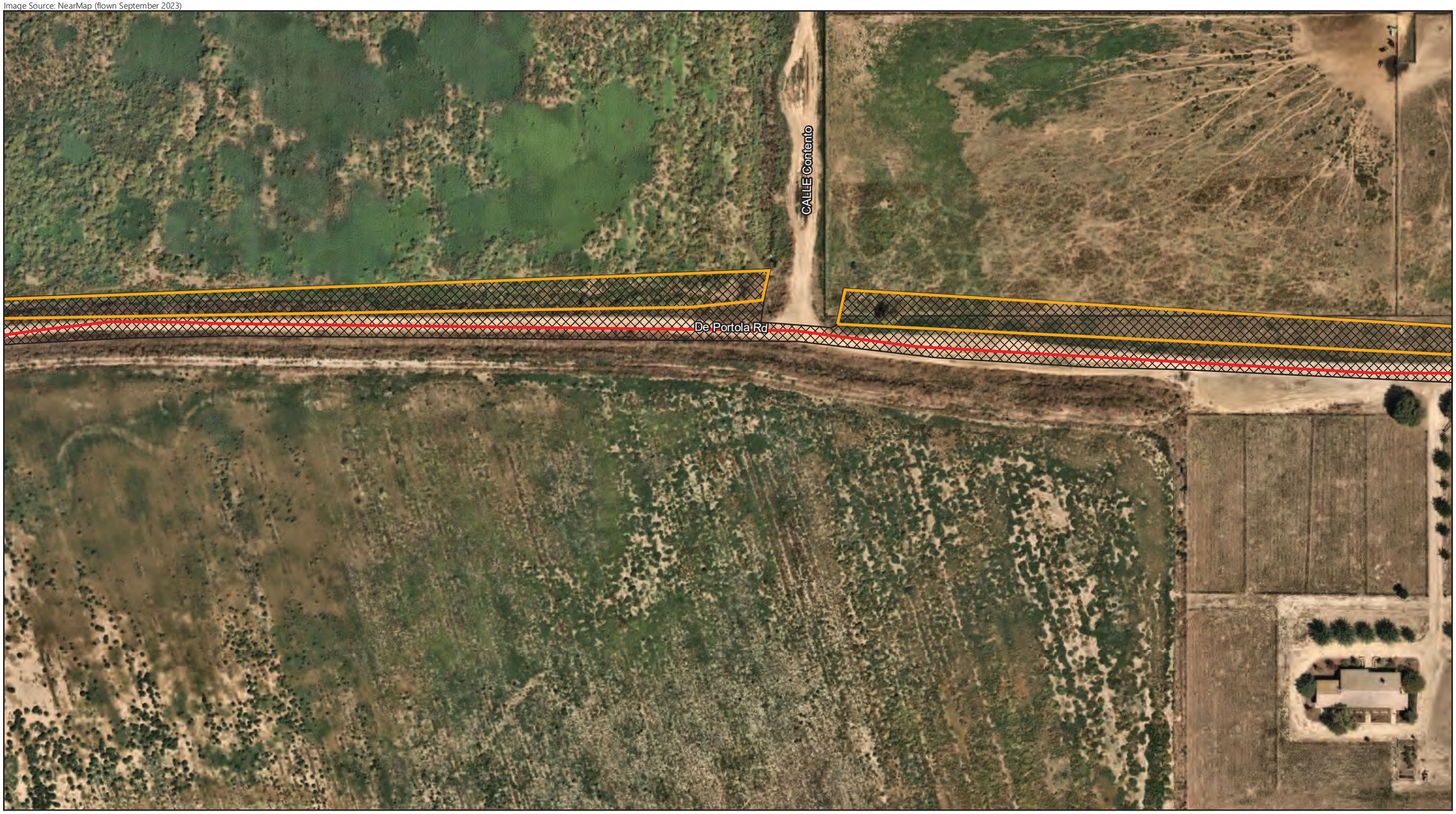
FIGURE 3.3
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)



0 Feet 100

Project Alignment
Potential Staging Area
Area of Potential Effect

RECON

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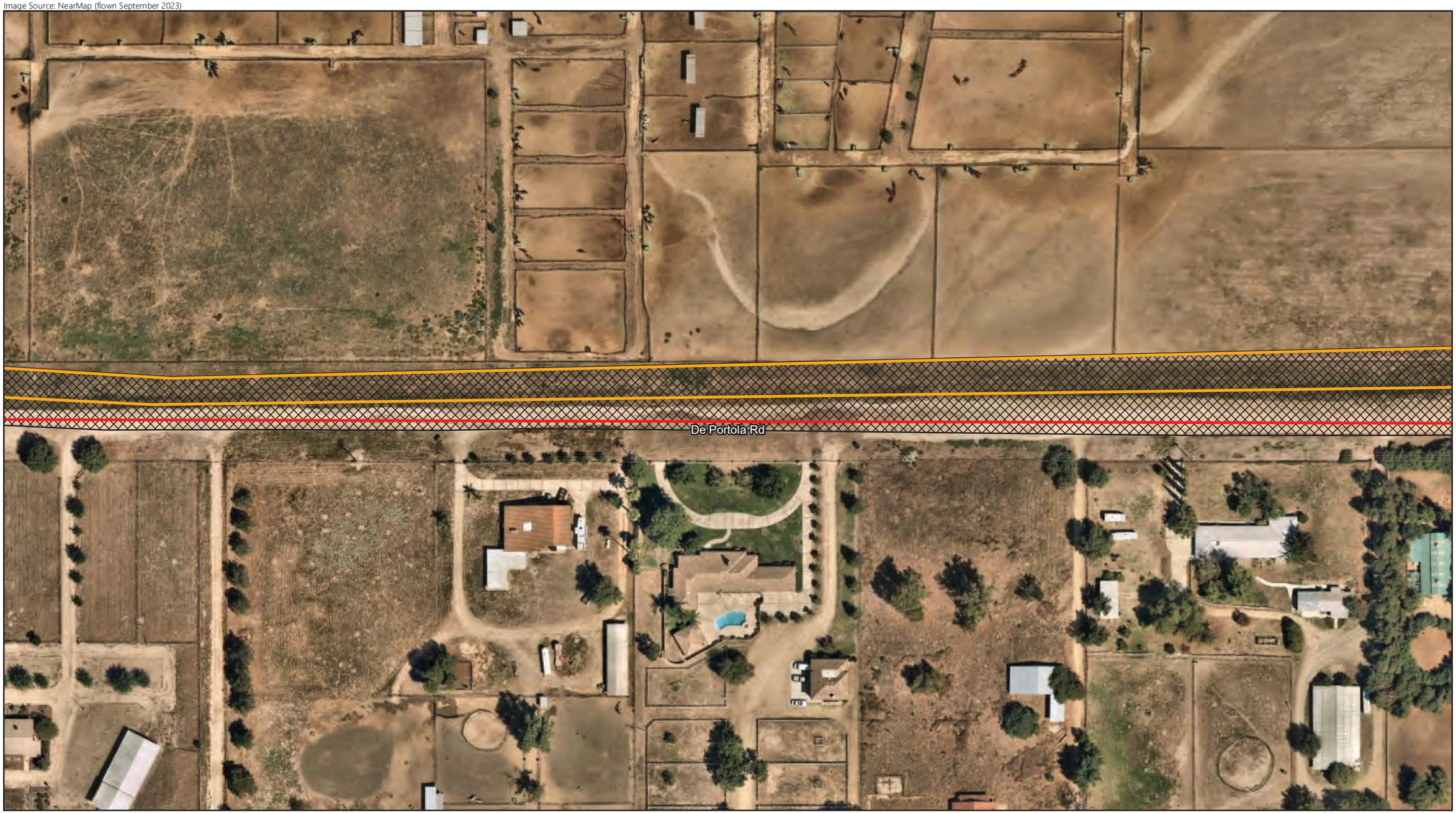
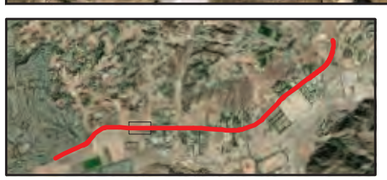
FIGURE 3.4
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)





Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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FIGURE 3.5
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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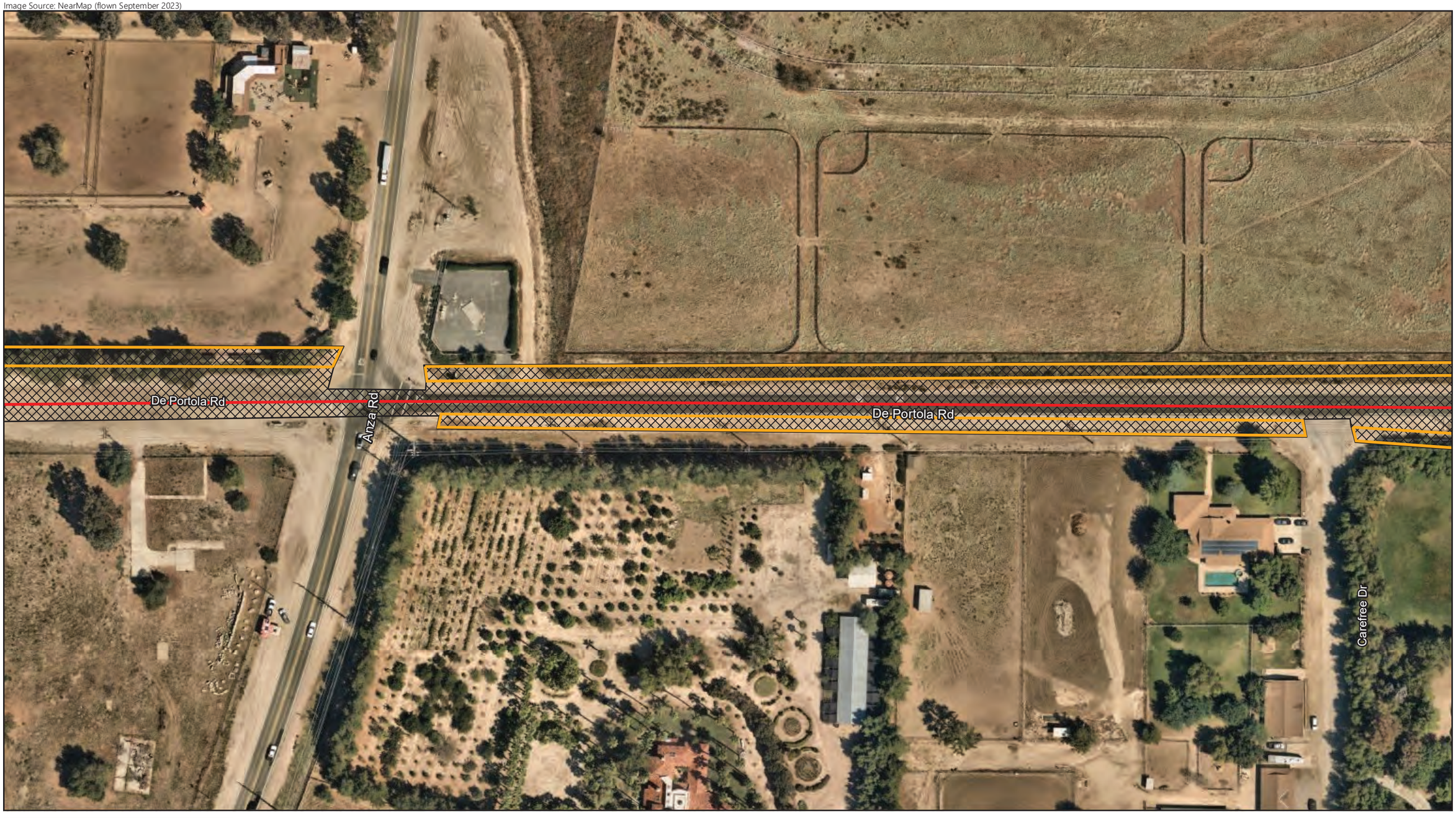
FIGURE 3.6
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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FIGURE 3.7
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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FIGURE 3.8
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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FIGURE 3.9
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

0 Feet 100

Project Alignment
Potential Staging Area
Area of Potential Effect

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FIGURE 3.10
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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FIGURE 3.11
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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FIGURE 3.12
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

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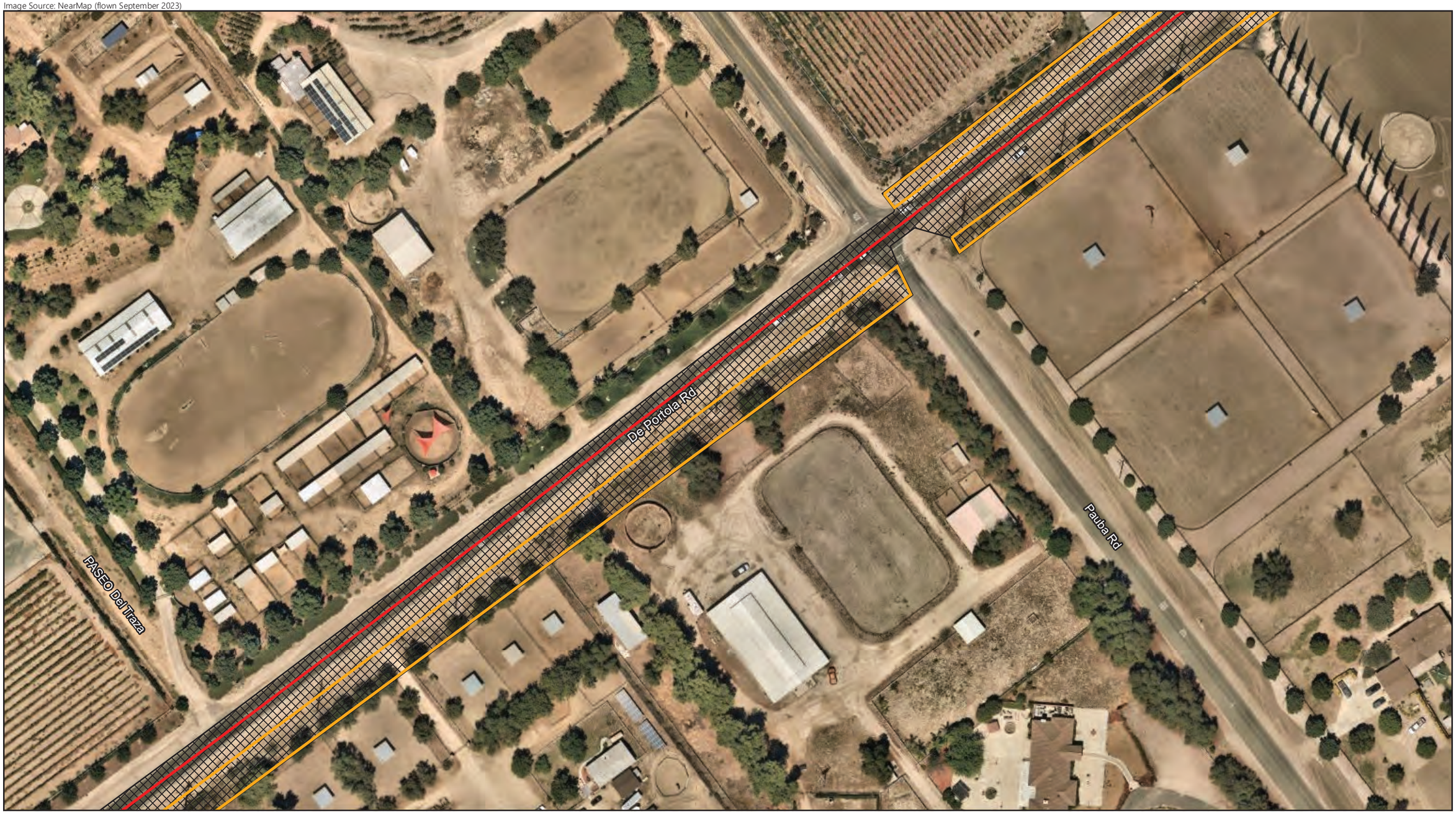
FIGURE 3.13
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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FIGURE 3.14
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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FIGURE 3.15
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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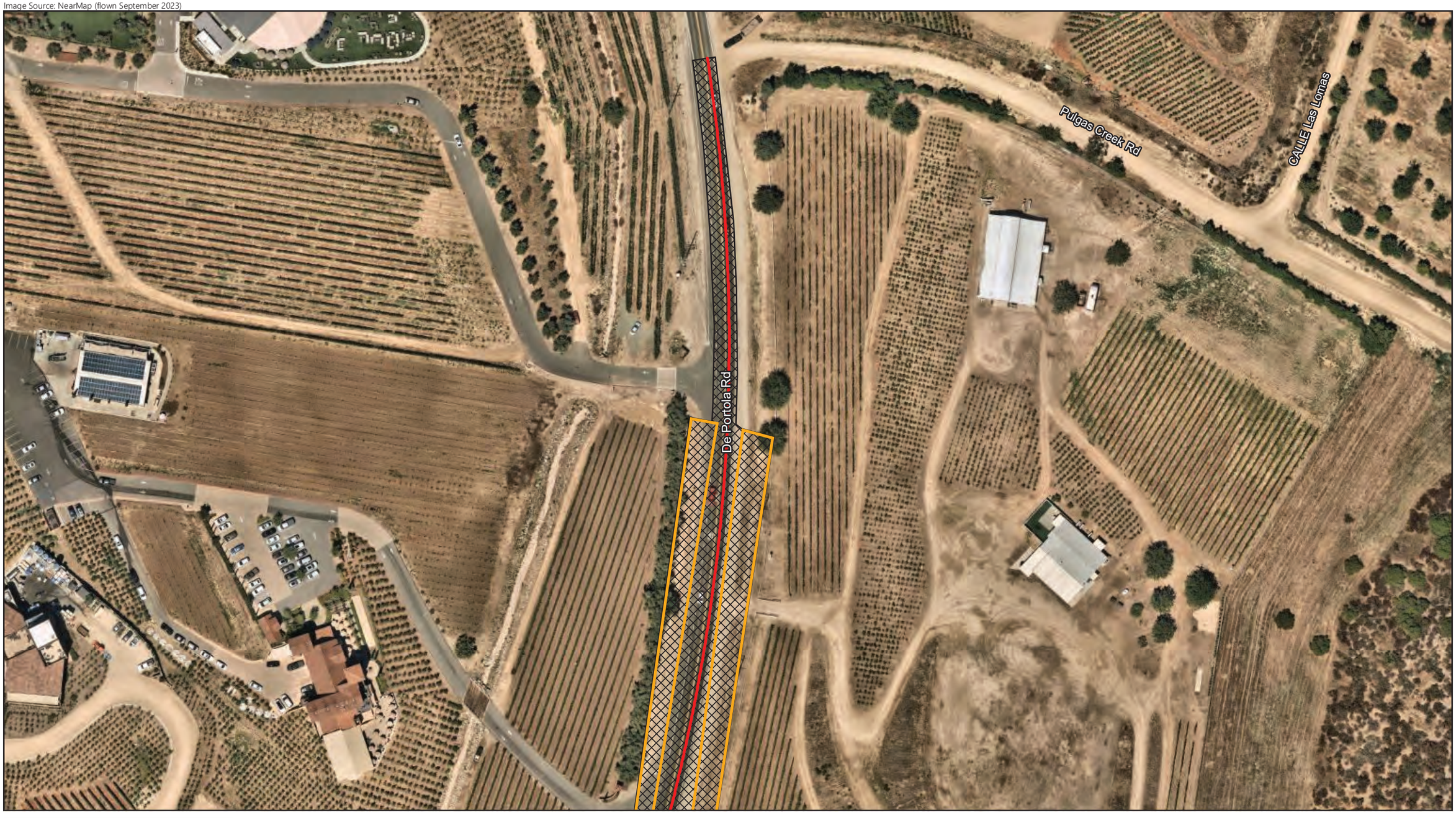
FIGURE 3.16
Area of Potential Effect on Aerial Photograph

Image Source: NearMap (flown September 2023)



Project Alignment
Potential Staging Area
Area of Potential Effect

0 Feet 100

RECON

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FIGURE 3.17
Area of Potential Effect on Aerial Photograph

ATTACHMENT 1

CalEEMod Output

Wine Country Sewer - Southern Alignment
Calculation Details

Pipeline Length:

22,915	feet
5,280	feet/mile
4.34	miles

Unpaved Road:

1.15	miles
5,280	feet/mile
6,072	feet

Project Area:

5.24	acres

Area Disturbed per Day

80.00	linear feet per day
35.00	feet wide
2800.00	square feet
0.06	acres

Asphalt Export:

16,843	feet paved
5	feet wide
0.25	feet deep (3 inch asphalt depth)
21,054	cubic feet
27	cubic feet/cubic yard
779.78	cubic yards
20	cubic yard truck capacity
39	hauling trips (rounded up)
1.8	month grubbing/land clearing phase
22	work days/month
39.6	days
20	cubic yards/day (rounded up)

Soil Export

22,915	feet long
5	feet wide
10	feet deep
1,145,760	cubic feet
27	cubic feet/cubic yard
42,435.56	cubic yards
21,217.78	cubic yards hauled away (half)
20	cubic yard truck capacity
1061	hauling trips (rounded up)
8.1	month grading/excavation phase
22	work days/month
178.2	days
120	cubic yards/day (rounded up)

Road Construction Emissions Model, Version 9.0.1

Daily Emission Estimates for -> Wine Country Sewer - Southern Alignment

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	2.43	27.25	19.09	1.90	0.90	1.00	1.03	0.82	0.21	0.06	5,931.42	1.29	0.08	5,986.49
Grading/Excavation	2.52	28.67	20.24	2.00	1.00	1.00	1.07	0.86	0.21	0.07	6,901.52	1.30	0.17	6,985.97
Drainage/Utilities/Sub-Grade	2.39	27.84	18.01	1.86	0.86	1.00	0.97	0.77	0.21	0.06	6,050.62	1.29	0.06	6,101.99
Paving	2.32	27.43	17.41	0.80	0.80	0.00	0.72	0.72	0.00	0.06	5,935.91	1.29	0.06	5,986.31
Maximum (pounds/day)	2.52	28.67	20.24	2.00	1.00	1.00	1.07	0.86	0.21	0.07	6,901.52	1.30	0.17	6,985.97
Total (tons/construction project)	0.48	5.56	3.77	0.35	0.18	0.17	0.19	0.16	0.04	0.01	1,268.07	0.26	0.02	1,281.23

Notes:

Project Start Year ->	2024
Project Length (months) ->	18
Total Project Area (acres) ->	5
Maximum Area Disturbed/Day (acres) ->	0
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	20	0	30	600	5
Grading/Excavation	120	0	180	0	1,200	5
Drainage/Utilities/Sub-Grade	0	0	0	0	960	5
Paving	0	0	0	0	800	5

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Wine Country Sewer - Southern Alignment

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.05	0.54	0.38	0.04	0.02	0.02	0.02	0.02	0.00	0.00	117.44	0.03	0.00	107.53
Grading/Excavation	0.22	2.55	1.80	0.18	0.09	0.09	0.10	0.08	0.02	0.01	614.93	0.12	0.02	564.68
Drainage/Utilities/Sub-Grade	0.14	1.65	1.07	0.11	0.05	0.06	0.06	0.05	0.01	0.00	359.41	0.08	0.00	328.82
Paving	0.07	0.81	0.52	0.02	0.02	0.00	0.02	0.02	0.00	0.00	176.30	0.04	0.00	161.29
Maximum (tons/phase)	0.22	2.55	1.80	0.18	0.09	0.09	0.10	0.08	0.02	0.01	614.93	0.12	0.02	564.68
Total (tons/construction project)	0.48	5.56	3.77	0.35	0.18	0.17	0.19	0.16	0.04	0.01	1268.07	0.26	0.02	1,162.33

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Data Entry Worksheet

Version 9.0.1

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Wine Country Sewer - Southern Alignment	
Construction Start Year	2024	Enter a Year between 2014 and 2040 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	18.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	4.34	miles
Total Project Area	5.24	acres
Maximum Area Disturbed/Day	0.10	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County. NEW LINK 8-2-2022.

https://maps.conservation.ca.gov/cgs/gmc/

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation	20.00		120.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing	20.00		20.00
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			

Mitigation Options

On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation		Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		1.80		1/1/2024
Grading/Excavation		8.10		2/25/2024
Drainage/Utilities/Sub-Grade		5.40		10/29/2024
Paving		2.70		4/12/2025
Totals (Months)	18			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	30.00			0	0.00
Miles/round trip: Grading/Excavation	30.00			6	180.00
Miles/round trip: Drainage/Utilities/Sub-Grade	30.00			0	0.00
Miles/round trip: Paving	30.00			0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.05	0.11	0.05	0.02	1,680.81	0.00	0.26	1,759.58
Paving (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.88	0.00	0.26	1,751.28
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.01	0.16	1.26	0.04	0.02	0.01	672.06	0.00	0.11	703.55
Tons per const. Period - Grading/Excavation	0.00	0.01	0.11	0.00	0.00	0.00	59.88	0.00	0.01	62.69
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.01	0.11	0.00	0.00	0.00	59.88	0.00	0.01	62.69

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	30.00			1	30.00
Miles/round trip: Grading/Excavation	30.00			0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade	30.00			0	0.00
Miles/round trip: Paving	30.00			0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.05	0.11	0.05	0.02	1,680.81	0.00	0.26	1,759.58
Paving (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.88	0.00	0.26	1,751.28
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.03	0.21	0.01	0.00	0.00	112.01	0.00	0.02	117.26
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.00	0.00	2.32
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.00	0.00	2.32

Note: Worker commute default values can be overridden in cells D121 through D126.

Worker Commute Emissions	User Override of Worker			
User Input	Commute Default Values	Default Values		
Miles/ one-way trip	20		Calculated	Calculated
One-way trips/day	2		Daily Trips	Daily VMT
No. of employees: Grubbing/Land Clearing	15		30	600.00
No. of employees: Grading/Excavation	30		60	1,200.00
No. of employees: Drainage/Utilities/Sub-Grade	24		48	960.00
No. of employees: Paving	20		40	800.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Grading/Excavation (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Draining/Utilities/Sub-Grade (grams/mile)	0.01	0.80	0.06	0.05	0.02	0.00	300.00	0.00	0.01	301.75
Paving (grams/mile)	0.01	0.78	0.06	0.05	0.02	0.00	295.84	0.00	0.01	297.52
Grubbing/Land Clearing (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Grading/Excavation (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Draining/Utilities/Sub-Grade (grams/trip)	0.95	2.60	0.25	0.00	0.00	0.00	64.60	0.06	0.03	74.86
Paving (grams/trip)	0.93	2.56	0.25	0.00	0.00	0.00	63.73	0.06	0.03	73.77
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.08	1.29	0.10	0.06	0.03	0.00	410.06	0.01	0.01	413.20
Tons per const. Period - Grubbing/Land Clearing	0.00	0.03	0.00	0.00	0.00	0.00	8.12	0.00	0.00	8.18
Pounds per day - Grading/Excavation	0.17	2.57	0.20	0.12	0.05	0.01	820.12	0.02	0.02	826.39
Tons per const. Period - Grading/Excavation	0.01	0.23	0.02	0.01	0.00	0.00	73.07	0.00	0.00	73.63
Pounds per day - Drainage/Utilities/Sub-Grade	0.13	1.97	0.15	0.10	0.04	0.01	641.77	0.01	0.01	646.55
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.01	0.12	0.01	0.01	0.00	0.00	38.12	0.00	0.00	38.41
Pounds per day - Paving	0.10	1.59	0.12	0.08	0.03	0.01	527.39	0.01	0.01	531.24
Tons per const. Period - Paving	0.00	0.05	0.00	0.00	0.00	0.00	15.66	0.00	0.00	15.78
Total tons per construction project	0.03	0.42	0.03	0.02	0.01	0.00	134.98	0.00	0.00	136.00

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated	User Override of	Default Values	Calculated
User Input	Default # Water Trucks	Number of Water Trucks	Round Trips/Vehicle/Day	Round Trips/Vehicle/Day	Trips/day	Miles/Round Trip	Miles/Round Trip	Daily VMT
Grubbing/Land Clearing - Exhaust	1		1.00			5.00		5.00
Grading/Excavation - Exhaust	1		1.00			5.00		5.00
Drainage/Utilities/Subgrade	1		1.00			5.00		5.00
Paving	1		1.00			5.00		5.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.05	0.11	0.05	0.02	1,680.81	0.00	0.26	1,759.58
Paving (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,672.88	0.00	0.26	1,751.28
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.04	0.00	0.00	0.00	18.67	0.00	0.00	19.54
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.39
Pounds per day - Grading/Excavation	0.00	0.00	0.04	0.00	0.00	0.00	18.67	0.00	0.00	19.54
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	1.66	0.00	0.00	1.74
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.04	0.00	0.00	0.00	18.53	0.00	0.00	19.40
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.00	0.00	1.15
Pounds per day - Paving	0.00	0.00	0.04	0.00	0.00	0.00	18.44	0.00	0.00	19.30
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0.57
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	3.68	0.00	0.00	3.85

Note: Fugitive dust default values can be overridden in cells D183 through D185.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing			1.00	0.02	0.21	0.00
Fugitive Dust - Grading/Excavation			1.00	0.09	0.21	0.02
Fugitive Dust - Drainage/Utilities/Subgrade			1.00	0.06	0.21	0.01

Values in cells D195 through D228, D246 through D279, D297 through D330, and D348 through D381 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.24	2.41	1.63	0.08	0.08	0.00	375.26	0.02	0.00	376.63
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.90	0.06	0.06	0.01	917.36	0.30	0.01	927.26
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.31	3.65	2.41	0.11	0.11	0.01	592.67	0.03	0.00	594.70
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.18	3.27	1.40	0.07	0.06	0.01	500.27	0.16	0.00	505.66
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.29	3.66	2.54	0.11	0.11	0.01	623.04	0.03	0.00	625.06
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.50	3.25	3.33	0.12	0.11	0.01	1,280.35	0.41	0.01	1,294.14
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.74	0.08	0.07	0.00	455.16	0.15	0.00	460.07
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.17	1.92	1.61	0.10	0.09	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.24	1.45	0.07	0.06	0.00	301.77	0.10	0.00	305.01
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	2.34	25.93	18.73	0.83	0.79	0.06	5,390.68	1.28	0.05	5,436.49
Grubbing/Land Clearing	tons per phase	0.05	0.51	0.37	0.02	0.02	0.00	106.74	0.03	0.00	107.64

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.24	2.41	1.63	0.08	0.08	0.00	375.26	0.02	0.00	376.63
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.90	0.06	0.06	0.01	917.36	0.30	0.01	927.26
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.31	3.65	2.41	0.11	0.11	0.01	592.67	0.03	0.00	594.70
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.18	3.27	1.40	0.07	0.06	0.01	500.27	0.16	0.00	505.66
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.29	3.66	2.54	0.11	0.11	0.01	623.04	0.03	0.00	625.06
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.50	3.25	3.33	0.12	0.11	0.01	1,280.35	0.41	0.01	1,294.14
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.74	0.08	0.07	0.00	455.16	0.15	0.00	460.07
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.17	1.92	1.61	0.10	0.09	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.24	1.45	0.07	0.06	0.00	301.77	0.10	0.00	305.01
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	2.34	25.93	18.73	0.83	0.79	0.06	5,390.68	1.28	0.05	5,436.49
Grading/Excavation	tons per phase	0.21	2.31	1.67	0.07	0.07	0.01	480.31	0.11	0.00	484.39

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.23	2.41	1.56	0.07	0.07	0.00	375.26	0.02	0.00	376.62
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.88	0.06	0.06	0.01	917.29	0.30	0.01	927.19
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.30	3.65	2.32	0.10	0.10	0.01	592.67	0.03	0.00	594.67
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.17	3.26	1.29	0.06	0.06	0.01	500.31	0.16	0.00	505.70
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.27	3.66	2.45	0.10	0.10	0.01	623.04	0.02	0.00	625.03
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.49	3.21	3.04	0.11	0.10	0.01	1,279.94	0.41	0.01	1,293.72
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.18	2.89	1.64	0.08	0.07	0.00	455.06	0.15	0.00	459.96
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.16	1.91	1.52	0.09	0.08	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.14	2.23	1.38	0.06	0.05	0.00	301.95	0.10	0.00	305.19
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	2.27	25.87	17.82	0.76	0.72	0.06	5,390.31	1.28	0.05	5,436.04
Drainage/Utilities/Sub-Grade	tons per phase	0.13	1.54	1.06	0.05	0.04	0.00	320.18	0.08	0.00	322.90

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.23	2.41	1.53	0.07	0.07	0.00	375.26	0.02	0.00	376.62
1.00			Model Default Tier	Bore/Drill Rigs	0.21	2.04	1.87	0.06	0.06	0.01	917.25	0.30	0.01	927.15
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.30	3.64	2.27	0.09	0.09	0.01	592.67	0.03	0.00	594.65
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.17	3.26	1.22	0.06	0.06	0.01	500.34	0.16	0.00	505.73
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.27	3.66	2.40	0.10	0.10	0.01	623.04	0.02	0.00	625.01
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.48	3.19	2.87	0.10	0.09	0.01	1,279.68	0.41	0.01	1,293.45
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.17	2.90	1.58	0.07	0.07	0.00	454.99	0.15	0.00	459.90
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.16	1.90	1.46	0.08	0.08	0.00	246.18	0.08	0.00	248.83
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.13	2.23	1.34	0.05	0.05	0.00	302.06	0.10	0.00	305.30
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Paving	pounds per day	2.22	25.83	17.25	0.72	0.68	0.06	5,390.08	1.28	0.05	5,435.76
Paving	tons per phase	0.07	0.77	0.51	0.02	0.02	0.00	160.09	0.04	0.00	161.44
Total Emissions all Phases (tons per construction period) =>		0.46	5.13	3.61	0.16	0.15	0.01	1,067.32	0.25	0.01	1,076.38

Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		221		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		231		8
Crawler Tractors		212		8
Crushing/Proc. Equipment		85		8
Excavators		158		8
Forklifts		89		8
Generator Sets		84		8
Graders		187		8
Off-Highway Tractors		124		8
Off-Highway Trucks		402		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		168		8
Pavers		130		8
Paving Equipment		132		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		80		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		247		8
Rubber Tired Loaders		203		8
Scrapers		367		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		263		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		97		8
Trenchers		78		8
Welders		46		8

END OF DATA ENTRY SHEET

APPENDIX F-1

Noise Analysis for the Wine Country Sewer Project, Northern Alignment

RECON

An Employee-Owned Company

February 9, 2024

Mr. Joseph Broadhead
Eastern Municipal Water District
2270 Trumble Road
P.O. Box 8300
Perris, CA 92572

Reference: Noise Analysis for the Wine Country Sewer Project, Northern Alignment (RECON Number 9878-21)

Dear Mr. Broadhead:

The purpose of this report is to assess potential noise impacts resulting from construction and operation of the Wine Country Sewer Project, Norther Alignment (project). Noise impacts were evaluated using standards established by the County of Riverside (County).

1.0 Project Description

The Eastern Municipal Water District (District) is proposing to construct a new sewer transmission line and associated laterals that would provide sewer service to an area within the County that is currently utilizing septic systems (Figure 1). Regional access to the project is provided via Interstate 15, located approximately 7.5 miles to the west, and local access is provided via Rancho California Road. The project site is located within the rights-of-way (ROW) of the following roadway segments, which are presented in Figure 2:

- Rancho California Road, Lomo Ventoso Lane to Buck Road
- Glenoaks Road, Rancho California Road to Camino del Vino
- Buck Road, Rancho California Road to Otis Street
- Warren Road, Otis Street to East Benton Road
- East Benton Road, Warren Road to Bella Vista Road

The project is generally bounded by residential developments, agricultural land, and disturbed land, with sparse native habitats occurring along the project alignment.

Figure 3 presents the location of the proposed sewer transmission lines, which would be constructed within the ROW of paved roadways. The approximate locations of the sewer transmission lines are shown with a red line, and the aboveground work areas, including trenching and potential construction staging areas, are shown in black cross-hatching. The sewer transmission lines would be constructed primarily with open trench construction, and culvert crossings would be protected in place with supports that allow for undercrossing. Laterals for future connections would be constructed to adjacent property lines. Potential construction staging areas would be located in disturbed land within the ROW adjacent to the roadway, subject to access agreements with private property owners. Roadways impacted during construction would be returned to original grade, and adjacent natural soils impacted during construction would be revegetated with hydroseeding. No night work would occur, nor would temporary/permanent lighting be used. The project would not construct any aboveground structures.

Pipeline installation would occur at 80 feet per day for pipe with standard cover (7.5-foot depth), and at 50 feet per day for pipe deeper than standard cover (greater than 7.5-foot depth). Construction is anticipated to last 13 months.

Operation would involve routine sewer video inspections approximately every three years. Operational cleaning using a Vactor truck (sewage vacuum truck) would occur every 3 to 5 years.

It is anticipated that the District would implement the project. This report provides the necessary air quality data and background information required for environmental analysis of the project subject to the California Environmental Quality Act (CEQA).

2.0 Environmental Setting

2.1 Noise Terminology

Sound levels are described in units called the decibel (dB). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease. Additionally, in technical terms, sound levels are described as either a "sound power level" or a "sound pressure level," which while commonly confused, are two distinct characteristics of sound.

Both share the same unit of measure, the dB. However, sound power, expressed as L_{pw}, is the energy converted into sound by the source. The L_{pw} is used to estimate how far a noise will travel and to predict the sound levels at various distances from the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers such as an eardrum or microphone and is the sound pressure level. Noise measurement instruments only measure sound pressure, and noise level limits used in standards are generally sound pressure levels.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average young ear when listening to most ordinary everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Therefore, the "A-weighted" noise scale is used for measurements and standards involving the human perception of noise. Noise levels using A-weighted measurements are designated with the notation dB(A).

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this study are the one-hour equivalent noise level (L_{eq}) and the maximum equivalent noise level (L_{max}). The L_{max} is the maximum generated noise level while the L_{eq} is the average noise level over a specified period of time, typically one-hour. Sound from a small, localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern, known as geometric spreading. The sound level decreases or drops off at a rate of 6 dB(A) for each doubling of the distance.

The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site (such as parking lots or smooth bodies of water) receives no additional ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. A soft site (such as soft dirt, grass, or scattered bushes and trees) receives an additional ground attenuation value of 1.5 dB(A) per doubling of distance. Thus, a point source over a soft site would attenuate at 7.5 dB(A) per doubling of distance.

Human perception of noise has no simple correlation with acoustical energy. A change in noise levels is generally perceived as follows: 3 dB(A) barely perceptible, 5 dB(A) readily perceptible, and 10 dB(A) perceived as a doubling or halving of noise (California Department of Transportation 2013).

2.2 Applicable Standards

The District, as a public agency, is not subject to other jurisdictional agencies' established noise standards. Likewise, as a public agency, the District is not subject to the City or County ordinances and would not be required to obtain variances. The District has not established an applicable noise standard of its own for permanent or temporary ambient noise levels. However, the District follows a "good neighbor" approach to adhering to local noise standards. The noise standards of the County are used for the purposes of evaluating the significance of the project's noise levels for the purposes of this analysis under CEQA.

2.2.1 Riverside County General Plan

The Noise Element of the County's General Plan contains the following policies related to construction noise:

> N 13.1 Minimize the impacts of construction noise on adjacent uses within acceptable practices.
>
> N 13.2 Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.
>
> N 13.3 Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses (see policy N 1.3) by requiring the developer to submit a construction-related noise mitigation plan to the County for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as:
>
> a. Temporary noise attenuation fences;
> b. Preferential location of equipment; and
> c. Use of current noise suppression technology and equipment.
>
> N 13.4 Require that all construction equipment utilizes noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

2.2.2 Riverside County Municipal Code

The County regulates noise in accordance with Chapter 9.52, Noise Regulations of the Riverside County Municipal Code (Municipal Code) Section 9.52.020[I], which states that sound emanating from private construction projects located within a quarter mile from an inhabited dwelling is exempt from the provisions of Chapter 9.52, if construction occurs between the hours of 6:00 a.m. and 6:00 p.m. during the months of June through September, and between the hours of 7:00 a.m. and 6:00 p.m. during the months of October through May. The Municipal Code does not establish a quantitative construction noise level limit. For the purposes of this analysis, the Federal Transit Administration (FTA) recommended threshold of 80 dB(A) L_{eq} at noise sensitive residential land uses was used.

3.0 Thresholds of Significance

Based on the CEQA Guidelines Appendix G, impacts related to noise would be significant if the project would:

1. Generate 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;

2. Generate excessive ground borne vibration or ground borne noise levels; or

3. 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, expose people residing or working in the area to excessive noise levels.

4.0 Impact Analysis

4.1 Construction Noise

Noise impacts from construction are a function of the noise generated by equipment, the location and sensitivity of nearby land uses, and the timing and duration of the noise-generating activities. Table 1 presents a list of noise generation levels for various types of equipment anticipated to be used for construction of the pipeline. The duty cycle is the amount of time that equipment generates the reported noise level during typical, standard equipment operation. The noise levels and duty cycles summarized in Table 1 are based on measurements and studies conducted by Federal Highway Administration (FHWA) and the FTA.

Table 1
Typical Construction Equipment Noise Levels

Equipment	Maximum Noise Level at 50 Feet [dB(A) L_{max}]	Typical Duty Cycle	Maximum Average Hourly Noise Level [dB(A) L_{eq}]
Backhoe/Loader	80	40%	76
Compressor	80	40%	76
Concrete Saw	90	20%	83
Generator	82	50%	79
Hydraulic Excavator	85	40%	81
Paver	85	50%	82
Pavement Breaker	85	20%	78
Pump	77	50%	74
Sweeper[1]	84	40%	80
Water Truck[1]	84	40%	80
Utility Truck[2,3]	78	5%	65

SOURCE: FHWA 2006, 2008, FTA 2006.
dB(A) = A-weighted decibels; L_{max} = maximum equivalent noise level; L_{eq} = one-hour equivalent noise level
[1]Sweeper and water truck noise assumed to be comparable to tractor noise.
[2]Utility truck noise assumed to be comparable to flat-bed truck noise.
[3]The dump truck and utility truck duty cycle was adjusted to 5 percent to represent the time this equipment is arriving at and departing from the site. Engines would be idle all other times.

Due to the complex nature of construction sites, construction noise from a linear project, such as a pipeline project, is assessed from the centerline of the alignment and work area. Maximum noise levels would occur when the construction equipment is nearest to a noise sensitive receiver. Although construction equipment may temporarily be located at the point on the alignment nearest to a receiver, throughout the day equipment would move along the alignment. Therefore, the distance from a receiver to the centerline of the alignment is not the same as the average distance during a given day from the receiver to construction equipment. Thus, average noise levels correlate to the area of active construction. The closest residential receiver at the intersection of Glen Oaks Road and Milkweed Way is located 50 feet from the pipeline alignment. This receiver is elevated approximately 12 feet above the road elevation. The next closest residential receivers are located 65 feet or more from the pipeline alignment. It is estimated that approximately 50 to 80 feet of the pipeline would be constructed per day depending on the required depth. For a receiver that is set back 50 feet from the active work area alignment, using the Pythagorean theorem ($a^2 + b^2 = c^2$), it is calculated that the receiver is at an average distance of 56 feet from the construction equipment. For a receiver that is set back 65 feet from the active work area alignment, it is calculated that the receiver is at an average distance of 70 feet from the construction equipment.

Construction noise levels were calculated assuming the simultaneous use of two pieces of construction equipment during each phase. Although more construction equipment would be present on-site, not all would be used at the same time. Noise levels from construction activities are typically considered point sources and would drop off at a rate of -6 dB(A) per doubling of distance over hard site surfaces, such as streets and parking lots. Construction noise attenuation is calculated using the following formula:

$$N_R = N_C + 20 \times \text{Log}(D_C/D_R)$$

Where,

N_R = Noise level at receiver

N_C = Construction equipment reference noise level

D_C = Construction equipment reference noise level distance (i.e., 50 feet)

D_R = Distance to receiver (i.e., 67 feet)

The slope between Glen Oaks Road and the receiver located 50 feet from the alignment was taken into account when calculating construction noise levels at that receiver. Using FHWA formulas, it was calculated that this difference in elevation would reduce noise levels by 5 dB. No attenuation was taken into account for the receivers located 65 feet or more from the alignment.

The average noise level at the residential receivers were calculated for each phase. The results are summarized in Table 2. Calculations are provided in Attachment 1.

Table 2 Construction Equipment Noise Levels						
Phase	Equipment	Maximum Average Hourly Noise Level at 50 Feet [dB(A) L_{eq}]	Active Construction Area (feet/day)	Average Distance to Receiver (feet)	Average Noise Level at Receiver without Attenuation [dB(A) L_{eq}]	Average Noise Level at Receiver with Attenuation [dB(A) L_{eq}]
Receiver at 50 Feet from Pipeline						
Grubbing/ Land Clearing	Concrete Saw	83	50	56	82	77
	Dump Truck	71				
	Total	**83**				
Grading/ Excavation	Excavator	81	50	56	81	76
	Front End Loader	76				
	Total	**82**				
Drainage/ Utilities/ Subgrade	Excavator	81	50	56	81	76
	Utility Truck	74				
	Total	**82**				
Paving	Paver	82	50	56	81	76
	Utility Truck	65				
	Total	**82**				
Receiver at 65 Feet from Pipeline						
Grubbing/ Land Clearing	Concrete Saw	83	50	70	80	--
	Dump Truck	71				
	Total	**83**				
Grading/ Excavation	Excavator	81	50	70	79	--
	Front End Loader	76				
	Total	**82**				
Drainage/ Utilities/ Subgrade	Excavator	81	50	70	79	--
	Utility Truck	74				
	Total	**82**				
Paving	Paver	82	50	70	79	--
	Utility Truck	65				
	Total	**82**				
dB(A) = A-weighted decibels; L_{eq} = one-hour equivalent noise level						

As shown in Table 2, construction noise levels are not anticipated to exceed 80 dB(A) L_{eq} at the adjacent residential uses. Furthermore, construction of the Northern Alignment would adhere to the following measures to the extent feasible:

- The District shall require its contractor to implement the following actions relative to construction noise: the District shall conduct construction activities between 6:00 a.m. to 6:00 p.m. during the months of June through September, and between the hours of 7:00 a.m. and 6:00 p.m. during the months of October through May in accordance with the County of Riverside Municipal Code Section 9.52.020[I].
- Prior to construction, the District in coordination with the construction contractor, shall provide written notification to all properties within 50 feet of the project facilities informing occupants of the type and duration of construction activities. Notification materials shall identify a method to contact the District's program manager with noise concerns. Prior to construction commencement, the District program

manager shall establish a noise complaint process to allow for resolution of noise problems. This process shall be clearly described in the notifications.

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

Therefore, construction of the Northern Alignment would not generate a temporary increase in ambient noise levels in excess of standards established in the Municipal Code, and impacts would be less than significant.

The below-ground pipeline would not generate noise during operation. Noise may be associated with occasional vehicle maintenance trips, but these trips would be negligible. Therefore, operation of the project would not generate a substantial temporary or permanent increase in ambient noise levels, and impacts would be less than significant.

4.2 Groundborne Vibration

Human reaction to vibration is dependent on the environment the receiver is in, as well as individual sensitivity. For example, outdoor vibration is rarely noticeable and generally not considered annoying. Typically, humans must be inside a structure for vibrations to become noticeable and/or annoying (FTA 2006). Based on several federal studies, the threshold of perception is 0.035 inch per second (in/sec) peak particle velocity (PPV), with 0.24 in/sec PPV being a distinctly perceptible (Caltrans 2013). Based on best available data, impacts for hydraulic breakers, or hammers, and other non-transient sources such as those associated with project construction shall be considered significant if the PPV exceeds 0.2 in/sec. Vibration perception would occur at structures, as people do not perceive vibrations without vibrating structures.

Construction activities produce varying degrees of ground vibration depending on the equipment and methods employed. While ground vibrations from typical construction activities rarely reach levels high enough to cause damage to structures, special consideration must be made when sensitive or historic land uses are near the construction site. Construction activities that typically generate the highest levels of vibration are blasting and impact pile driving. The project would not require pile driving or blasting. The equipment that would be used during construction with the greatest potential to generate vibration would be a jack hammer. According to the FTA, jack hammers generate vibration levels of 0.035 in/sec PPV at 25 feet. This vibration level would attenuate to 0.016 in/sec

PPV at 50 feet, and therefore would not be perceptible at the nearest structures. Therefore, the project would not generate excessive ground borne vibration or ground borne noise levels, and impacts would be less than significant.

Operation of the project would not generate groundborne noise or vibration. No impact would occur.

4.3 Airports

The project site is not located within the vicinity of a private airstrip. The nearest airport is the French Valley Airport located approximately five miles to the west. The project site is located well outside Airport Influence Area, and therefore outside of the noise contours for the French Valley Airport (Coffman Associates, Inc. 2009). Further, the project is limited to construction of sewer pipelines and would not introduce any sensitive noise receivers. Therefore, the project would not expose people to excessive noise levels. No impact would occur.

5.0 Conclusions

Construction noise levels are not anticipated to exceed 80 dB(A) L_{eq} at the adjacent residential uses. Construction activities would comply with Municipal Code Section 9.52.020[I] and would only occur during daytime hours between 6:00 a.m. to 6:00 p.m. during the months of June through September, and between the hours of 7:00 a.m. and 6:00 p.m. during the months of October through May. Adherence to additional measures listed in Section 4.1 would further reduce construction noise. The below-ground pipeline would not generate noise during operation. Noise may be associated with occasional vehicle maintenance trips, but these trips would be negligible. Therefore, impacts associated with short-term construction or long-term operational noise would be less than significant.

If you have any questions about the results of this analysis, please contact me at jfleming@reconenvironmental.com or (619) 308-9333 extension 177.

Sincerely,

Jessica Fleming

Jessica Fleming
Noise Specialist

JLF:sh

Attachment

6.0 References Cited

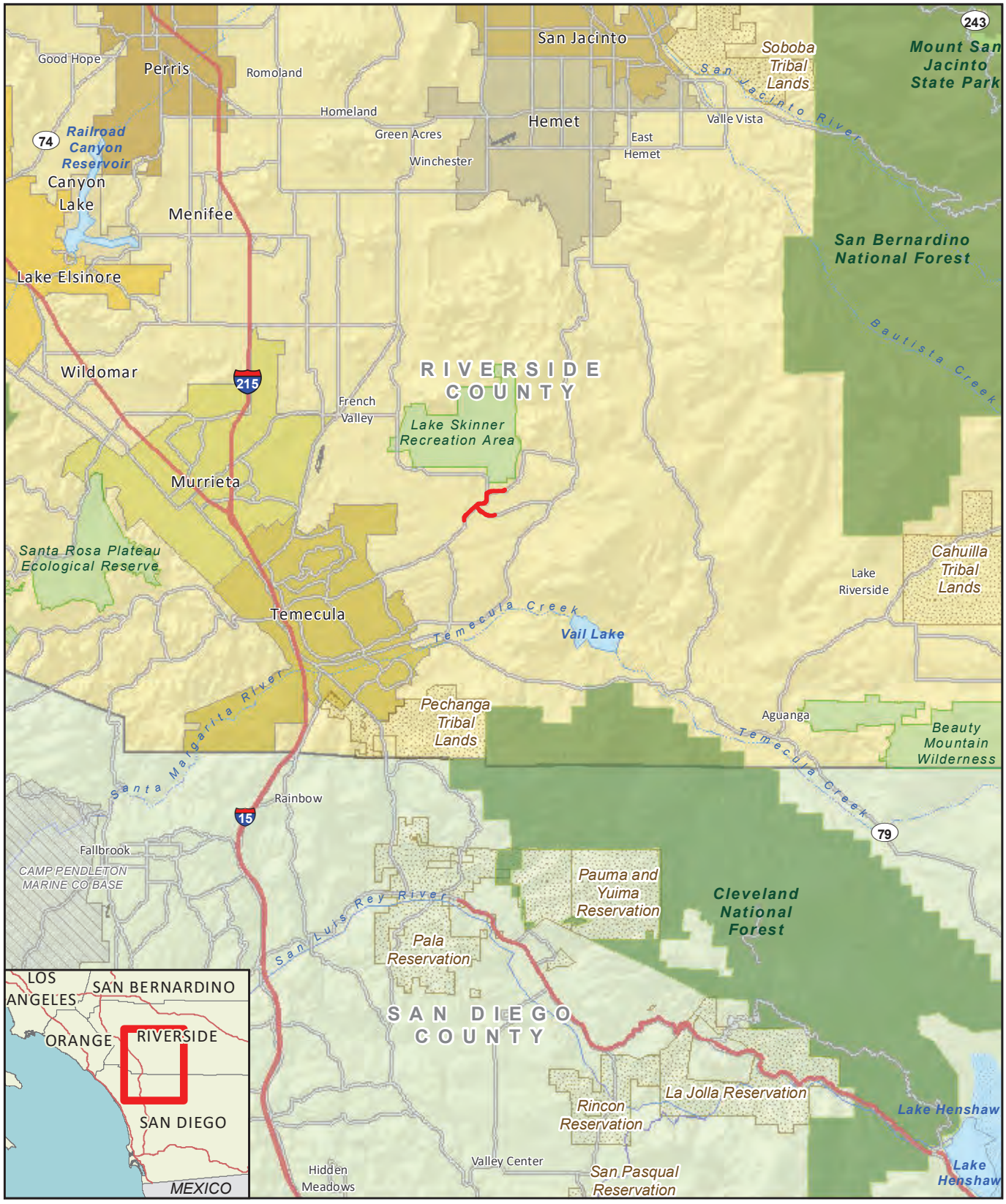
California Department of Transportation
2013 Technical Noise Supplement. November.

Coffman Associates, Inc.
2009 Airport Master Plan for the French Valley Airport. Draft Final Technical Report. April 2009.

Federal Highway Administration (FHWA)
2006 Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054, SOT-VNTSC-FHWA-05-01. Final Report. January.

2008 Roadway Construction Noise Mode, V1.1. Washington, DC.

Federal Transit Administration (FTA)
2006 Transit Noise and Vibration Impact Assessment. Washington, DC. May.



RECON

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FIGURE 1
Regional Location

Image Source: NearMap (flown September 2023)

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FIGURE 2
Project Location on Aerial Photograph

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.1
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.2
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.3
Northern Alignment

Image Source: NearMap (flown September 2023)

0 Feet 100

Project Alignment
Project Impact Area

RECON

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FIGURE 3.4
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.5
Northern Alignment

Image Source: NearMap (flown September 2023)

0 Feet 100

Project Alignment
Project Impact Area

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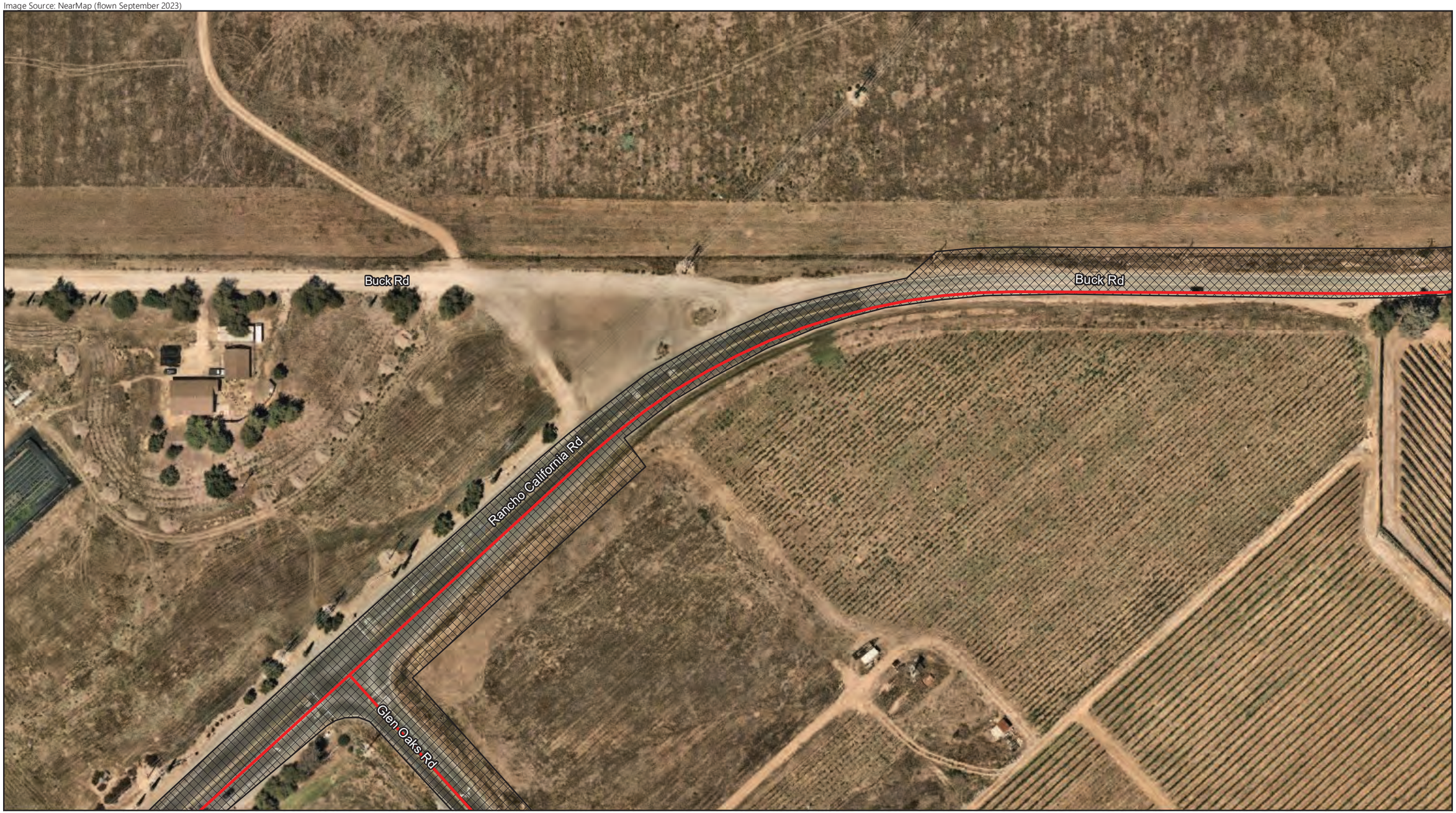
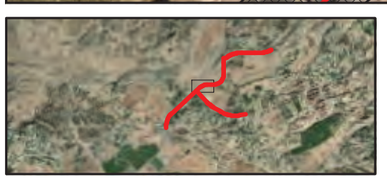
FIGURE 3.6
Northern Alignment

Image Source: NearMap (flown September 2023)





Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.7
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.8
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.9
Northern Alignment

Image Source: NearMap (flown September 2023)

0 Feet 100

Project Alignment
Project Impact Area

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FIGURE 3.10
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.11
Northern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.12
Northern Alignment

ATTACHMENT 1

Noise Calculation Data

Construction Equipment

Equipment	Max Noise Level at 50 Feet	Typical Duty Cycle	Average Noise Level at 50 Feet
Auger Drill Rig	84	20%	77
Backhoe	80	40%	76
Blasting	94	1%	74
Chain Saw	85	20%	78
Clam Shovel	93	20%	86
Compactor (ground)	80	20%	73
Compressor (air)	80	40%	76
Concrete Mixer Truck	85	40%	81
Concrete Pump	82	20%	75
Concrete Saw	90	20%	83
Crane (mobile or stationary)	81	16%	73
Dozer	85	40%	81
Dump Truck	84	5%	71
Excavator	85	40%	81
Front End Loader	80	40%	76
Generator (25 kilovolt amps or less)	70	50%	67
Generator (more than 25 kilovolt amps)	82	50%	79
Grader	85	40%	81
Hydra Break Ram	90	10%	80
Impact Pile Driver (diesel or drop)	95	20%	88
In situ Soil Sampling Rig	84	20%	77
Jackhammer	85	20%	78
Mounted Impact Hammer (hoe ram)	90	20%	83
Paver	85	50%	82
Pneumatic Tools	85	50%	82
Pumps	77	50%	74
Rock Drill	85	20%	78
Roller	74	40%	70
Scraper	85	40%	81
Tractor	84	40%	80
Vacuum Excavator (vac-truck)	85	40%	81
Vibratory Concrete Mixer	80	20%	73
Vibratory Pile Driver	95	20%	88

Receiver at 50 feet

Phase	Equipment		Maximum Average Hourly Noise Level at 50 Feet [dB(A) L_{eq}]	Phase Duration (months)	Active Construction Area (feet/day)	Average Distance to Receiver (feet)	Average Noise Level at Receiver [dB(A) L_{eq}] without Slope	Average Noise Level at Receiver [dB(A) L_{eq}] with Slope
Grubbing/	Concrete Saw		83					
Land Clearing	Dump Truck		71	1.3	50	56	82	77
		Total	**83**					
Grading/	Excavator		81					
Excavation	Front End Loader		76	5.85	50	56	81	76
		Total	**82**					
Drainage/	Excavator		81					
Utilities/	Utility Truck		74	3.9	50	56	81	76
Subgrade		**Total**	**82**					
Paving	Paver		82					
	Utility Truck		65	1.95	50	56	81	76
		Total	**82**					

Nearest residence	50 feet
Linear work area	50 feet
Average distance	56 feet

Receiver at 65 feet

Phase	Equipment		Maximum Average Hourly Noise Level at 50 Feet [dB(A) L_{eq}]	Phase Duration (months)	Active Construction Area (feet/day)	Average Distance to Receiver (feet)	Average Noise Level at Receiver [dB(A) L_{eq}]
Grubbing/	Concrete Saw		83				
Land Clearing	Dump Truck		71	1.3	50	70	80
		Total	**83**				
Grading/	Excavator		81				
Excavation	Front End Loader		76	5.85	50	70	79
		Total	**82**				
Drainage/	Excavator		81				
Utilities/	Utility Truck		74	3.9	50	70	79
Subgrade		**Total**	**82**				
Paving	Paver		82				
	Utility Truck		65	1.95	50	70	79
		Total	**82**				

Nearest residence	65 feet
Linear work area	50 feet
Average distance	70 feet

Noise Reduction Calc

Reference Noise Level	82.2
Reference Distance	50
Site Conditions	Hard

Distance from Barrier to Source	Distance from Barrier to Receiver	Distance from Source to Receiver	Height of Source	Height of Slope	Height of Receiver	Hm	Hn	delta	fresnel @ 500 Hz	Noise Level Reduction	Unabated Noise Level	Resultant Noise Level
25	25	50	6	12	17	5.50	5.50	0.009	0.009	5.15	82	77.05

Road Elevation	1524
Property Elevation	1536
Slope Height	12

APPENDIX F-2

Noise Analysis for the Wine Country Sewer Project, Southern Alignment

RECON

An Employee-Owned Company

February 9, 2024

Mr. Joseph Broadhead
Eastern Municipal Water District
2270 Trumble Road
P.O. Box 8300
Perris, CA 92572

Reference: Noise Analysis for the Wine Country Sewer Project, Southern Alignment (RECON Number 9878-21)

Dear Mr. Broadhead:

The purpose of this report is to assess potential noise impacts resulting from construction and operation of the Wine Country Sewer Project, Southern Alignment (project) located within the city of Temecula and an unincorporated portion of Riverside County, California. Noise impacts were evaluated using standards established by the County of Riverside (County) and the City of Temecula (City).

1.0 Project Description

The Eastern Municipal Water District (District) is proposing to construct a new sewer transmission line and associated laterals that would provide sewer service to an area within the County and the City that is currently utilizing septic systems (Figure 1). Regional access to the project is provided via Interstate 15, located approximately 3.6 miles to the west, and local access is provided via State Route 79. The project site consists of an approximately 4.34-mile segment of De Portola Road, beginning at the intersection with Butterfield Stage Road and extending eastward to the intersection with Pulgas Creek Road (Figure 2). The project is generally bounded by residential developments, agricultural land, and disturbed land, with sparse native habitats occurring along the project alignment.

Figure 3 presents the location of the proposed sewer transmission line within De Portola Road. The sewer transmission line would be constructed primarily within the rights-of-way (ROW) of paved roadways, with the exception of an approximately 1.15-mile segment of De Portola Road that is unpaved. The approximate locations of the sewer transmission lines are shown with a red line, and the aboveground work areas, including trenching and potential construction staging areas, are shown in black cross-hatching. The sewer transmission lines would be constructed primarily with open trench construction, and culvert crossings would be protected in place with supports that allow for undercrossing. Laterals for future connections would be constructed to adjacent property lines. Potential construction staging areas would be located within disturbed land within the ROW adjacent to the roadway, subject to access agreements with private property owners. Roadways impacted during construction would be returned to original grade, and adjacent natural soils impacted during construction would be revegetated with hydroseeding. No night work would occur, nor would temporary/permanent lighting be used. The project would not construct any aboveground structures.

Pipeline installation would occur at 80 feet per day for pipe with standard cover (7.5-foot depth), and at 50 feet per day for pipe deeper than standard cover (greater than 7.5-foot depth). Construction is anticipated to last 18 months. Operation would involve routine sewer video inspections approximately every three years. Operational cleaning using a Vactor truck (sewage vacuum truck) would occur every 3 to 5 years.

It is anticipated that the District would implement the project. This report provides the necessary air quality data and background information required for environmental analysis of the project subject to the California Environmental Quality Act (CEQA). In addition, because the project will be partially funded with the State and Tribal Assistance Grants account of the U.S. Environmental Protection Agency's section of the Consolidated Appropriations Act, the project is subject to federal regulations, including the National Environmental Policy Act (NEPA).

2.0 Environmental Setting

2.1 Noise Terminology

Sound levels are described in units called the decibel (dB). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease. Additionally, in technical terms, sound levels are described as either a "sound power level" or a "sound pressure level," which while commonly confused, are two distinct characteristics of sound.

Both share the same unit of measure, the dB. However, sound power, expressed as L_{pw}, is the energy converted into sound by the source. The L_{pw} is used to estimate how far a noise will travel and to predict the sound levels at various distances from the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers such as an eardrum or microphone and is the sound pressure level. Noise measurement instruments only measure sound pressure, and noise level limits used in standards are generally sound pressure levels.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average young ear when listening to most ordinary everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Therefore, the "A-weighted" noise scale is used for measurements and standards involving the human perception of noise. Noise levels using A-weighted measurements are designated with the notation dB(A).

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this study are the one-hour equivalent noise level (L_{eq}) and the maximum equivalent noise level (L_{max}). The L_{max} is the maximum generated noise level while the L_{eq} is the average noise level over a specified period of time, typically one-hour. Sound from a small, localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern, known as geometric spreading. The sound level decreases or drops off at a rate of 6 dB(A) for each doubling of the distance.

The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site (such as parking lots or smooth bodies of water) receives no additional ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. A soft site (such as soft dirt, grass, or scattered bushes and trees) receives an additional ground attenuation value of 1.5 dB(A) per doubling of distance. Thus, a point source over a soft site would attenuate at 7.5 dB(A) per doubling of distance.

Human perception of noise has no simple correlation with acoustical energy. A change in noise levels is generally perceived as follows: 3 dB(A) barely perceptible, 5 dB(A) readily perceptible, and 10 dB(A) perceived as a doubling or halving of noise (California Department of Transportation 2013).

2.2 Applicable Standards

The District, as a public agency, is not subject to other jurisdictional agencies' established noise standards. Likewise, as a public agency, the District is not subject to the City or County ordinances and would not be required to obtain variances. The District has not established an applicable noise standard of its own for permanent or temporary ambient noise levels. However, the District follows a "good neighbor" approach to adhering to local noise standards. The noise standards of the Federal Transit Administration (FTA), the County, and the City are used for the purposes of evaluating the significance of the project's noise levels for the purposes of this analysis under both CEQA and NEPA.

2.2.1 Federal

Federal noise policies and programs are developed by federal agencies of the U.S. Department of Transportation through its various operating agencies, i.e., the Federal Aviation Administration, the FTA, and the Federal Highway Administration (FHWA). According to the FTA, project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. The FTA considers a daytime exterior construction noise level of 80 dB(A) L_{eq} as a reasonable threshold for noise sensitive residential land use.

2.2.2 County of Riverside

2.2.2.1 Riverside County General Plan

The Noise Element of the County's General Plan contains the following policies related to construction noise:

> N 13.1 Minimize the impacts of construction noise on adjacent uses within acceptable practices.
>
> N 13.2 Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.
>
> N 13.3 Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses (see policy N 1.3) by requiring the developer to submit a construction-related noise mitigation plan to the County for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as:
>
> a. Temporary noise attenuation fences;
> b. Preferential location of equipment; and
> c. Use of current noise suppression technology and equipment.
>
> N 13.4 Require that all construction equipment utilizes noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

2.2.2.2 Riverside County Municipal Code

The County regulates noise in accordance with Chapter 9.52, Noise Regulations of the Riverside County Municipal Code (Municipal Code) Section 9.52.020[I], which states that sound emanating from private construction projects located within a quarter mile from an inhabited dwelling is exempt from the provisions of Chapter 9.52, if construction occurs between the hours of 6:00 a.m. and 6:00 p.m. during the months of June through September, and between the hours of 7:00 a.m. and 6:00 p.m. during the months of October through May. The County's

Municipal Code does not establish a quantitative construction noise level limit. For the purposes of this analysis, the FTA recommended threshold of 80 dB(A) L_{eq} at noise sensitive residential land uses was used.

2.2.3 City of Temecula

2.2.3.1 City of Temecula General Plan

The Noise Element of the City's General Plan contains the following policy related to construction noise:

> Policy 1.2 Limit the hours of construction activity next to residential areas to reduce noise intrusion in the early morning, late evening, weekends and holidays.

2.2.3.2 City of Temecula Municipal Code

The City regulates noise in accordance with Chapter 9.20, Noise of the City's Municipal Code. Section 9.20.060(D) states that no person shall engage in or conduct construction activity, when the construction site is within one-quarter mile of an occupied residence, between the hours of 6:30 p.m. and 7:00 a.m., Monday through Friday, and shall only engage in or conduct construction activity between the hours of 7:00 a.m. and 6:30 p.m. on Saturday. No construction activity shall be undertaken on Sunday and nationally recognized holidays unless exempted by Section 9.20.070 of the City's Municipal Code. Public works projects of any federal, state or local entity or emergency work by public utilities are exempt from the provisions of this subsection. Like the County's Municipal Code, the City's Municipal Code does not establish a quantitative construction noise level limit. For the purposes of this analysis, the FTA recommended threshold of 80 dB(A) L_{eq} at noise sensitive residential land uses was used.

3.0 Thresholds of Significance

The significance of the project's air quality impacts were evaluated using CEQA Guidelines. In addition, because the project will be partially funded with the State and Tribal Assistance Grants account of the U.S. Environmental Protection Agency's section of the Consolidated Appropriations Act, the project is subject to federal regulations, including NEPA.

3.1 CEQA

Based on the CEQA Guidelines Appendix G, impacts related to noise would be significant if the project would:

1. Generate 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;

2. Generate excessive ground borne vibration or ground borne noise levels; or

3. 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, expose people residing or working in the area to excessive noise levels.

3.2 NEPA

The thresholds in Section 3.1, along with the standards established by the FTA, the County, and the City are also appropriate for evaluating impacts under NEPA. As discussed in Section 2.2 above, for the purposes of this analysis, the FTA recommended threshold of 80 dB(A) L_{eq} at noise sensitive residential land uses was used.

4.0 Impact Analysis

4.1 CEQA

4.1.1 Construction Noise

Noise impacts from construction are a function of the noise generated by equipment, the location and sensitivity of nearby land uses, and the timing and duration of the noise-generating activities. Table 1 presents a list of noise generation levels for various types of equipment anticipated to be used for construction of the pipeline. The duty cycle is the amount of time that equipment generates the reported noise level during typical, standard equipment operation. The noise levels and duty cycles summarized in Table 1 are based on measurements and studies conducted by Federal Highway Administration (FHWA) and the FTA.

Table 1
Typical Construction Equipment Noise Levels

Equipment	Maximum Noise Level at 50 Feet [dB(A) L_{max}]	Typical Duty Cycle	Maximum Average Hourly Noise Level [dB(A) L_{eq}]
Backhoe/Loader	80	40%	76
Compressor	80	40%	76
Concrete Saw	90	20%	83
Generator	82	50%	79
Hydraulic Excavator	85	40%	81
Paver	85	50%	82
Pavement Breaker	85	20%	78
Sweeper[1]	84	40%	80
Water Truck[1]	84	40%	80
Utility Truck[2,3]	78	5%	65

SOURCE: FHWA 2006, 2008, FTA 2006.
dB(A) = A-weighted decibels; L_{max} = maximum equivalent noise level; L_{eq} = one-hour equivalent noise level
[1]Sweeper and water truck noise assumed to be comparable to tractor noise.
[2]Utility truck noise assumed to be comparable to flat-bed truck noise.
[3]The dump truck and utility truck duty cycle was adjusted to 5 percent to represent the time this equipment is arriving at and departing from the site. Engines would be idle all other times.

Due to the complex nature of construction sites, construction noise from a linear project, such as a pipeline project, is assessed from the centerline of the alignment and work area. Maximum noise levels would occur when the construction equipment is nearest to a noise sensitive receiver. Although construction equipment may temporarily be located at the point on the alignment nearest to a receiver, throughout the day equipment would move along the alignment. Therefore, the distance from a receiver to the centerline of the alignment is not the same as the average distance during a given day from the receiver to construction equipment. Thus, average noise levels correlate to the area of active construction. The closest residential receivers are located north of De Portola Road between Butterfield State Road and just east of Via Angeles. These receptors are located 60 feet or more from the pipeline alignment and are separated with a 6-foot masonry wall. The next closest residential receivers are located 80 feet or more from the pipeline alignment. It is estimated that approximately 50 to 80 feet of the pipeline would be constructed per day depending on the required depth. For a receiver that is set back 60 feet from the active work area alignment, using the Pythagorean theorem ($a^2 + b^2 = c^2$), it is calculated that the receiver is at an average distance of 65 feet from the

construction equipment. For a receiver that is set back 80 feet from the active work area alignment, it is calculated that the receiver is at an average distance of 84 feet from the construction equipment.

Construction noise levels were calculated assuming the simultaneous use of two pieces of construction equipment during each phase. Although more construction equipment would be present on-site, not all would be used at the same time. Noise levels from construction activities are typically considered point sources and would drop off at a rate of -6 dB(A) per doubling of distance over hard site surfaces, such as streets and parking lots. Construction noise attenuation is calculated using the following formula:

$$N_R = N_C + 20 \times \text{Log}(D_C/D_R)$$

Where,

N_R = Noise level at receiver

N_C = Construction equipment reference noise level

D_C = Construction equipment reference noise level distance (i.e., 50 feet)

D_R = Distance to receiver (i.e., 67 feet)

The masonry wall located between De Portola Road and the residences between Butterfield State Road and just east of Via Angeles was taken into account when calculating construction noise levels at those receivers. Using FHWA formulas, it was calculated that this difference in elevation would reduce noise levels by 5 dB. No attenuation was taken into account for the receivers located 80 feet or more from the alignment.

The average noise level at the residential receivers were calculated for each phase. The results are summarized in Table 2. Calculations are provided in Attachment 1.

Table 2
Construction Equipment Noise Levels

Phase	Equipment	Maximum Average Hourly Noise Level at 50 Feet [dB(A) L_{eq}]	Active Construction Area (feet/day)	Average Distance to Receiver (feet)	Average Noise Level at Receiver without Attenuation [dB(A) L_{eq}]	Average Noise Level at Receiver with Attenuation [dB(A) L_{eq}]
Receiver at 60 Feet from Pipeline						
Grubbing/ Land Clearing	Concrete Saw	83	50	65	81	76
	Dump Truck	71				
	Total	**83**				
Grading/ Excavation	Excavator	81	50	65	80	75
	Front End Loader	76				
	Total	**82**				
Drainage/ Utilities/ Subgrade	Excavator	81	50	65	80	75
	Utility Truck	74				
	Total	**82**				
Paving	Paver	82	50	65	80	75
	Utility Truck	65				
	Total	**82**				

Table 2 Construction Equipment Noise Levels						
Phase	Equipment	Maximum Average Hourly Noise Level at 50 Feet [dB(A) L_{eq}]	Active Construction Area (feet/day)	Average Distance to Receiver (feet)	Average Noise Level at Receiver without Attenuation [dB(A) L_{eq}]	Average Noise Level at Receiver with Attenuation [dB(A) L_{eq}]
Receiver at 80 Feet from Pipeline						
Grubbing/ Land Clearing	Concrete Saw	83	50	84	79	--
	Dump Truck	71				
	Total	**83**				
Grading/ Excavation	Excavator	81	50	84	78	--
	Front End Loader	76				
	Total	**82**				
Drainage/ Utilities/ Subgrade	Excavator	81	50	84	77	--
	Utility Truck	74				
	Total	**82**				
Paving	Paver	82	50	84	78	--
	Utility Truck	65				
	Total	**82**				
dB(A) = A-weighted decibels; L_{eq} = one-hour equivalent noise level						

As shown in Table 2, construction noise levels are not anticipated to exceed the FTA's recommended threshold of 80 dB(A) L_{eq} at the adjacent residential uses. Furthermore, project construction would adhere to the following measures to the extent feasible:

- For construction activities that occur within the unincorporated portion of Riverside County, the District shall require its contractor to implement the following actions relative to construction noise: the District shall conduct construction activities between 6:00 a.m. to 6:00 p.m. during the months of June through September, and between the hours of 7:00 a.m. and 6:00 p.m. during the months of October through May in accordance with the County of Riverside Municipal Code Section 9.52.020[I].
- For construction activities that occur within the city of Temecula, the District shall require its contractor to implement the following actions relative to construction noise: the District shall conduct construction activities between 7:00 a.m. to 6:30 p.m. in accordance with the City of Temecula Municipal Code Section 9.20.060(D).
- Prior to construction, the District in coordination with the construction contractor, shall provide written notification to all properties within 50 feet of the project facilities informing occupants of the type and duration of construction activities. Notification materials shall identify a method to contact the District's program manager with noise concerns. Prior to construction commencement, the District program manager shall establish a noise complaint process to allow for resolution of noise problems. This process shall be clearly described in the notifications.
- Stationary noise-generating equipment shall be located as far from sensitive receptors as possible. Such equipment shall also be oriented to minimize noise that would be directed toward sensitive receptors. Whenever possible, other non-noise generating equipment (e.g., roll-off dumpsters) shall be positioned between the noise source and sensitive receptors.

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

Therefore, construction of the project would not generate a temporary increase in ambient noise levels in excess of standards established in the Municipal Code, and impacts would be less than significant.

The below-ground pipeline would not generate noise during operation. Noise may be associated with occasional vehicle maintenance trips, but these trips would be negligible. Therefore, operation of the project would not generate a substantial temporary or permanent increase in ambient noise levels, and impacts would be less than significant.

4.1.2 Groundborne Vibration

Human reaction to vibration is dependent on the environment the receiver is in, as well as individual sensitivity. For example, outdoor vibration is rarely noticeable and generally not considered annoying. Typically, humans must be inside a structure for vibrations to become noticeable and/or annoying (FTA 2006). Based on several federal studies, the threshold of perception is 0.035 inch per second (in/sec) peak particle velocity (PPV), with 0.24 in/sec PPV being a distinctly perceptible (Caltrans 2013). Based on best available data, impacts for hydraulic breakers, or hammers, and other non-transient sources such as those associated with project construction shall be considered significant if the PPV exceeds 0.2 in/sec. Vibration perception would occur at structures, as people do not perceive vibrations without vibrating structures.

Construction activities produce varying degrees of ground vibration depending on the equipment and methods employed. While ground vibrations from typical construction activities rarely reach levels high enough to cause damage to structures, special consideration must be made when sensitive or historic land uses are near the construction site. Construction activities that typically generate the highest levels of vibration are blasting and impact pile driving. The project would not require pile driving or blasting. The equipment that would be used during construction with the greatest potential to generate vibration would be a jack hammer. According to the FTA, jack hammers generate vibration levels of 0.035 in/sec PPV at 25 feet. This vibration level would attenuate to 0.013 in/sec PPV at 60 feet, and therefore would not be perceptible at the nearest structures. Therefore, the project would not generate excessive ground borne vibration or ground borne noise levels, and impacts would be less than significant.

Operation of the project would not generate groundborne noise or vibration. No impact would occur.

4.1.3 Airports

The project site is not located within the vicinity of a private airstrip. The nearest airport is the French Valley Airport located approximately six miles to the northwest. The project site is located well outside Airport Influence Area, and

therefore outside of the noise contours for the French Valley Airport (Coffman Associates, Inc. 2009). Further, the project is limited to construction of sewer pipelines and would not introduce any sensitive noise receivers. Therefore, the project would not expose people to excessive noise levels. No impact would occur.

4.2 NEPA

As discussed in Section 3.2 above, the thresholds in Section 3.1, along with the standards established by the FTA, the County, and the City are also appropriate for evaluating impacts under NEPA. Therefore, as described in Section 4.1.1 above, construction noise would not have any adverse effects on noise-sensitive receptors. The below-ground pipeline would not generate noise during operation.

5.0 Conclusions

Construction noise levels are not anticipated to exceed the FTA's recommended threshold of 80 dB(A) L_{eq} at the adjacent residential uses. Construction activities would comply with County Municipal Code Section 9.52.020[I] and Temecula Municipal Code Section 9.20.060(D) and would only occur during daytime hours between 7:00 a.m. to 6:00 p.m. Adherence to additional measures listed in Section 4.1.1 would further reduce construction noise. The below-ground pipeline would not generate noise during operation. Noise may be associated with occasional vehicle maintenance trips, but these trips would be negligible. Therefore, impacts associated with short-term construction or long-term operational noise would be less than significant.

If you have any questions about the results of this analysis, please contact me at jfleming@reconenvironmental.com or (619) 308-9333 extension 177.

Sincerely,

Jessica Fleming
Noise Specialist

JLF:sh

Attachment

6.0 References Cited

California Department of Transportation
2013 Technical Noise Supplement. November.

Coffman Associates, Inc.
2009 Airport Master Plan for the French Valley Airport. Draft Final Technical Report. April 2009.

Federal Highway Administration (FHWA)
2006 Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054, SOT-VNTSC-FHWA-05-01. Final Report. January.

2008 Roadway Construction Noise Mode, V1.1. Washington, DC.

Federal Transit Administration (FTA)
2006 Transit Noise and Vibration Impact Assessment. Washington, DC. May.

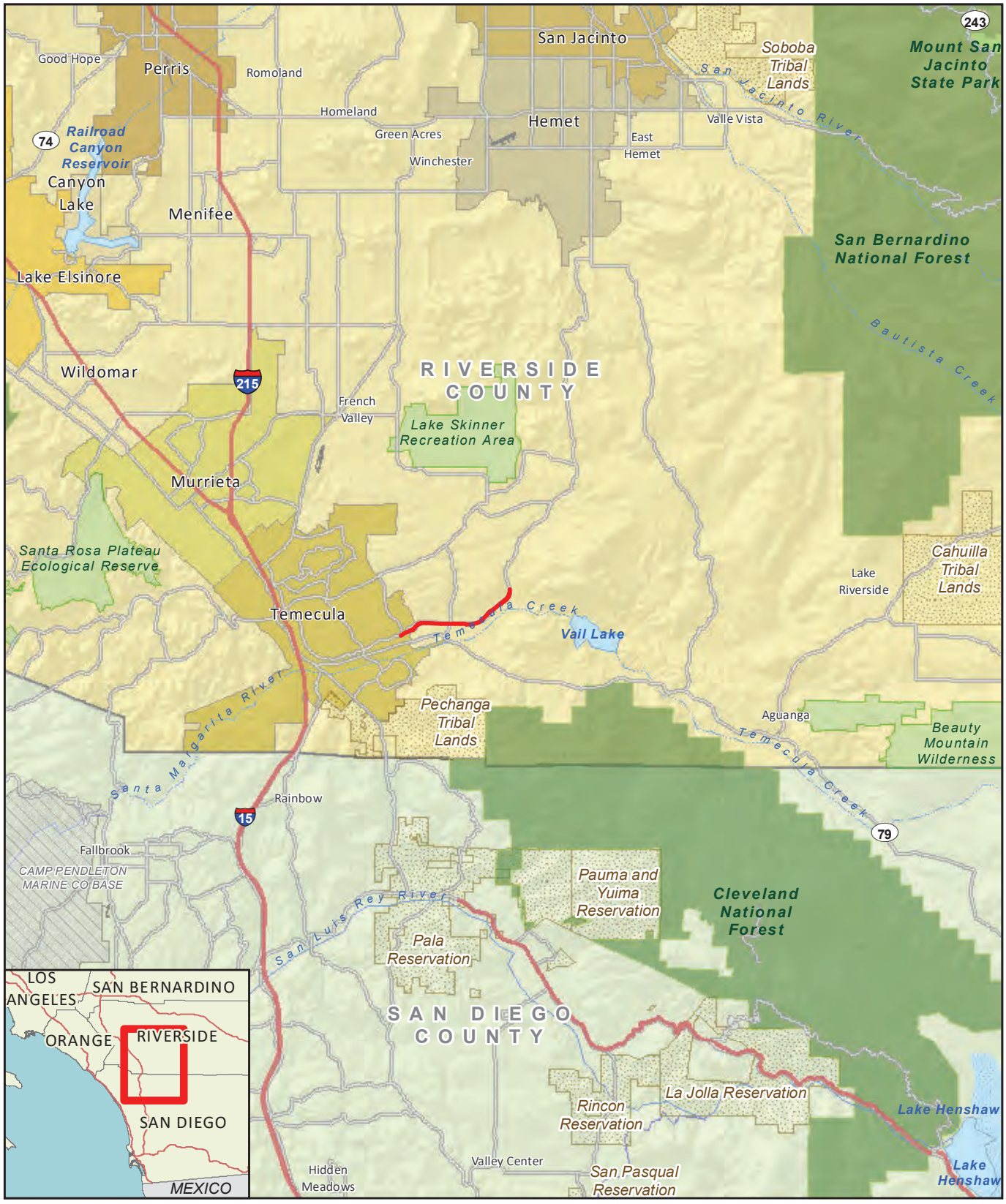

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FIGURE 1
Regional Location

Image Source: NearMap (flown September 2023)

FIGURE 2
Project Location on Aerial Photograph

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Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.1
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.2
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.3
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.4
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.5
Southern Alignment

Image Source: NearMap (flown September 2023)

0 Feet 100

Project Alignment
Project Impact Area

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FIGURE 3.6
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.7
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.8
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.9
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.10
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.11
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.12
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.13
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.14
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.15
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.16
Southern Alignment

Image Source: NearMap (flown September 2023)

Project Alignment
Project Impact Area

0 Feet 100

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FIGURE 3.17
Southern Alignment

ATTACHMENT 1

Noise Calculation Data

Construction Equipment

Equipment	Max Noise Level at 50 Feet	Typical Duty Cycle	Average Noise Level at 50 Feet
Auger Drill Rig	84	20%	77
Backhoe	80	40%	76
Blasting	94	1%	74
Chain Saw	85	20%	78
Clam Shovel	93	20%	86
Compactor (ground)	80	20%	73
Compressor (air)	80	40%	76
Concrete Mixer Truck	85	40%	81
Concrete Pump	82	20%	75
Concrete Saw	90	20%	83
Crane (mobile or stationary)	81	16%	73
Dozer	85	40%	81
Dump Truck	84	5%	71
Excavator	85	40%	81
Front End Loader	80	40%	76
Generator (25 kilovolt amps or less)	70	50%	67
Generator (more than 25 kilovolt amps)	82	50%	79
Grader	85	40%	81
Hydra Break Ram	90	10%	80
Impact Pile Driver (diesel or drop)	95	20%	88
In situ Soil Sampling Rig	84	20%	77
Jackhammer	85	20%	78
Mounted Impact Hammer (hoe ram)	90	20%	83
Paver	85	50%	82
Pneumatic Tools	85	50%	82
Pumps	77	50%	74
Rock Drill	85	20%	78
Roller	74	40%	70
Scraper	85	40%	81
Tractor	84	40%	80
Vacuum Excavator (vac-truck)	85	40%	81
Vibratory Concrete Mixer	80	20%	73
Vibratory Pile Driver	95	20%	88

Receiver at 60 feet

Phase	Equipment		Maximum Average Hourly Noise Level at 50 Feet [dB(A) L_{eq}]	Phase Duration (months)	Active Construction Area (feet/day)	Average Distance to Receiver (feet)	Average Noise Level at Receiver [dB(A) L_{eq}] without Wall	Average Noise Level at Receiver [dB(A) L_{eq}] with Wall
Grubbing/	Concrete Saw		83					
Land Clearing	Dump Truck		71	1.3	50	65	81	76
		Total	**83**					
Grading/	Excavator		81					
Excavation	Front End Loader		76	5.85	50	65	80	75
		Total	**82**					
Drainage/	Excavator		81					
Utilities/	Utility Truck		74	3.9	50	65	80	75
Subgrade		**Total**	**82**					
Paving	Paver		82					
	Utility Truck		65	1.95	50	65	80	75
		Total	**82**					

Nearest residence	60	feet
Linear work area	50	feet
Average distance	65	feet

Receiver at 80 feet

Phase	Equipment		Maximum Average Hourly Noise Level at 50 Feet [dB(A) L_{eq}]	Phase Duration (months)	Active Construction Area (feet/day)	Average Distance to Receiver (feet)	Average Noise Level at Receiver [dB(A) L_{eq}]
Grubbing/	Concrete Saw		83				
Land Clearing	Dump Truck		71	1.3	50	84	79
		Total	**83**				
Grading/	Excavator		81				
Excavation	Front End Loader		76	5.85	50	84	78
		Total	**82**				
Drainage/	Excavator		81				
Utilities/	Utility Truck		74	3.9	50	84	77
Subgrade		**Total**	**82**				
Paving	Paver		82				
	Utility Truck		65	1.95	50	84	78
		Total	**82**				

Nearest residence	80	feet
Linear work area	50	feet
Average distance	84	feet

Noise Reduction Calc

Reference Noise Level	82.2
Reference Distance	50
Site Conditions	Hard

Distance from Barrier to Source	Distance from Barrier to Receiver	Distance from Source to Receiver	Height of Source	Height of Wall	Height of Receiver	Hm	Hn	delta	fresnel @ 500 Hz	Noise Level Reduction	Unabated Noise Level	Resultant Noise Level
50	10	60	6	6	5	-0.83	-0.17	0.042	0.038	5.66	81	74.96

Road Elevation	1524
Property Elevation	1536
Slope Height	12