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Initial Study and Mitigated Negative Declaration for the Murrieta Water and Sewer Master Plan Project

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1 Introduction

1.1 Project Overview

The Western Municipal Water District (herein referred to as WMWD or the District) proposes several different alternatives for updating the sewer system and water supply infrastructure within the City of Murrieta through updating master plans for the sanitary sewer system and water system. The Murrieta Water and Sewer Master Plan Project (Project) proposes the upsizing and replacement of water supply pipelines, improvements to pump stations and water connections, and new sewer mains. These Projects provide a long-term solution to water supply and sewer infrastructure issues for the District's service area within the City of Murrieta.

1.2 Project Background

The current sanitary and water master plans for the Murrieta Retail Service Area were developed in 2014. Since then, the District has invested considerable effort in refining potential development scenarios, growth projections, and developing potential future service alternatives for the Murrieta Retail Service Area. The Project will integrate recent planning work and system upgrades to evaluate the ability of the existing systems to meet future requirements as system demand within the Service Area continues to grow.

The District provides water and wastewater services to retail customers and wholesale agencies over a 527-square-mile area in western Riverside County, including the City of Murrieta. The proposed Project would traverse the Murrieta Retail Service Area, which is a 6.5-square-mile area in the City of Murrieta that is located to the southwest of I-15. The area is bounded on the west by hills and the Santa Rosa Plateau, to the south by Temecula, to the east by the central and eastern portions of the City of Murrieta, and to the north by the City of Wildomar. In 2006, WMWD took over ownership of the Murrieta Retail Area from the Murrieta County Water District and incorporated it into WMWD.

The Murrieta Sewer Division collection systems consists of approximately 38 miles of pipeline ranging from 4-inches to 15 inches in diameter of ductile iron, polyvinyl chloride, or vitrified clay material. By length, 88 percent of the pipelines are 8 inches in diameter and 65 percent are polyvinyl chloride.

The Murrieta Area water system consists of approximately 2,800 potable water connections served by over 52 miles of potable water pipelines, four potable water tanks, one booster station, and one PRV station. Due to elevation changes, the service area is split into two pressure zones: the 1280 Zone and the 1430 Zone. The 1280 Zone is the larger of the two zones, containing almost 42 miles of water pipelines and serving residential, commercial, and industrial customers. Two tanks, located at the Olga Gordon site on the southern edge of the system, store water for the zone. Both tanks have a low water level of 1,250', a high-water level of 1,282', and a radius of 45 feet, giving them both a capacity of 1.5 million gallons (MG). The 1430 Zone serves the more elevated, northwest portion of the system. It contains almost 11 miles of water pipelines and serves exclusively residential customers. The zone currently has existing storage capable of holding 1.9 MG of potable water at the Grizzly Ridge site.

The only source of water for Zone 1430 is from the lower 1280 Zone. Water must be pumped up through the existing Alson Booster Pump Station, located on Washington Ave just southeast of Alexandria Dr. The Alson Booster Pump Station currently houses three 60 HP pumps, each with a capacity to pump 800 gallons

per minute (gpm). This means the stations total pumping capacity is 2,400 gpm and its firm pumping capacity is 1,600 gpm.

The New Clay Well is the only well actively producing water for the Murrieta Service Area. WMWD very recently replaced the North Well, a previously deactivated well, with a new well and wellhead facilities. New Clay Well currently produces 450 gpm for the system and North Well 2 produces 750 gpm (note that Figures 2 through 6 show 700 gpm for this well, as reflected on the 2019 Water Master Plan Update Draft (West Yost, 2019)), making the total well production 1,200 gpm.

An intertie to the Eastern Municipal Water District (EMWD) is located at Los Alamos Rd. where it crosses over the I-5, referred to as the "Los Alamos connection," and would provide the rest of the supply to the service area under existing conditions. An emergency intertie connects the system to the Elsinore Valley Municipal Water District (EVMWD) in the 1430 Zone on Washington Ave near Palomar street.

A description of all proposed capital improvements projects within this Project are detailed later in Section 2.2.

1.3 California Environmental Quality Act Compliance

The proposed Project is subject to an environmental analysis pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA Guidelines Section 15367, the District is the lead agency with principal responsibility for considering approval of the proposed Project (14 CCR 1500 et seq.).

CEQA, a statewide environmental law contained in California Public Resources Code Sections 21000–21177, applies to most public agency decisions to carry out, authorize, or approve actions that have the potential to adversely affect the environment (PRC Section 21000 et seq.). The overarching goal of CEQA is to protect the physical environment. To achieve that goal, CEQA requires that public agencies identify the environmental consequences of their discretionary actions and consider alternatives and mitigation measures that could avoid or reduce significant adverse impacts when avoidance or reduction is feasible. It also gives other public agencies and the public an opportunity to comment on the Project.

1.4 Scope of Environmental Review

The environmental impact analysis included in this Initial Study/Mitigated Negative Declaration (IS/MND) is consistent with the Environmental Checklist (i.e., Initial Study) per CEQA Guidelines Sections 15063–15065. An explanation and discussion of each significance determination is included following the checklist in Appendix G of the CEQA Guidelines.

For this IS/MND, one of the following four responses is possible for each environmental issue area:

- Potentially Significant Impact
- Less-Than-Significant Impact with Mitigation Incorporated
- Less-Than-Significant Impact
- No Impact

The checklist and accompanying explanation of checklist responses provide the information and analysis necessary to assess relative environmental impacts of the proposed Project. In doing so, the District will determine the extent of additional environmental review, if any, for the proposed Project.

1.5 Public Review Process

Public participation is an essential part of the CEQA process. As required by CEQA, the District provides adequate time for other public agencies and members of the public to review and comment on a draft CEQA document. This IS/MND is being made available to members of the public, agencies, and interested parties for a 30-day public review period in accordance with CEQA Guidelines Section 15105. Public review of the IS/MND is intended to focus "on the proposed finding that the Project will not have a significant effect on the environment. If persons and public agencies believe that the Project may have a significant effect, they should: (1) identify the specific effect, (2) explain why they believe the effect would occur, and (3) explain why they believe the effect would be significant" (14 CCR 15204).

This IS/MND is available for review during the 30-day public review period at the following locations: In Person - CEQA Lead Agency

Western Municipal Water District Water Resources Department
14205 Meridian Parkway
Riverside, California 92518

After the 30-day public review period has concluded, the District Board of Directors shall consider the IS/MND together with any comments received during the public review process. The District Board of Directors shall adopt the proposed IS/MND if it finds there is no substantial evidence that the proposed Project will have a significant effect on the environment and that the IS/MND reflects the lead agency's independent judgment and analysis. The District shall file a Notice of Determination at the Riverside County Clerk's office within five (5) calendar days after deciding to carry out or approve the proposed Project.

2 Project Description

This section describes the Murrieta Water and Sewer Master Plan Project (Project). The Project location and environmental setting are described, as well as Project characteristics, construction, and required permits and approvals.

2.1 Location and Setting

2.1.1 Regional Location

The proposed Project is located within the County of Riverside, approximately 7 miles north of San Diego County and 55 miles east of Los Angeles County. Regional Access to the City of Murrieta is provided via several interstates. I-15 runs north-south through the City, providing access to the City of Temecula and San Diego County to the south, and the communities of Wildomar, Lake Elsinore and Corona to the north. I-215 connects to I-15 in the City and provides access to Menifee and Moreno Valley to the north. *Figure 1, Project Location,* shows the general location of the Project site in relation to the larger Southern California region.

2.1.2 Local Setting

The proposed Project would traverse the Murrieta Retail Service Area, which is a 6.5-square-mile area in the City of Murrieta that is located to the southwest of I-15. The area is bounded on the west by hills, to the south by Temecula, to the east by the central and eastern portions of the City of Murrieta, and to the north by the City of Wildomar.

The Project is on the south end of the WMWD service area boundary, bordered by Eastern Municipal Water District (EMWD) to the northeast and Elsinore Valley Municipal Water District (EVMWD) to the Northwest. The area is essentially surrounded by Rancho California Water District (RCWD). WMWD has tens of thousands of feet of gravity mains in the Murrieta Retail Service Area. These gravity mains primarily traverse existing roadways for all land uses in the service area, which include commercial and residential land uses. All new gravity mains will primarily be constructed underneath existing streets.

The district service area is within a location of Murrieta where there can be large variations in surface elevations from service area boundary to boundary. As such, the service area for water service is split into two pressure zones: the 1280 Zone and the 1430 Zone. The 1280 Zone is the larger of the two zones, containing almost 42 miles of water pipelines. The 1430 Zone serves the more elevated, northwest portion of the system containing approximately 11 miles of water pipelines.

2.2 Project Components

2.2.1 Water Supply Master Plan Components

The following discussion is based on the Draft Water Master Plan (Water MP) prepared for the WMWD Murrieta Service Area, dated February 2019. This IS/MND is being prepared as a programmatic CEQA document for the water and sewer master plans. As such, these CIPs are for informational purposes only

and may require separate CEQA documentation if implemented, should CIP impacts be determined greater than those anticipated in this IS/MND.

Capital Improvement Projects

Capital Improvement Project Number 1: 1280 Zone Storage Upgrade

Capital Improvement Project (CIP) Number 1 involves the construction of the new storage required to satisfy the build-out storage requirements for the 1280 Pressure Zone. The zone currently has 3 million gallons (MG) of total storage at the Olga Gordon Reservoir Site and needs an additional 3.6 MG of storage to meet the criteria presented in the Water MP.[1] A new site approximately 4,000 feet northwest and sharing the same elevation as the Olga Gordon site was identified for the location of a new water storage tank (the "Vineyard Specific Plan" tank site). The new tank proposed to be constructed is a 4 MG steel tank with radius of 73 feet and a height of 32 feet. Around 2,100 feet of 24-inch diameter pipe and 2,100 feet of 21-inch diameter pipe will be required to connect the existing Olga Gordon tanks with the proposed tank. A junction will be made halfway between the tanks and an extra 1380 feet of 24-inch pipe is required to connect the junction to the existing system. Once both of the reservoir sites are connected to the existing system, 825 feet of existing 8-inch pipe will have to be upsized to 24-inches. The proposed alignment of the recommended storage and pipelines to connect that storage to the distribution system would be difficult to permit and construct. However, there are very few sites available that meet the topographic constraints necessary for storage in the 1280 Zone. The proposed storage location will allow WMWD to budget and plan for future required storage will exploring alternatives to provide adequate storage to the 1280 Pressure Zone. Note that this new storage tank is not necessary for construction at this time, and its design and associated pipeline alignments have yet to be resolved. As such, this new reservoir is briefly noted in this IS/MND but will require separate CEQA review prior to the District moving forward with any construction plans.

Capital Improvement Project Number 2: North of Murrieta Creek

Currently, only about 40 percent of the entire service area is being served water by WMWD. Most of the area not being served is at the southeast section of the service area and is split by Murrieta Creek, which runs northwest to southeast through the City. The unserved area north of the creek is currently undeveloped free space. The unserved area south of Murrieta Creek is developed with single family homes that have their own well supply for daily use and only require water service from WMWD for fire purposes. The criteria for the hydraulic analysis performed within the Project assumes that the entire service area will be built out and require water service.

CIP Number 2 consists of the new pipes that are required to serve the undeveloped areas north of Murrieta Creek. CIP Number 2 pipes are sized to handle the maximum daily demand (MDD) plus fire flows. CIP Number 2 proposes the construction of 6,071 feet of 8-inch pipe and 36,359 feet of 12-inch pipe.

Capital Improvement Project Number 3: South of Murrieta Creek

CIP Number 3 consists of the new pipes sized for MDD plus fire flows that will only be used for possible fire service to the developed areas south of Murrieta Creek that are currently served by private wells. Proposed construction includes 29,673 feet of 8-inch pipe and 26,347 feet of 12-inch pipe.

[1] Western Municipal Water District. February 2019. Draft Murrieta *Retail Area Water Master Plan Update*

Capital Improvement Project Numbers 4a-d: Future Supply Alternatives

WMWD has developed three future supply alternatives to the existing setting in the Murrieta retail service area, with a fourth "hybrid" supply alternative identified by West Yost Associates. All four water supply alternatives have similar components. WMWD may pursue facilities from any of the four alternatives, depending on supply available, funding, and other constraints. WMWD will likely initially pursue improvements represented in the Status Quo Supply alternative described below, as it does not require any new water supplies and would meet existing and near-term demand. The majority of water supply system components would be within existing streets and developed or disturbed rights-of-way or constructed concurrently with new roads as more rural portions of the City develop. Certain facilities, such as the EVMWD intertie, the new Vineyard Specific Plan water storage tank and water system upgrades for fire flow in the southwest rural portion of Murrieta, would require separate CEQA review and approval. These facilities are only conceptually identified at this time and are not needed for existing or near-term adequate water supply. The proposed facilities have been designed to meet existing and projected ultimate water supply demand based on currently adopted land use plans for the City of Murrieta. The facilities are not intended to supply water for new unplanned growth. This IS/MND is being prepared as a programmatic CEQA document for the water and sewer master plans. Where facilities are adequately addressed by this IS/MND (primarily facilities that are new or modified pipelines and appurtenant facilities in existing roads or disturbed areas that are absent of sensitive environmental resources), the intent is that facility construction could proceed on the basis of this IS/MND without further CEQA analysis.

Capital Improvement Project Number 4a: Status Quo Supply

The status quo supply will have the same supply sources as the existing system. This alternative will require the upsizing of pipes within the retail area; however, well production will stay the same. This alternative includes a proposed reservoir site to the south of the Murrieta Retail Service Area that will be connected to the Olga Gordon reservoir site. The supply at the Los Alamos connection will be increased to almost 12 cubic feet per second (cfs) for peak hour demand. These improvements include the proposal of 1,295 feet of the 16-inch pipe, 268 feet of the 20-inch pipe, and 1,045 feet of the 24-inch pipe. This alternative is subject to future CEQA documentation and is listed under this MND for information purposes. See Figure 2 for the proposed Status Quo alternative.

Capital Improvement Project Number 4b: EVMWD Supply Alternative

One of the alternative supply options identified by WMWD involved wheeling water through EVMWD. After wheeling the water through EVMWD, it would be provided to the Murrieta Service Area through two connection points; a connection that already exists as an emergency connection on Washington Ave and a proposed connection to the existing Grizzly Ridge tank in WMWD's 1430 zone. The existing connection on Washington Ave would be capable of delivering 2,000 gpm, while the proposed connection to the Grizzly Ridge tank would be capable of delivering 2,939 gpm. This second connection would require an estimated 3,000 feet of pipeline to be constructed along Wyman Road from the connection to EVMWD to the Grizzly Ridge Tank. With the wells already maxed out, this additional 4,939 gpm would not be enough to satisfy Projected built-out demand. Therefore, the existing Los Alamos connection would need to continue to supply a small amount of water during build out MDD conditions. Additionally, the Auld Valley Pump Station will have to be upgraded to provide capacity for the water wheeling to WMWD through the EVMWD system. This will require 100 feet of new piping, and new pressure reducing equipment on-site. This alternative also includes a proposed reservoir site to the south of the Murrieta Retail Service Area that will be connected to the Olga Gordon reservoir site and is anticipated to require CEQA documentation. This alternative is for informational purposes only and would require separate CEQA documentation if implemented due to

potential significant impacts to several thresholds, including sensitive habitats, cultural resources, or visual resources.

This alternative would require new pipe and new equipment at the point of connection to the 1280 zone, as water is supplied through the 1430 zone. The alternative is also anticipated to require 3,000 feet in new 18" pipe is proposed for this alternative. Upsizing is proposed to occur for 10,058 feet of 16" pipe, 3,460 feet of 18" pipe, and 102 feet of 20" pipe. See Figure 3 for the proposed EVMWD Supply Alternative.

Capital Improvement Project Number 4c: RCWD Supply Alternative

The RCWD Supply Alternative involves wheeling water through the RCWD. Up to 11 cfs (4,937 gpm) during average day conditions and up to 22 cfs (9,874 gpm) during max day conditions would be supplied through the connection point located in the heart of the Murrieta service area. This alternative includes a proposed reservoir site to the south of the Murrieta Retail Service Area that will be connected to the Olga Gordon reservoir site. The reservoir design feature is noted here for information purposes only, as this feature is not required for the successful implementation of the RCWD Supply Alternative. The reservoir design is a long-term design feature that if built, is anticipated to be constructed in approximately 8 to 10 years and would require separate CEQA documentation if implemented due to potential significant impacts to several thresholds, including sensitive habitats, cultural resources, or visual resources.

A location for the connection point between the RCWD 1305 Zone and the WMWD Murrieta Service Area 1280 Zone was chosen close to an RCWD pipe where there would be the smallest length of deficient pipe during built-out peak hour demand (PHD) for the new supply. Like the status quo supply scenario, water would still need to be pumped up to the 1430 Zone. 3,991 feet of 16" pipe is proposed to be upsized under this alternative. See Figure 4 for the proposed RCWD Supply alternative.

Capital Improvement Project Number 4d: Hybrid Supply Scenario

During the analysis of the other three supply alternatives, a fourth supply alternative that combines the EVMWD and RCWD supply alternatives was created and identified here as the Hybrid Supply Scenario. The lower 1280 Zone would be supplied by a combination of the two wells and the proposed RCWD connection while the 1430 Zone would be completely supplied by the existing EVMWD connection. This alternative reduces the need for a second connection to EVMWD because the 2,000 gpm that the existing connection is capable of delivering would be sufficient to fulfill the build-out MDD of the 1430 Zone, which is only 1,286 gpm. Also, because the two zones would each receive their own separate external supply, this alternative eliminates the need for a pump station or a pressure reducing valve station between pressure zones, except in emergency situations. The pump station would be kept active for emergency scenarios. This alternative also includes a proposed reservoir site to the south of the Murrieta Retail Service Area that will be connected to the Olga Gordon reservoir site. This reservoir feature is not required for the successful implementation of the Hybrid Supply Alternative. The reservoir design is a long-term design feature that if built, is anticipated to be constructed in approximately 8 to 10 years. As such, this feature is noted here for informational purposes only. This feature would require separate CEQA documentation if implemented due to potential significant impacts to several thresholds, including sensitive habitats, cultural resources, or visual resources. See Figure 5 for the proposed Hybrid Supply scenario.

The Hybrid Supply Alternative is very similar to the RCWD Supply Alternative. All of the pipes proposed for improvement are located at the connection point to RCWD. The amount of flow being supplied through the EVMWD connection in the 1430 Zone is small enough that the existing pipes are adequate in that area. 3,582 feet of 16" pipe is proposed to be upsized under this scenario.

Capital Improvement Project Number 5: Fire Flow

The build-out fire flow analysis described in Section 5.5 of the Water MP identified areas where the system is unable to deliver fire flows without exceeding WMWD standards for maximum velocity and/or minimum pressure. These areas are primarily located in areas with older infrastructure and smaller diameter pipelines. This CIP presents the corrective action proposed to solve those fire flow deficiencies. This would include the construction of or upsizing of 5,989 feet of 8-inch pipe, 849 feet of 10-inch pipe, 6,535 feet of 12-inch pipe.

2.2.2 Sewer Master Plan Components

The following discussion is based on the Draft Murrieta Sewer Master Plan (Sewer MP) prepared for the WMWD Murrieta Service Area, dated April 2021. This IS/MND is being prepared as a programmatic CEQA document for the water and sewer master plans. As such, these CIPs are for informational purposes only and may require separate CEQA documentation if implemented, should CIP impacts be determined greater than those anticipated in this IS/MND.

The Sewer MP details 25 capital improvement projects (CIPs) consisting of various lengths of gravity or force main at diameters of 8, 10, and 15 inches. Refer to Figure 9 for the locations of all CIPs within the Sewer MP. These 25 CIPs are detailed below.

Capital Improvement Project Number 1

CIP Number 1 includes the construction of 1,670 feet of 8-inch sewer main along Fig Street from Douglass Avenue to Lucille Circle.

Capital Improvement Project Number 2

CIP Number 2 includes the construction of 2,477 feet of 8-inch sewer main along Douglass Avenue from Elem Street to Fig Street.

Capital Improvement Project Number 3

CIP Number 3 includes the construction of 1,350 feet of 8-inch sewer main along Fig Street from Hayes Avenue to Douglass Avenue.

Capital Improvement Project Number 4

CIP Number 4 includes the construction of 2,719 feet of 10-inch sewer main along Hayes Avenue from Fig Street to Guava Street and De Luz Road.

Capital Improvement Project Number 5

CIP Number 5 includes the construction of 2,423 feet of 8-inch sewer main along De Luz Road from Hayes Avenue to the Southwestern WMWD Service Area limits.

Capital Improvement Project Number 6

CIP Number 6 includes the construction of 3,095 feet of 15-inch sewer main along Guava Street from Hayes Avenue to Washington Avenue.

Capital Improvement Project Number 7

CIP Number 7 includes the construction of 1,323 feet of 10-inch sewer main along Hayes Avenue from De Luz Road and Guava Street to Brown Road.

Capital Improvement Project Number 8

CIP Number 8 includes the construction of 2,235 feet of 8-inch sewer main along Brown Road from Hayes Avenue to Edna Road.

Capital Improvement Project Number 9

CIP Number 9 includes the construction of 2,235 feet of 8-inch sewer main along Hawthorn Street from Hayes Avenue to Edna Road.

Capital Improvement Project Number 10

CIP Number 10 includes the construction of 2,393 feet of 8-inch sewer main along Calle Ortega from Hayes Avenue to Southwestern End.

Capital Improvement Project Number 11

CIP Number 11 includes the construction of 1,534 feet of 8-inch sewer main along Jenny Lane from Kalmia Street to Dawnwood Street.

Capital Improvement Project Number 12

CIP Number 12 includes the construction of 3,351 feet of 8-inch sewer main along Kalmia Street from Hayes Avenue to Southwest End.

Capital Improvement Project Number 13

CIP Number 13 includes the construction of 733 feet of 8-inch sewer main along Washington Street from Patton Avenue to Manista Way.

Capital Improvement Project Number 14

CIP Number 14 includes the construction of 2,029 feet of 9-inch sewer main along Adams Street from Brown Street to Patton Place.

Capital Improvement Project Number 15

CIP Number 15 includes the construction of 2,029 feet of 8-inch sewer main from 675 feet northeast of the intersection of Kalmia Street and Washington Street to the northwest to the southeast end of Epson Court.

Capital Improvement Project Number 16

CIP Number 16 includes the construction of 2,029 feet of 8-inch sewer main along Adams Street from Kalmia Street to 625 feet southeast of the intersection of Adams Street and Lemon Street.

Capital Improvement Project Number 17

CIP Number 17 includes the construction of 2,029 feet of 8-inch sewer main along Jefferson Street from Kalmia Street to Waller Street.

Capital Improvement Project Number 18

CIP Number 18 includes the construction of 1,265 feet of 10-inch sewer main along Fig Street from 325 feet southwest of Jefferson Avenue to Madison Avenue.

Capital Improvement Project Number 19

CIP Number 19 includes the construction of 715 feet of 8-inch sewer main along Larchmont Lane from Jefferson Avenue to Madison Avenue.

Capital Improvement Project Number 20

CIP Number 20 includes the construction of 1,299 feet of 8-inch sewer main along Larchmont Lane from Madison Avenue to Monroe Avenue.

Capital Improvement Project Number 21

CIP Number 21 includes the construction of 1,299 feet of 8-inch sewer main from 605 feet northwest of the intersection of Fig Street and Madison Street northeast to Monroe Avenue.

Capital Improvement Project Number 22

CIP Number 22 includes the construction of 1,299 feet of 8-inch sewer main along Fig Street from Madison Avenue to Monroe Avenue.

Capital Improvement Project Number 23

CIP Number 23 includes the construction of 2,608 feet of 8-inch sewer main along Madison Avenue from Elm Street to Fig Street.

Capital Improvement Project Number 24

CIP Number 24 includes the construction of 679 feet of 8-inch sewer main along Madison Avenue from Fig Street to 679 feet northwest.

Capital Improvement Project Number 25

CIP Number 25 includes the construction of 1,503 feet of 8-inch sewer main along Hawthorn Street from Washington Street to Southwest End.

2.3 Construction Activities

The proposed Project would be installed via open-trench construction methods and in accordance with the District standard detail W-1540. Construction would occur in a linear fashion and is anticipated to be contained within one lane of traffic (approximately 12-feet wide). In the event construction activities must extend beyond a single lane in a particular area, the implementation of the traffic control plan required pursuant to regulations set forth by the applicable jurisdiction would ensure that no full road closures are required, and traffic safety is maintained. Excavation equipment would straddle the trench and deposit spoil material into trucks for storage outside the roadway or stockpiled behind the open trench within the closed traffic lane. The pipe would be staged along the water main and gravity sewer alignments, typically within the road shoulder and outside the trench excavation path. Per the District standards, the maximum length of trench that would be opened or partially opened at any one time would be limited to 500 LF. Upon

completion of a shift, the contractor would be responsible for backfilling and/or plating open excavations, as well as cleaning, removing barricades, and removing equipment from the roadway.

The roadways through which the alignment traverses may not provide sufficient area for overnight construction equipment storage. Additional construction staging areas outside the Project alignment are unknown at this time.

The contractor will coordinate the use of empty parking lots and other disturbed areas near the Project alignment for use as a staging area. Staging area uses include the parking and storage of construction equipment overnight when construction will typically not occur. The contractor shall coordinate with property owners of proposed staging areas and gain approval from the District. No Project staging would occur within existing disturbed habitat or non-native grasslands. Furthermore, the contractor must comply with applicable mitigation measures to ensure potential environmental impacts would be less than significant.

Pavement restoration would be conducted per the City of Murrieta's standards and typical roadway sections. The contractor will coordinate with the City to ensure all paving requirements are met during trenching, backfilling, and grading.

2.3.1 Special Construction

Open-cut construction has potential to impact existing channels/waterways, large underground utilities, culverts, or bridges along the alignment. Where open-cut trenching would result in impacts to channels/ waterways or Caltrans and railroad right-of-way (ROW), trenchless construction is proposed. Auger boring construction, also referred to as jack-and-bore construction, is suitable for trenchless construction undercrossings, where needed.

Auger boring uses a cutting head attached to an auger string. A steel casing pipe would be simultaneously jacked into the bore hole as the auger is advanced. The auger string would be lengthened through the bore to the receiving site. Each pit location would be constructed with depths sufficient to maintain the desired pipe alignment. The carrier pipe would be subsequently installed within the steel casing pipe.

Auger bore installations are suitable for short installations, less than approximately 450 to 500 feet, and can only be constructed in linear alignments. If groundwater is present, the auger does not control the water and can flood the jacking and/or receiving pits. Other trenchless construction methods, such as micro-tunneling and horizontal directional drilling, are more appropriate where groundwater is a consideration. It is assumed auger bore installations would be sufficient for all necessary trenchless construction associated with the proposed Project.

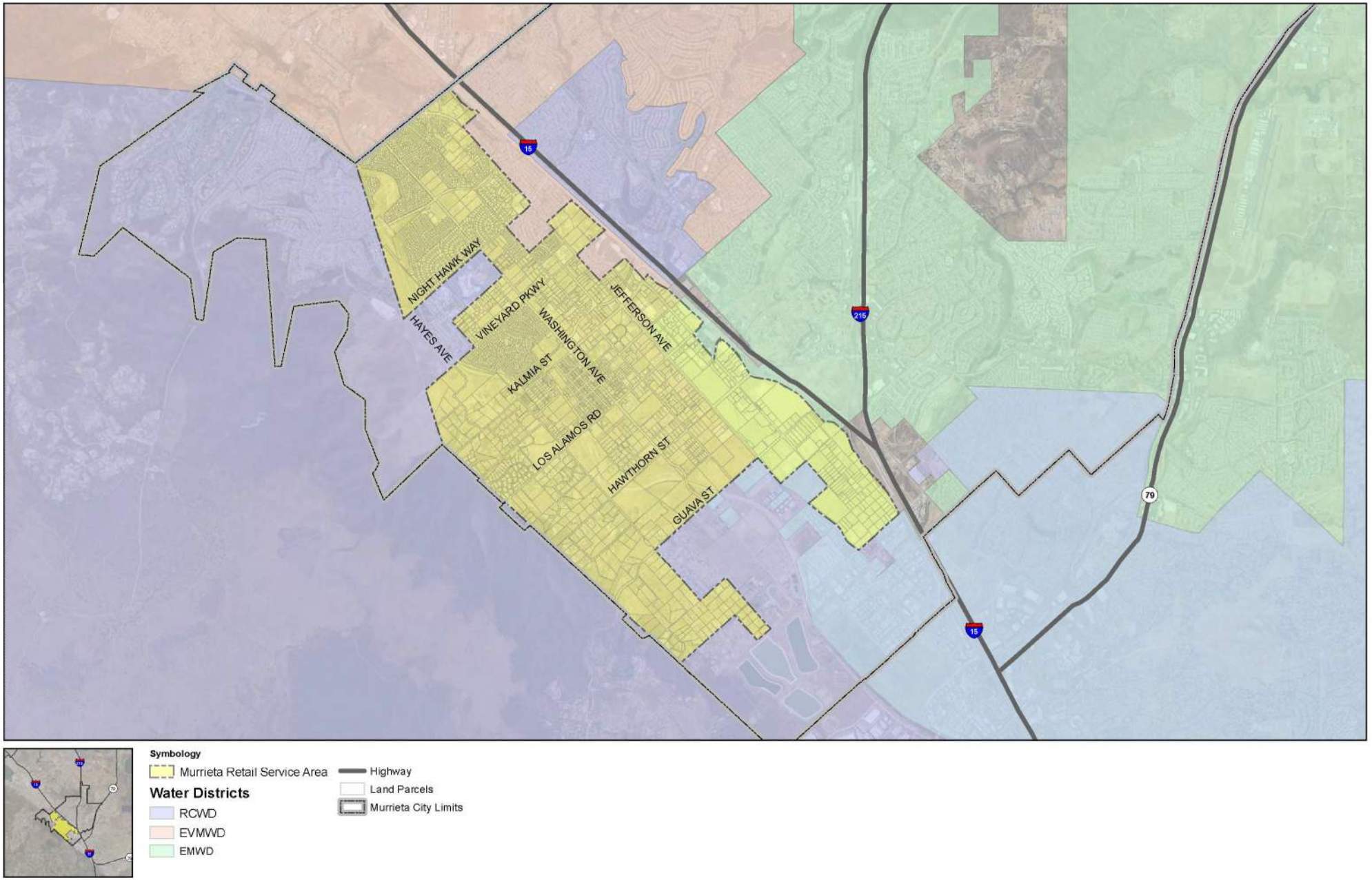
2.4 Project Approvals

As the lead agency under CEQA, the District has the primary responsibility for approving and carrying out the proposed Project and for ensuring that CEQA regulations and all other applicable regulations are met. Other agencies that may also have permitting approval or review authority over portions of the proposed Project are listed in Table 2.

Table 1. Approvals and Permits Required for the Proposed Project

Agency	Applicable Regulation/Approval/Permit
State Water Resources Control Board	Construction General Permit required for discharges of stormwater associated with construction activities
Regional Water Quality Control Board - Santa Ana Region (Region 9)	Stormwater Pollution Prevention Plan – must be prepared prior to Project construction and implemented during construction activities, pursuant to Construction General Permit
City of Murrieta	Encroachment Permit – must be obtained for all work within the City of Murrieta ROW

Notes: Caltrans = California Department of Transportation; ROW = right-of-way; CEQA = California Environmental Quality Act; IS/MND = Initial Study/Mitigated Negative Declaration; NEPA = National Environmental Policy Act; CFR = Code of Federal Regulations.

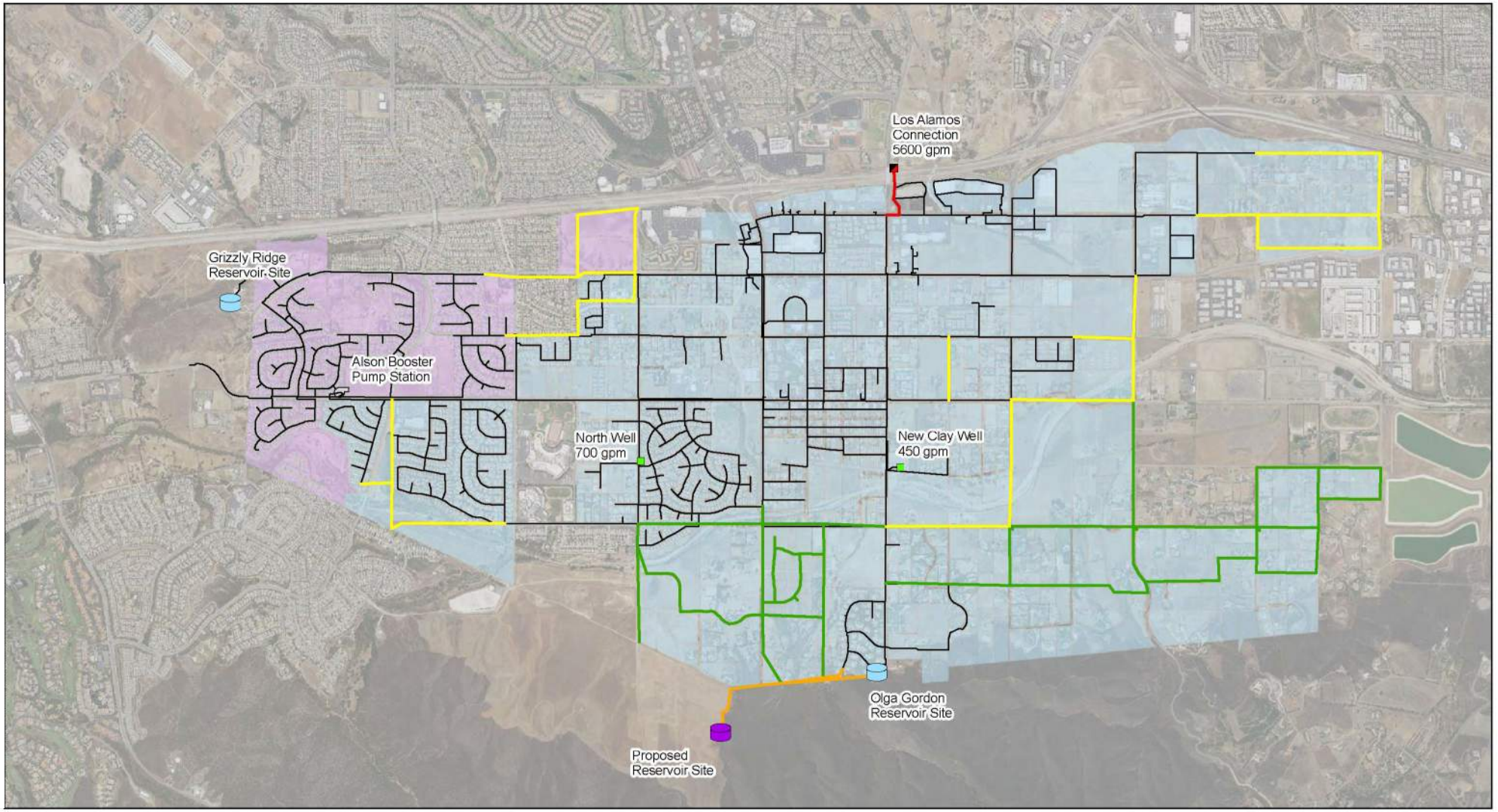


Source: West Yost Associates - Murrieta Service Area Location

Figure 1: Project Location
Murrieta Water and Sewer Master Plan Project

0 2,000 4,000
Feet

Kimley»Horn

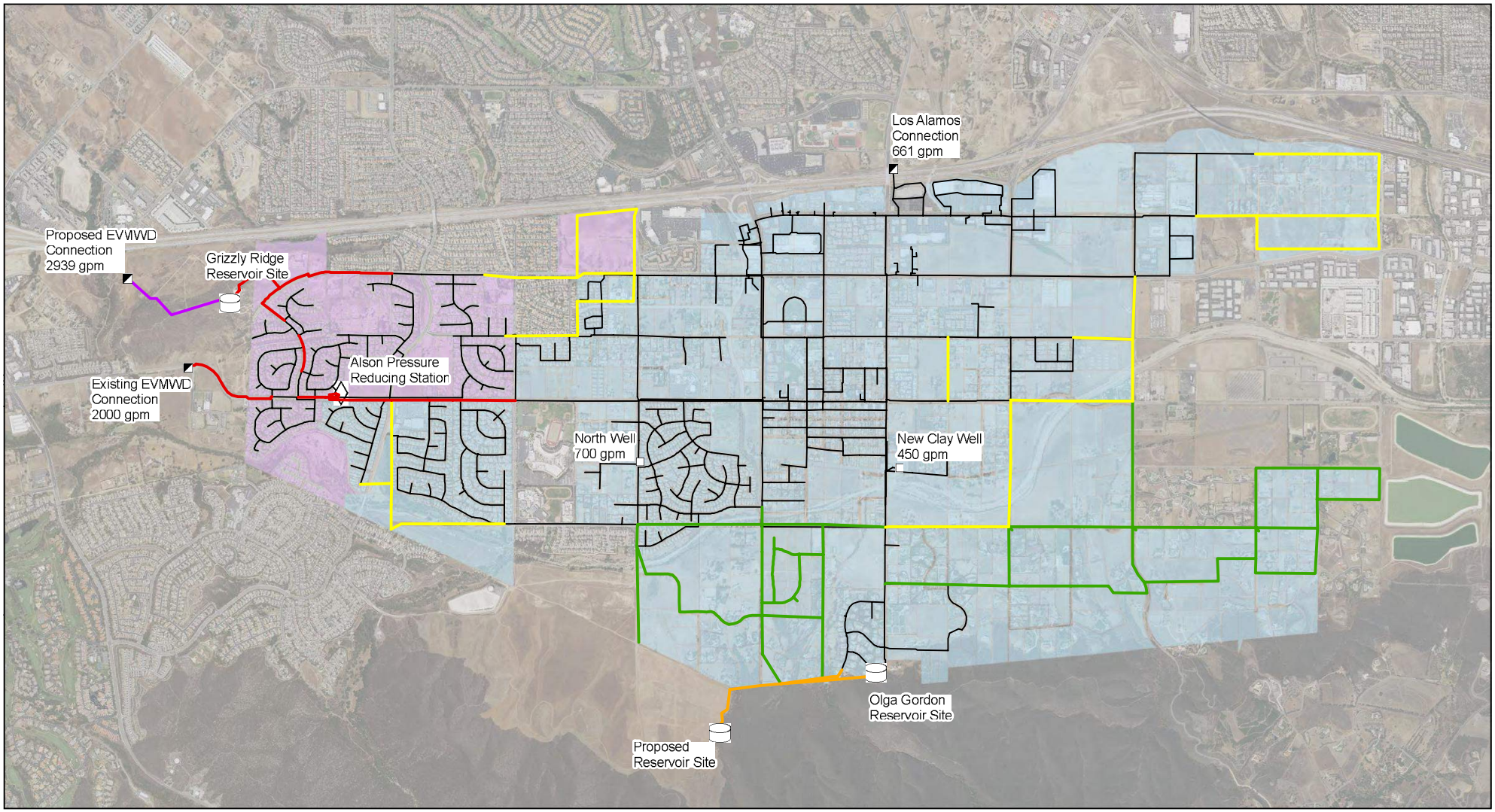


Source: West Yost Associates - Status Quo Supply / 2018 Master Plan Update

Figure 2: Status Quo Supply
Murrieta Water and Sewer Master Plan Project

0 2,000 4,000
Feet

Kimley»Horn



Symbology

- Proposed Reservoir Site
- Existing Reservoir Site
- Existing Interconnection
- Proposed Interconnection
- Production Well
- New Alson PRV Station
- Existing Water Main
- Hyraulic Deficiencies
- New Pipe to EVMWD Connection
- Pipe to Proposed New Storage
- Expansion Pipe - North of Murrieta Creek
- Expansion Pipe - South of Murrieta Creek

Parcel Pressure Zone

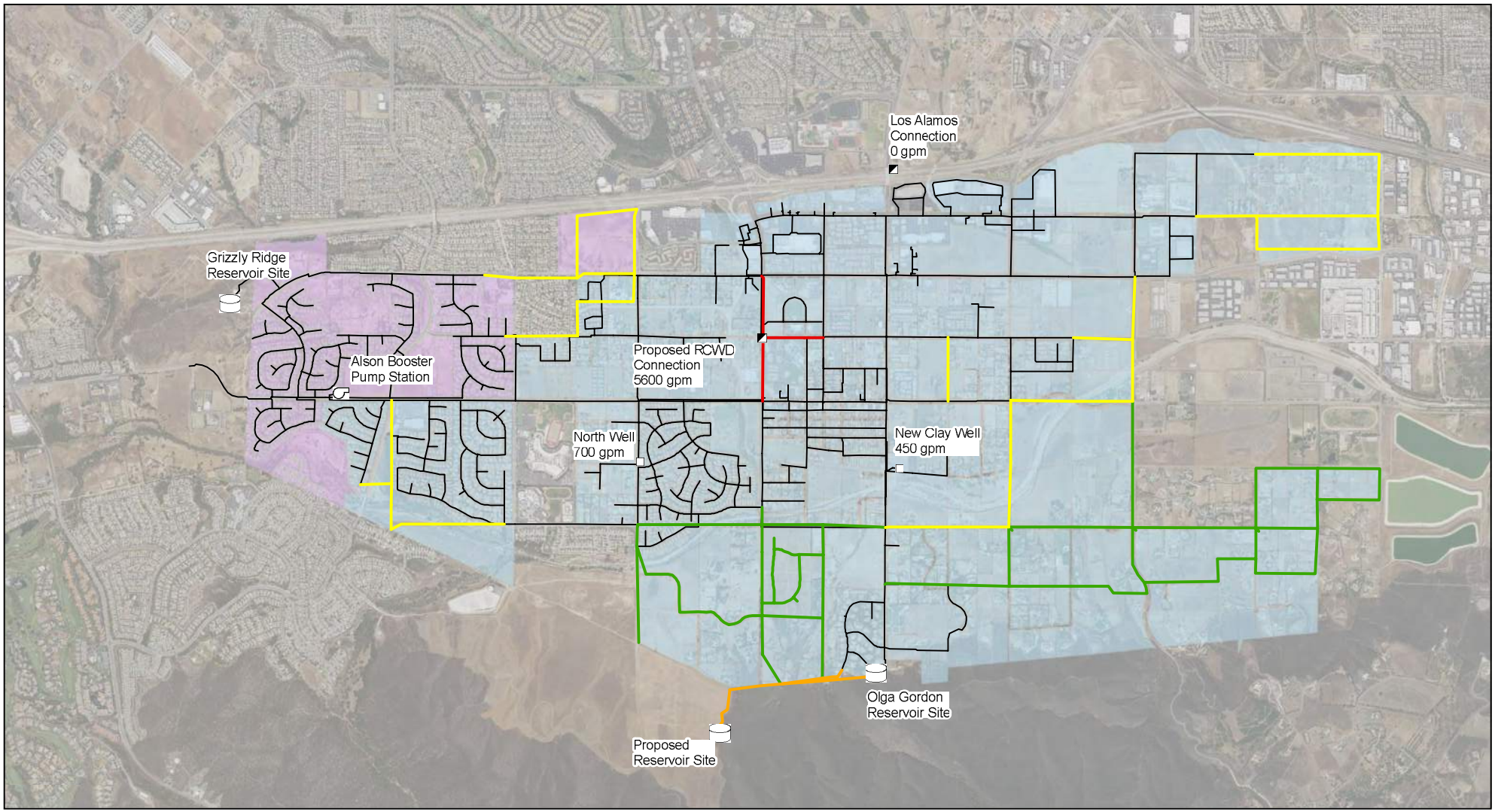
- 1280
- 1430

Source: West Yost Associates - EVMWD Supply Alternative / 2018 Master Plan Update

Figure 3: EVMWD Supply Alternative
Murrieta Water and Sewer Master Plan Project

0 2,000 4,000
Feet

Kimley»Horn



Symbology

- Proposed Reservoir Site
- Existing Reservoir Site
- Existing Interconnection
- Proposed Interconnection
- Production Well
- Alson Booster Pump Station
- Existing Water Main
- Hyraulic Deficiencies
- New Pipe to EVMWD Connection
- Pipe to Proposed New Storage
- Expansion Pipe - North of Murrieta Creek
- Expansion Pipe - South of Murrieta Creek

Parcel Pressure Zone

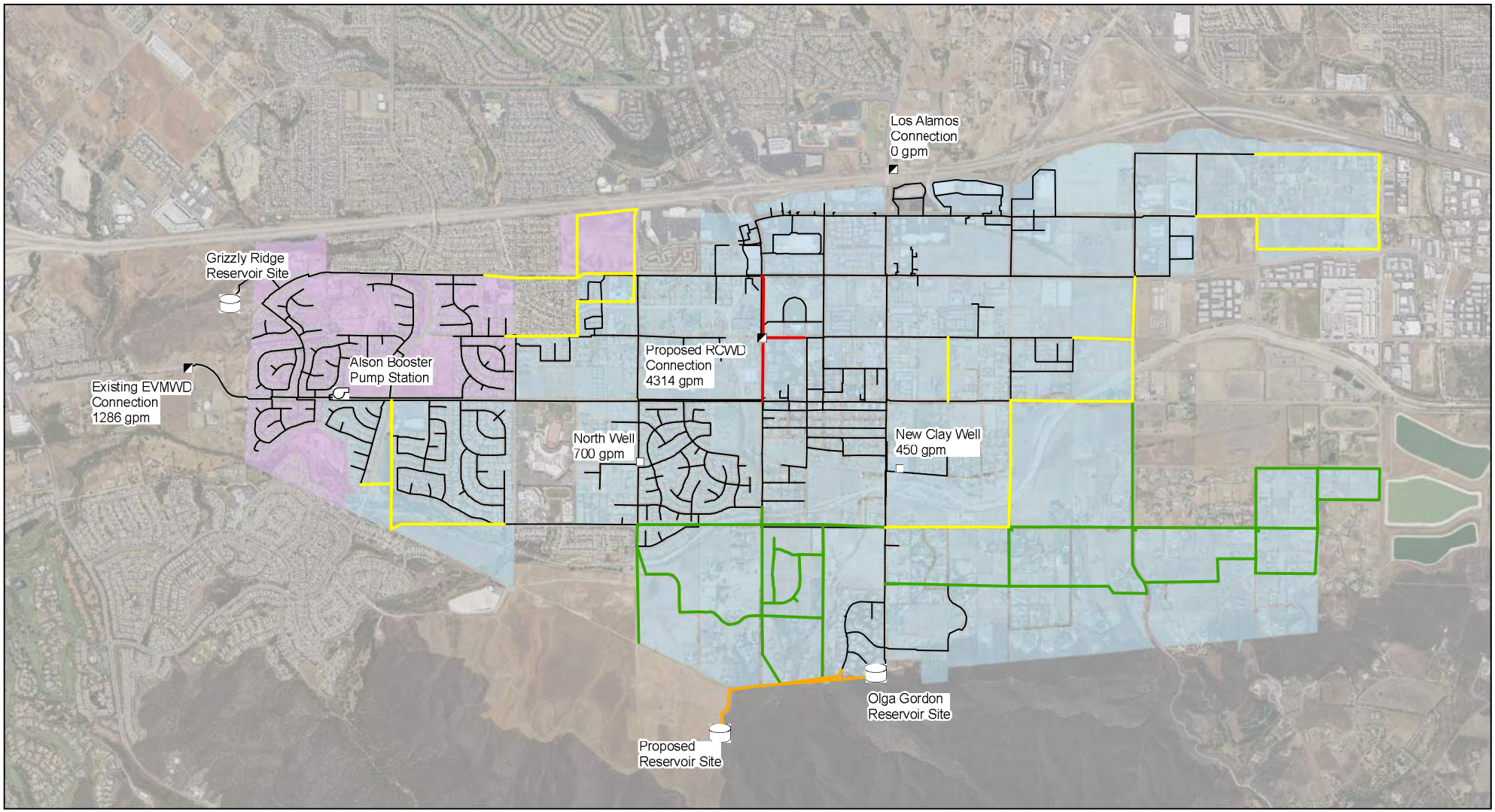
- 1280
- 1430

Source: West Yost Associates - RCWD Supply Alternative / 2018 Master Plan Update

Figure 4: RCWD Supply Alternative
Murrieta Water and Sewer Master Plan Project

0 2,000 4,000
Feet

Kimley»Horn



Symbology

- Proposed Reservoir Site
- Existing Reservoir Site
- Existing Interconnection
- Proposed Interconnection
- Production Well
- Alson Booster Pump Station
- Existing Water Main
- Hyraulic Deficiencies
- New Pipe to EVMWD Connection
- Pipe to Proposed New Storage
- Expansion Pipe - North of Murrieta Creek
- Expansion Pipe - South of Murrieta Creek

Parcel Pressure Zone

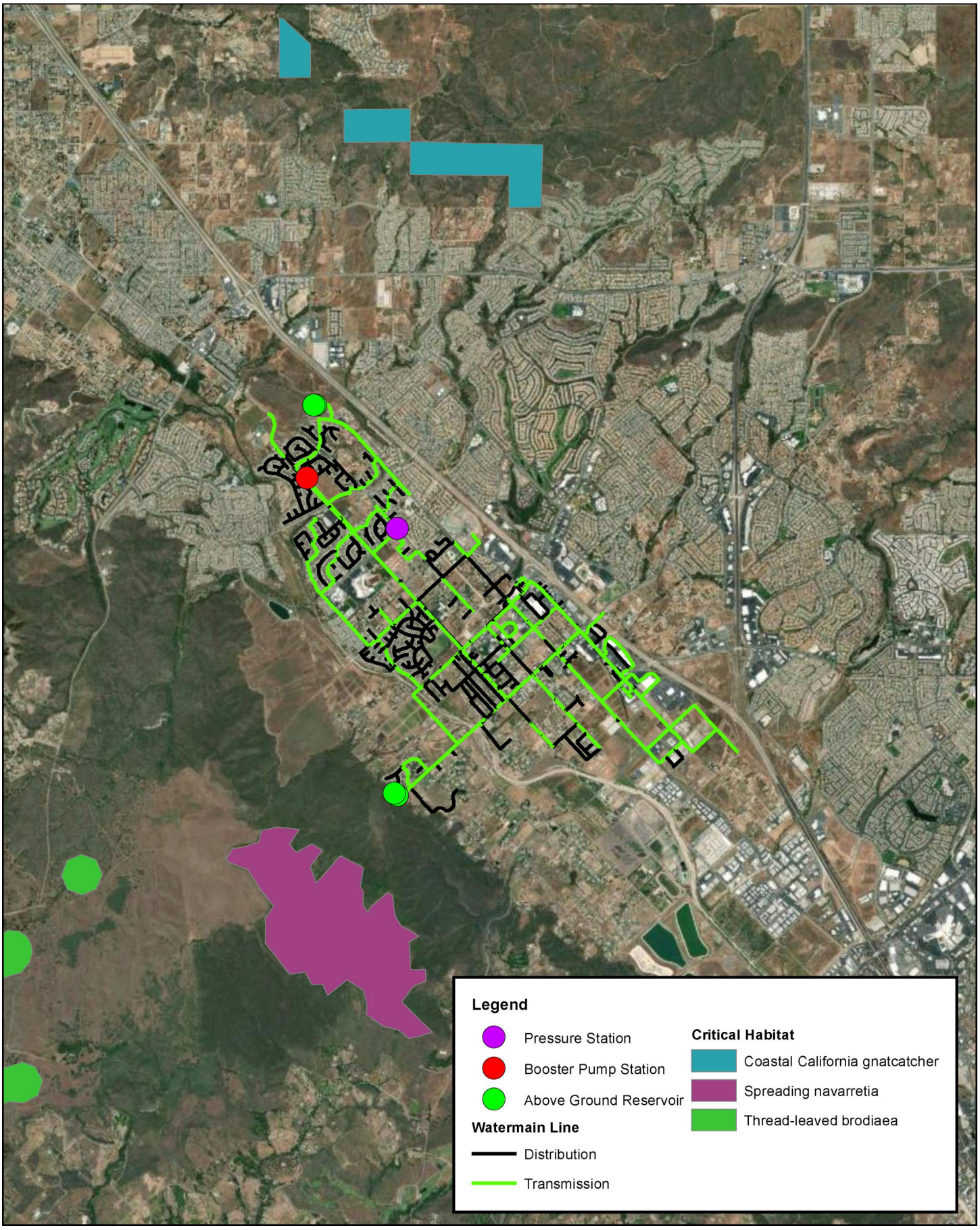
- 1280
- 1430

Source: West Yost Associates - Hybrid Supply Alternative / 2018 Master Plan Update

Figure 5: Hybrid Supply Alternative
Murrieta Water and Sewer Master Plan Project

0 2,000 4,000
Feet

Kimley»Horn

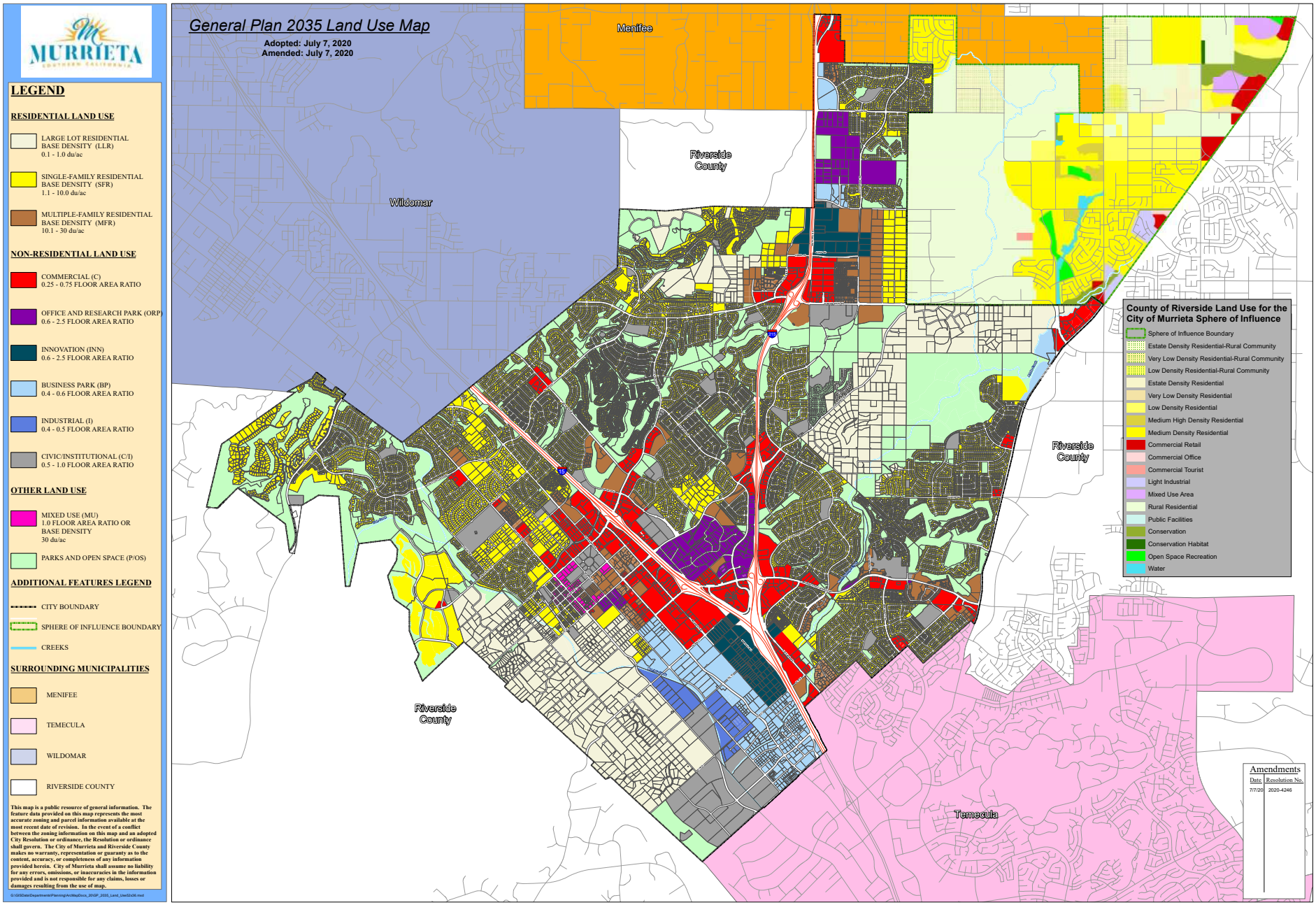


Source: ELMT Consulting - Habitat Assessment

Figure 6: Bio Resource Map
Murrieta Water and Sewer Master Plan Project

0 0.625 1.25
Miles

Kimley»Horn

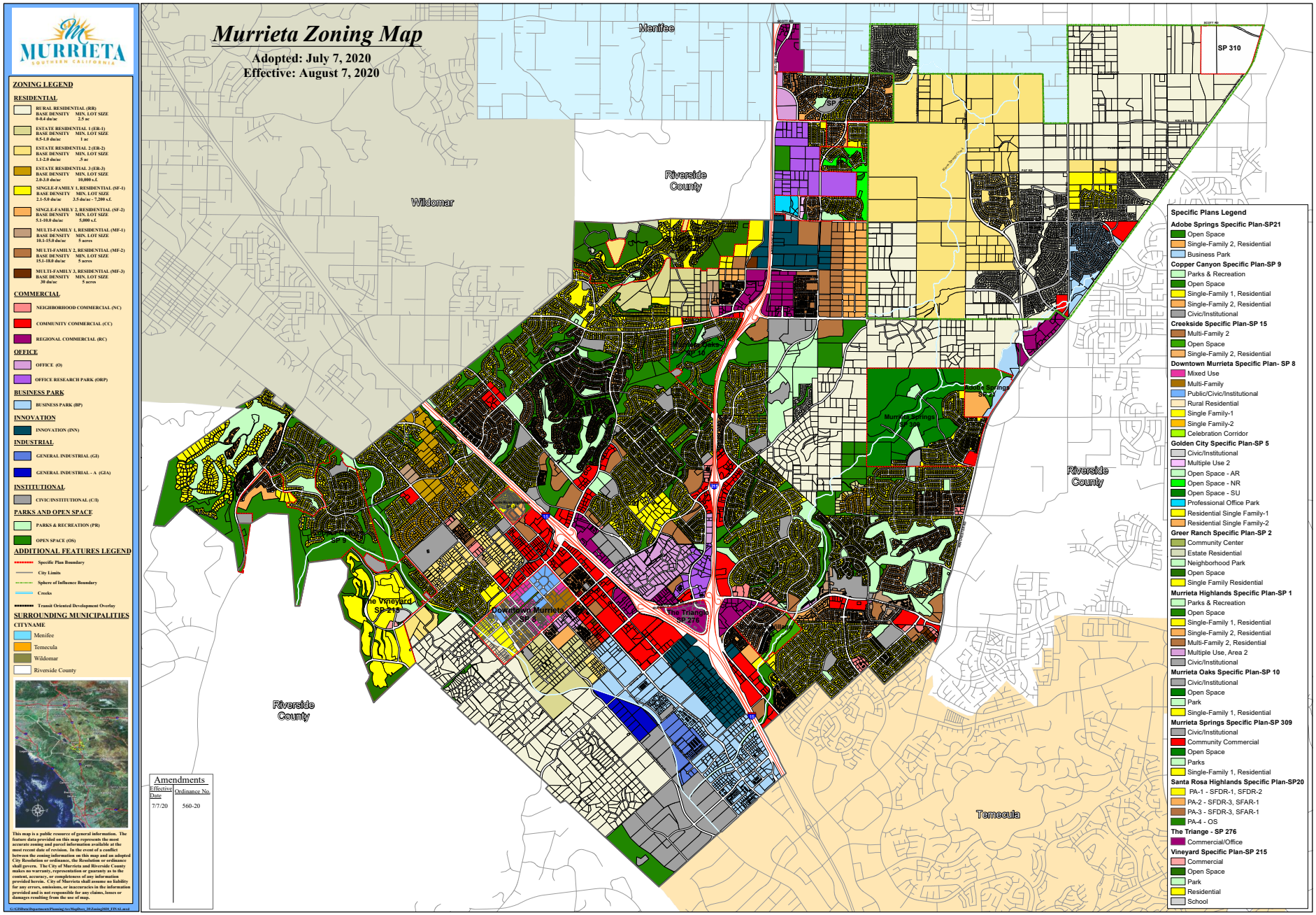


Source: City of Murrieta - General Plan 2035 Land Use Map

Figure 7: Land Use Map

Murrieta Water and Sewer Master Plan Project

Kimley»Horn



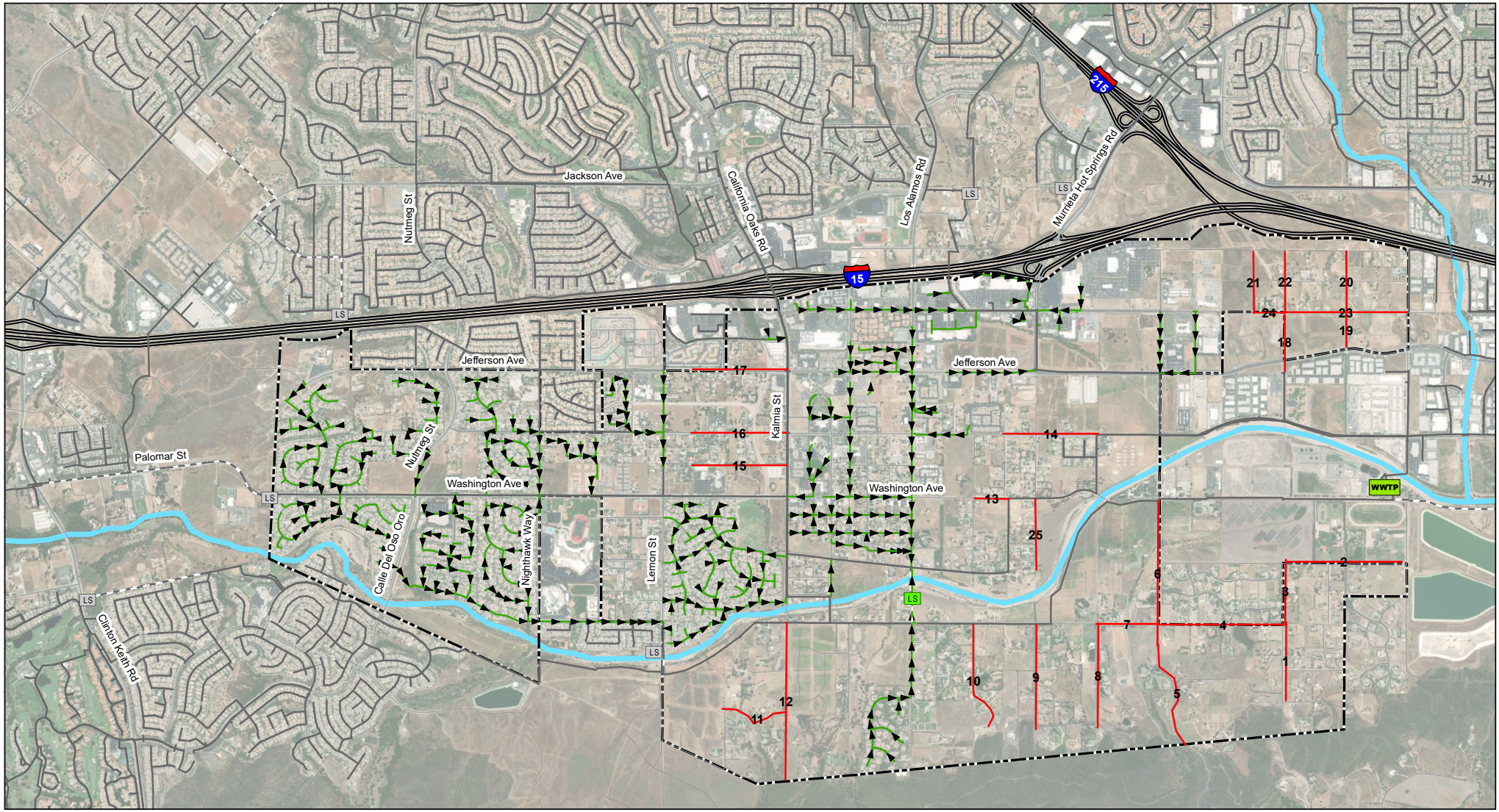
Source: City of Murrieta - Murrieta Zoning Map, July 7, 2020

Figure 8: Zoning Map

Murrieta Water and Sewer Master Plan Project

0 1 2 Miles

Kimley»Horn



- Proposed Expansion Projects
- MSD Lift Station
- Other Lift Station
- MSD Gravity Main
- MSD Force Main
- Other Gravity Main
- Other Force Main
- SRRRA Wastewater Treatment Plant
- Murrieta Sewer Division Service Area
- Highways
- Roads
- Creek

Source: West Yost Associates - Western Municipal Water District, Murrieta Sewer Division / Sewer Master Plan Update

FIGURE 9: Proposed Expansion - Sewer Capital Improvement Projects
Murrieta Water and Sewer Master Plan Project

Not to scale

Kimley»Horn

3 Initial Study Checklist

1. Project title:

Murrieta Water and Sewer Plan Project

2. Lead agency name and address:

Western Municipal Water District
14205 Meridian Parkway
Riverside, California 92518

3. Contact person and phone number:

Jason Pivovaroff, Deputy Director of Water Resources
951.571.7100

4. Project location:

The proposed Project would traverse the Murrieta Retail Service Area, which is a 6.5-square-mile area in the City of Murrieta that is located to the southwest of I-15. The proposed Project would be constructed within public ROW and within existing facilities.

5. Project sponsor's name and address:

Western Municipal Water District 14205 Meridian Parkway
Riverside, California 92518

6. General plan designation:

Surrounding Land Use Designations

City of Murrieta: Single Family Residential, Commercial, Civic/Institutional, Mixed Use, Large Lot Residential, Business Park, Industrial

7. Zoning:

Surrounding Zoning Designations
City of Murrieta: RR, ER-2, SF-1, SF-2, MF-3, CC, BP, INN, GI, GIA

8. Description of Project. (Describe the whole action involved, including but not limited to later phases of the Project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary):

The proposed Project will construct sewer and water supply infrastructure improvements within the City of Murrieta. Construction under this Project's scope is primarily within existing roads and public rights-of-way or within future planned roadways via trenching methods. Several facilities will be addressed at a programmatic level due to uncertain phasing or limited design details at this time, such as a potential future water storage tank and associated pipelines. There are five capital improvement projects (CIPs) proposed under the Water Supply Master Plan (Water MP) and 25 CIPs proposed un the Sewer Master Plan (Sewer MP) that may be implemented under this programmatic MND. The five CIPs presented in the Water MP include the potential addition of a storage tank, the expansion of water service, and the potential expansion of water supply and fire flow to the service area. The 25 CIPs presented in the Sewer MP include the

expansion of new sewer and upsizing of existing sewer lines throughout the service area totaling 46,321 linear feet of various diameters of sewer piping.

9. Surrounding land uses and setting (Briefly describe the Project's surroundings):

The proposed Project would traverse the Murrieta Retail Service Area, which is a 6.5-square-mile area in the City of Murrieta that is located to the southwest of I-15. The area is bounded on the west by hills, to the south by Temecula, to the east by the central and eastern portions of the City of Murrieta, and to the north by the City of Wildomar.

The Western Municipal Water District (WMWD) has tens of thousands of feet of sanitary sewer main and water main in the Murrieta Retail Service Area. These gravity mains primarily traverse existing roadways for all land uses in the service area, which include commercial and residential land uses. All new sanitary sewer main and water mains will primarily be constructed underneath existing streets. The Project is on the south end of the WMWD service area boundary, bordered by Eastern Municipal Water District (EMWD) to the northeast and Elsinore Valley Municipal Water District (EVMWD) to the Northwest. The area is essentially surrounded by Rancho California Water District (RCWD).

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

- State Water Resources Control Board
- Regional Water Quality Control Board - Santa Ana Region (Region 9)
- City of Murrieta
- County of Riverside
- CEQA Compliance

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

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and Project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

Yes. Refer to Section 3.18, Tribal Cultural Resources, for more information.

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to Projects like the one involved (e.g., the Project falls

outside a fault rupture zone). A "No Impact" answer should be explained where it is based on Project-specific factors as well as general standards (e.g., the Project will not expose sensitive receptors to pollutants, based on a Project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as Project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a. Earlier Analysis Used. Identify and state where they are available for review.

   b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c. Mitigation Measures. For effects that are "Less Than Significant With Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the Project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a Project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

   a. The significance criteria or threshold, if any, used to evaluate each question; and

   b. The mitigation measure identified, if any, to reduce the impact to less than significance.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, as indicated by the checklist on the following pages.

- ☐ Aesthetics
- ☐ Agricultural 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

DETERMINATION:

On the basis of this initial evaluation (check one):

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

CERTIFICATION:

Jason Pivovaroff
Signature

Feb 2, 2022
Date

Signature page Murrieta MND 2022021

Final Audit Report 2022-02-02

Created:	2022-02-02
By:	Lisa Lemoine (llemoine@wmwd.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAvNFZR-Rhg6lc_nWa6iq_i-YOG07DhC5W

"Signature page Murrieta MND 2022021" History

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Signature Date: 2022-02-02 - 5:44:08 PM GMT - Time Source: server- IP address: 142.129.134.235

Agreement completed.
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3.1 Aesthetics

The Project site is located within a relatively flat valley floor with visible hills and mountains to the south and west. Topographic features visible from the Project site include the Santa Rosa Plateau to the southwest.

The nearest officially designated State Scenic Highway to the Project site is Route 74, located approximately 25 miles northeast of the Project site, within Mt. San Jacinto State Park. The Project site is located directly south of I-15, which is the only facility within the Project vicinity that is eligible for designation as a State Scenic Highway.

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

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

The Project site is in an area primarily developed with residential and commercial land uses. Views of the Project site from surrounding development, roadways, and vistas are partially blocked by standard development along the Project alignment. The nearest topographic features to the Project site are the Santa Rosa Plateau, approximately a half mile from the Project site. Due to their distance from Project site, short-term construction activities associated with the proposed Project would not be discernable for visitors to the local scenic vistas compared to the existing urban development. Furthermore, the proposed sewer additions and water supply pipelines would be located underground or within existing facilities. Short-term construction activities and equipment staging will not affect any scenic vista as construction activities are temporary in nature and will only be present on-site throughout the duration of construction and should not be present during operation of the Project. As such, the proposed Project would have no impact on a scenic vista.

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

Scenic resources within the vicinity of the Project site include distant views of mountains and hillsides to the southwest. I-15 is the closest eligible State Scenic Highway to the Project site, located directly to the north (Caltrans, 2020). Due to the distance of the mountains and hillsides, the intervening topography and standard development, neither the short-term construction activities nor the underground force main would be visible from I-15.

Furthermore, proposed Project construction would take place primarily within existing paved roadways and within public ROW. Construction of the proposed Project would not affect any trees, rock outcroppings, historic buildings, or other scenic resources. Therefore, no impact would occur.

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

For the same reasons discussed in Thresholds (a) and (b), the proposed Project would not substantially degrade the existing visual character or quality of the Project site or its surroundings. While Project construction would temporarily alter the visual character of the affected roadways, as experienced by motorists, recreationists, and employees at adjacent industrial and commercial developments, pipelines will ultimately lay underground, and therefore, the existing visual quality would return after completion of the pipeline installation. Additionally, the Project features are intended to support the existing community and the Project is not anticipated to conflict with any regulations governing scenic quality. Therefore, the impact would be less than significant.

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

Construction of the proposed Project may create temporary new sources of light and glare from construction equipment parked on-site. In the event that construction activities must be conducted during non-daylight hours, contractors would require the use of additional lighting to provide adequate visibility at the construction site. Per the District standards, the maximum length of trench that would be opened at any one time, including at night, is 500 linear feet (LF). As such, new sources of light and/or glare caused by nighttime construction activities would be limited to a relatively small area for a temporary period. The areas surrounding the Project site is primarily residential and commercial, and the nearest residence to any part of the Project alignment is located directly adjacent to residences in multiple Project areas. Construction activities would be temporary and generally limited to daytime hours in accordance with Section 16.30.130 of the City of Murrieta Municipal Code, which regulate construction times. Construction within the City of Murrieta is permitted daily, except Sundays and holidays, from 7:00 a.m. to 8:00 p.m. No construction is permitted on Sunday or on holidays unless approval is obtained from the city building official or city engineer. If nighttime construction is required in the proximity of residences, construction lighting would be directed downward to reduce overflow illumination from the construction site. The impact of nighttime lighting would be limited to ambient light overflow from the Project site due to the directionality and shielding of lighting. No permanent lighting would be required for the operation of the proposed Project.

Because nighttime construction would only be conducted if necessary, but not anticipated as part of the proposed Project, and any nighttime lighting would be ceased when associated construction activities are completed, impacts associated with light and glare would be temporary and anticipated to have a less than significant impact.

3.2 Agriculture and Forestry Resources

The Project site consists of mostly developed land designated as residential and Built-Up Land and Other Land, with some pockets of land designated as Farmland of Local Importance by the California Department of Conservation Farmland Mapping and Monitoring Program (DOC 2020). There are approximately 1,311 acres of Farmland of Local Importance located within the Project area at 18 different locations in the Murrieta Retail service area (DOC 2020). No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance exists within the Project site and no adjacent properties are zoned for agricultural use. There is no designated forest land or timberland within the proposed Project footprint or immediate vicinity.

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

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

The proposed Project would be developed within existing roadways covered in this MND and described in detail by the capital improvement project recommendations within the separate water and sewer master plans and within Public ROW, or within planned future roadways. A majority of the proposed sewer and water infrastructure is anticipated to be installed in areas designated as Urban and Built-Up Land and Other Lands, and a small portion of the proposed improvement areas are designated as Farmland of Local Importance (DOC 2020). The Project site does not contain any lands mapped by the DOC as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. As such, the proposed Project would have no impact on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

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

No properties within or adjacent to the Project site are zoned for agricultural use. There are no lands under Williamson Act contract within or adjacent to the Project site (City of Murrieta, 2011). No farmland would be converted to non-agricultural use and no impact would occur with respect to existing agricultural zoning or Williamson Act Contract.

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

The Project site and adjacent properties are not currently zoned and are not utilized for forest land, timberland, or within a designated Timberland Production area. As such, the proposed Project would not conflict with zoning of forest land, timberland, or timberland production. No impact would occur.

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

As noted above in Threshold (d), no forest land or timberland exists within the proposed Project footprint. There would be no conflict with existing forest land or timberland zoning and there would be no loss or conversion of forest land or timberland. No impact would occur with respect to forest land or timberland.

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

There are no active agricultural uses on the subject property under existing conditions. As previously discussed in Threshold (a), only a small amount of land where Project-related construction and improvements are anticipated to occur are classified as Farmland of Local Importance (DOC 2020). Construction within this designation would take place within existing paved roadways, or future planned roadways. Upon completion of construction activities, the affected area would be restored to pre-Project conditions. As such, the proposed Project would not result in conversion of farmland or forest land. No impact would occur.

3.3 Air Quality

The impact analysis for this section relies on a quantitative analysis conducted by Kimley-Horn to determine whether proposed construction activities would result in emissions of criteria air pollutants that may cause exceedances of the National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS) or contribute to existing nonattainment of ambient air quality standards.

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to estimate emissions for construction of the proposed Project. CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant emissions associated with construction activities from a variety of land use Projects, such as residential, commercial, and industrial facilities. CalEEMod input parameters—including the land use type used to represent the Project and size, construction schedule, and anticipated construction equipment utilization— were based on information provided by the District and/or default model assumptions.

Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated herein include volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), which are important because they are precursors to O_3, as well as CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$.

The Project site is located within the South Coast Air Basin (SCAB), which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County. The SCAB is within the jurisdictional boundaries of the South Coast Air Quality Management District (South Coast AQMD). Regarding NAAQS and CAAQS attainment status, the SCAB is designated as a nonattainment area[2] for federal and state O_3 standards and federal and state $PM_{2.5}$ standards (CARB 2019; EPA 2017). The SCAB is designated as a nonattainment area for state PM_{10} standards; however, it is designated as an attainment area for federal PM_{10} standards. The SCAB is designated as an attainment area for federal and state CO standards, federal and state NO_2 standards, and state sulfur dioxide standards. Although the SCAB has been designated as nonattainment for the federal rolling 3-month average lead standard, it is designated attainment for the state lead standard[3].

Appendix G of the CEQA Guidelines indicates that, where available, the significance criteria established by the applicable air district may be relied upon to determine whether a Project would have a significant impact on air quality. The South Coast AQMD has established Air Quality Significance Thresholds, as revised in March 2015, which set forth quantitative emissions significance thresholds below which a Project would not have a significant impact on ambient air quality under Project-level and cumulative conditions (South Coast AQMD 2015). The quantitative air quality analysis provided herein applies the South Coast AQMD thresholds to determine the potential for the Project to result in a significant impact under CEQA. The South Coast AQMD mass daily construction thresholds are as follows: 75 pounds per day for VOCs, 100 pounds per day for NO_x, 550 pounds per day for CO, 150 pounds per day for SO_x, 150 pounds per day for PM_{10}, and 55 pounds per day for $PM_{2.5}$.

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

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

The South Coast AQMD administers the Air Quality Management Plan (AQMP) for the SCAB, which is a comprehensive document outlining an air pollution control program for attaining all CAAQS and NAAQS. The most recent adopted AQMP is the 2016 AQMP (South Coast AQMD 2017), which was adopted by the South Coast AQMD Governing Board in March 2017. The 2016 AQMP represents a new approach, focusing on available, proven, and cost-effective alternatives to traditional strategies while seeking to achieve multiple goals in partnership with other entities promoting reductions in greenhouse gases (GHGs) and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (South Coast AQMD 2017).

	Potentially Significant Impact	Less-Than-Significant Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

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

Construction of the proposed Project could result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. The purpose of a consistency finding is to determine if a Project is inconsistent with the assumptions and objectives of the regional air quality plans, and, thus, if it would interfere with the region's ability to comply with federal and state air quality standards. The South Coast AQMD has established criteria for determining consistency with the currently applicable AQMP in Chapter 12, Sections 12.2 and 12.3, in the South Coast AQMD CEQA Air Quality Handbook. The criteria are as follows (South Coast AQMD 1993):

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

To address the first criterion regarding the proposed Project's potential to result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the ambient air quality standards or interim emission reductions in the AQMP, Project-generated criteria air pollutant emissions were estimated and analyzed for significance and are addressed under Section 3.3 Air Quality, Threshold (b). Detailed results of this analysis are included in Appendix A, Air

Quality and Greenhouse Gases Modeling Output. As presented in Section 3.3. Air Quality, Threshold (b), proposed Project construction would not generate criteria air pollutant emissions that would exceed the South Coast AQMD thresholds, and the proposed Project is not anticipated to generate operational criteria air pollutant emissions.

The second criterion regarding the proposed Project's potential to exceed the assumptions in the AQMP or increments based on the year of Project buildout and phase is primarily assessed by determining consistency between the proposed Project's land use designations and potential to generate population growth. In general, Projects are considered consistent with, and would not conflict with or obstruct implementation of, the AQMP if the growth in socioeconomic factors is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the South Coast AQMD CEQA Air Quality Handbook). The South Coast AQMD primarily uses demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by the Southern California Association of Governments (SCAG) for its Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which is based on general plans for cities and counties in the SCAB, for the development of the AQMP emissions inventory (South Coast AQMD 2017)[4]. The SCAG RTP/SCS, and associated Regional Growth Forecast, are generally consistent with the local plans; therefore, the 2016 AQMP is generally consistent with local government plans.

As discussed in Section 2, Project Description, of this IS/MND, the proposed Project would occur entirely within existing roadway ROW. After construction is complete, the proposed sewer gravity mains and water supply infrastructure would not change or affect the existing zoning or land use designations in the area surrounding the Project site. Accordingly, the proposed Project would be consistent with the SCAG RTP/SCS forecasts used in the South Coast AQMD AQMP development.

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

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

Construction of the proposed Project could result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. The following discussion quantitatively evaluates Project-generated construction impacts and qualitatively evaluates operational impacts that would result from implementation of the proposed Project.

Construction Emissions

Proposed construction activities would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, delivery trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity; the specific type of operation; and,

[4] Information necessary to produce the emission inventory for the SCAB is obtained from the SCAQMD and other governmental agencies, including CARB, Caltrans, and SCAG. Each of these agencies is responsible for collecting data (e.g., industry growth factors, socioeconomic Projections, travel activity levels, emission factors, emission speciation profile, emissions) and developing methodologies (e.g., model and demographic forecast improvements) required to generate a comprehensive emissions inventory. SCAG incorporates these data into its Travel Demand Model for estimating/Projecting vehicle miles traveled and driving speeds. SCAG's socioeconomic and transportation activities Projections in their 2016 RTP/SCS are integrated in the 2016 AQMP (SCAQMD 2017).

for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

As discussed in Section 2, Project Description, of this IS/MND, the proposed Project includes four different alternatives. For the purpose of conservatively estimating Project emissions, the alternative with the most linear feet of pipeline and total surface disturbance (EVMWD Supply Alternative) was modeled in CalEEMod as a worst-case scenario. The EVMWD Supply Alternative would require 3,000 feet in new 18" pipe and upsizing of an existing 10,058 feet of 16" pipe, 3,460 feet of 18" pipe, and 102 feet of 20" pipe. For modeling purposes, construction of the proposed Project would start in January 2021 and last approximately 18 months.

Internal combustion engines used by construction equipment, trucks, and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ emissions would also be generated by entrained dust, which results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil. The proposed Project would be required to comply with South Coast AQMD Rule 403 to control dust emissions during any dust-generating activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active grading areas two times per day, with additional watering depending on weather conditions. The application of asphalt pavement would also produce VOC emissions; however, the contractor is required to procure asphalt from a supplier in compliance with the requirements of South Coast AQMD's Rules 1108 (Cutback Asphalt) and/or 1108.1 (Emulsified Asphalt).

Estimated maximum daily construction criteria air pollutant emissions from all on-site and off-site emission sources is provided in Table 2.

Table 2: Maximum Daily Construction Emissions

Year	VOC	NOx	CO	SOx	PM10	PM2.5
	pounds per day					
2021	3.09	29.80	22.47	0.04	3.17	2.01
2022	2.67	25.19	21.69	0.04	2.92	1.78
South Coast AQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No

Source: See Appendix A for detailed results.

Notes: VOC = volatile organic compound; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; PM10 = coarse particulate matter; PM2.5 = fine particulate matter; South Coast AQMD = South Coast Air Quality Management District.

As shown in Table 2, daily construction emissions would not exceed the South Coast AQMD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during proposed Project construction.

Operational Emissions

Once Project construction is complete, no operational activities associated with the proposed Project would occur. Because the proposed Project would not result in any long-term operational activities, there would be no potential air quality impacts associated with operational air pollutant emissions.

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the South Coast AQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, Project-level thresholds of significance for criteria pollutants are used to determine whether a Project's individual emissions would have a cumulatively considerable contribution on air quality. If a Project's emissions would exceed the

South Coast AQMD significance thresholds, it would be considered to have a cumulatively considerable contribution. Conversely, Projects that do not exceed the Project-specific thresholds are generally not considered to be cumulatively significant (South Coast AQMD 2003).

As discussed in this Section 3.3 Air Quality, the SCAB has been designated as a federal nonattainment area for O_3 and $PM_{2.5}$ and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SCAB, including motor vehicles, off-road equipment, and commercial and industrial facilities. Proposed construction activities would generate VOC and NO_x emissions (which are precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. However, as indicated in Table 2, Project-generated construction emissions would not exceed the South Coast AQMD emission-based significance thresholds for VOC, NO_x, PM_{10}, or $PM_{2.5}$.

Cumulative localized impacts would potentially occur if a construction Project were to occur concurrently with another off-site Project. Construction schedules for potential future Projects near the Project site are currently unknown; therefore, potential construction impacts associated with two or more simultaneous Projects would be considered speculative. However, future Projects would be subject to CEQA and would require air quality analysis and, where necessary, mitigation. Criteria air pollutant emissions associated with construction activity of future Projects would be reduced through implementation of control measures required by the South Coast AQMD. Cumulative PM_{10} and $PM_{2.5}$ emissions would also be reduced because all future Projects would be subject to South Coast AQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all construction sites in the South Coast AQMD. Based on the previous considerations, the proposed Project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants, and impacts would be less than significant.

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

Sensitive receptors are those individuals more susceptible to the effects of air pollution than the population at large. People most likely to be affected by air pollution include children, the elderly, and people with cardiovascular and chronic respiratory diseases. According to the South Coast AQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (South Coast AQMD 1993). The closest sensitive receptor land uses are single-family residences located adjacent to the Project areas. Localized Project impacts associated with construction criteria air pollutants emissions are assessed below.

Localized Significance Thresholds

The South Coast AQMD recommends a localized significance threshold (LST) analysis to evaluate localized air quality impacts to sensitive receptors in the immediate vicinity of the Project site as a result of construction activities. The impacts were analyzed using methods consistent with those in the South Coast AQMD's Final Localized Significance Threshold Methodology (South Coast AQMD 2009). The Project is located in Source Receptor Area 26 (Temecula Valley). The proposed Project's sewer gravity main and pipeline construction activities would occur in small locations throughout the City of Murrieta; therefore, for the purposes of the LST analysis, emissions thresholds based on a 1-acre site were utilized. This is a conservative approach, as LSTs increase with the size of Project site. As mentioned previously, the closest sensitive receptors are single-family homes located adjacent to the Project. The shortest receptor distance available in the South Coast AQMD LST Methodology is 25 meters (82 feet) and is what was conservatively assumed for this analysis.

Project construction activities would result in temporary sources of on-site criteria air pollutant emissions associated with construction equipment exhaust and dust-generating activities. Off-site emissions from

trucks and worker vehicle trips are not included in the LST analysis because they occur off-site. The maximum daily on-site construction emissions generated during construction of the proposed Project is presented in Table 2 and compared to the South Coast AQMD localized significance criteria for Source Receptor Area 26 to determine whether Project-generated on-site construction emissions would result in potential LST impacts.

CO Hotspots

Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed federal and/or state standards for CO are termed CO "hotspots." CO transport is extremely limited, because CO disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels, which can affect sensitive receptors. Typically, high CO concentrations are associated with severely congested intersections. Projects contributing to adverse traffic impacts may result in the formation of a CO hotspot. Additional analysis of CO hotspot impacts would be conducted if a Project would result in a significant impact or contribute to an adverse traffic impact at a signalized intersection that would potentially subject sensitive receptors to CO hotspots. During construction of the proposed Project, construction traffic would affect the intersections near the Project site. However, the proposed Project would be temporary and would not be a source of daily, long-term mobile-source emissions. In addition, due to continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SCAB is steadily decreasing. Furthermore, the proposed Project would not require operational staff because it is underground pipeline installations. Therefore, the proposed Project would not generate additional traffic volumes and impacts related to CO hot spots would be less than significant.

Toxic Air Contaminants

Toxic air contaminants (TACs) are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. As discussed under the LST analysis, the nearest sensitive receptors to the proposed Project are residences located adjacent to the Project site.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The South Coast AQMD recommends an incremental cancer risk threshold of 10 in 1 million. "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a Project over a 9-, 30-, and 70-year exposure period will contract cancer based on the use of standard Office of Environmental Health Hazard Assessment risk-assessment methodology (OEHHA 2015). In addition, some TACs have non-carcinogenic effects. The South Coast AQMD recommends a Hazard Index of 1 or more for acute (short-term) and chronic (long-term) non-carcinogenic effects. One TAC that would potentially be emitted during construction activities associated with the proposed Project would be diesel particulate matter.

Diesel particulate matter emissions would be emitted from heavy equipment operations and heavy-duty trucks. Heavy-duty construction equipment is subject to a California Air Resources Board (CARB) Airborne Toxics Control Measure for in-use diesel construction equipment to reduce diesel particulate emissions. As described for the LST analysis, PM_{10} and $PM_{2.5}$ (representative of diesel particulate matter) exposure would be minimal. According to the Office of Environmental Health Hazard Assessment, health risk assessments (which determine the exposure of sensitive receptors to toxic emissions) should be based on a 30-year exposure period for the maximally exposed individual resident. However, such assessments should also be limited to the period/duration of activities associated with the Project. The duration of the proposed

construction activities would constitute a small percentage of the total 30-year exposure period. The construction period for the proposed Project would be approximately 18 months, after which construction-related TAC emissions would cease. Due to this relatively short period of exposure and minimal particulate emissions on-site, TACs generated during construction would not be expected to result in concentrations sufficient to cause significant health risks. Additionally, due to the linear nature of the proposed Project, emissions would not be concentrated in any one work area for the entire construction duration. Proposed Project construction would not generally remain in a single location for more than 1 to 2 days.

Following completion of on-site construction activities, the proposed Project would not involve routine operational activities that would generate TAC emissions. Operation of the proposed Project would not result in any non-permitted direct emissions (e.g., those from a point source, such as diesel generators).

For the reasons described above, the proposed Project would not result in substantial TAC exposure to sensitive receptors in the vicinity of the proposed Project, and impacts would be less than significant.

Health Impacts of Criteria Air Pollutants

Construction of the proposed Project would generate criteria air pollutant emissions; however, the proposed Project would not exceed the South Coast AQMD mass-emission thresholds, as shown in Table 2, Maximum Daily Construction Emissions.

The SCAB is designated as nonattainment for O_3 for the NAAQS and CAAQS. Thus, existing O_3 levels in the SCAB are at unhealthy levels during certain periods. The health effects associated with O_3 are generally associated with reduced lung function. Because the proposed Project would not involve construction activities that would result in O_3 precursor emissions (VOC or NO_x) in excess of the South Coast AQMD thresholds, the proposed Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

In addition to O_3, NO_x emissions contribute to potential exceedances of the NAAQS and CAAQS for NO_2. Exposure to NO_2 and NO_x can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Proposed Project construction would not exceed the South Coast AQMD NO_x threshold, and existing ambient NO_2 concentrations are below the NAAQS and CAAQS. Thus, proposed Project construction is not expected to exceed the NO_2 standards or contribute to associated health effects.

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

The SCAB is designated as nonattainment for PM_{10} under the CAAQS and nonattainment for $PM_{2.5}$ under the NAAQS and CAAQS. Particulate matter contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing (EPA 2016). As with O_3 and NO_x, the proposed Project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the South Coast AQMD's thresholds. Additionally, the proposed Project would be required to comply with South

Coast AQMD Rule 403, which limits the amount of fugitive dust generated during construction. Accordingly, the proposed Project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, the proposed Project would not result in a potentially significant contribution to regional concentrations of non-attainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant.

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

The occurrence and severity of potential odor impacts depend on numerous factors. The nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying, cause distress among the public, and generate citizen complaints.

During proposed Project construction, exhaust from equipment may produce discernible odors typical of most construction sites. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and asphalt pavement application. However, such odors would disperse rapidly from the Project site and generally occur at magnitudes that would not affect substantial numbers of people. Accordingly, impacts associated with odors during construction would be less than significant.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (South Coast AQMD 1993). Operation of the proposed Project would not entail any of these potentially odor-causing land uses. Rather, operation would primarily involve passive operation of the proposed water supply pipelines and sewer gravity mains, as well as occasional, routine maintenance activities conducted by the District. Therefore, the proposed Project would not create any new sources of odor during operation, and proposed Project operations would result in an odor impact that is less than significant.

3.4 Biological Resources

The existing conditions and impact analysis for this section relies on the Habitat Assessment (HA) prepared by ELMT Consulting, dated December 2020 (Appendix B). A thorough literature review and records search was conducted to identify special-status biological resources that have the potential to occur on or within the general vicinity of the Project. The general HA and field investigation of the Project area was conducted and provided information about the existing conditions within the Project area and the potential for special status biological resources to occur.

Literature detailing biological resources previously observed in the vicinity of the Project and historical land uses were reviewed to understand the extent of disturbances to the habitats on-site. Standard field guides and texts on special-status and non-special-status biological resources were reviewed for habitat requirements.

The literature review provided a baseline from which to inventory the biological resources potentially occurring within the Project area. Additional recorded occurrences of these species found on or near the Project were derived from database queries. The California Natural Diversity Database (CNDDB) ArcGIS database was used, in conjunction with ArcGIS software, to locate the nearest occurrence and determine the distance from the Project area.

Following the pre-field literature review, ELMT biologist Jacob H. Lloyd Davies inventoried and evaluated the extent and conditions of the plant communities found within the boundaries of the Project on December 17, 2020. Plant communities identified on aerial photographs during the literature review were verified by walking meandering transects through the plant communities and along boundaries between plant communities. The plant communities were evaluated for their potential to support special-status plant and wildlife species. In addition, field staff identified any natural corridors and linkages that may support the movement of wildlife through the area. Special attention was given to special-status habitats and/or undeveloped areas, which have higher potentials to support special-status plant and wildlife species.

All plant and wildlife species observed, as well as dominant plant species within each plant community, were recorded. Wildlife detections were made through observation of scat, trails, tracks, burrows, nests, and/or visual and aural observation. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, condition of on-site plant communities, and presence of potential jurisdictional drainage and/or wetland features were noted.

Existing Conditions

Vegetation

The Project area is composed of undeveloped/vacant parcels and developed areas, both of which are typically restricted to existing paved streets within the associated right-of-way. The site supports three (3) vegetation communities: cottonwood-willow riparian woodland, Riversidean sage scrub and California buckwheat scrub. In addition, the site supports two (2) land cover types that would be described as disturbed and developed. These vegetation communities and land cover types are described in further detail below.

Cottonwood-Willow Riparian Woodland

The Cottonwood-Willow Riparian Woodland community extends along the Murrieta Creek floodplain near the intersection of Calle Del Oso Oro and Washington Avenue and terminates off-site before Nighthawk

Trail. Murrieta Creek is primarily earthen in this area and a storm drain outlet near Washington Avenue provides this plant community with stormwater and urban runoff. This community is dominated by stands of cottonwood (*Populus fremontii*), red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepsis*). The understory of the cottonwood-willow riparian woodland community is composed of a diverse array of native and non-native species, including ornamentals associated with adjacent development. Additional plant species observed in this community include sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*), mulefat (*Baccharis salicifolia*), coyotebrush (*Baccharis pilularis*), lemonadeberry (*Rhus integrifolia*), mugwort (*Artemisia douglasiana*), pomegranate (*Punica granatum*), cattails (*Typha* sp.), eucalyptus (*Eucalyptus* sp.), sunflower (*Helianthus annuus*), telegraph weed (*Heterotheca grandiflora*), ragweed (*Ambrosia psilostachya*), California buckwheat (*Eriogonum fasciculatum*), tree tobacco (*Nicotiana glauca*), tocalote (*Centaurea melitensis*), prickly pear (*Opuntia* sp.), doveweed (*Croton setiger*), pampas grass (*Cortaderia selloana*), cocklebur (*Xanthium strumarium*), heliotrope (*Heliotropium curassavicum*), California sagebrush (*Artemisia californica*), olive (*Olea europa*), blackberry (*Rubus armeniacus*), black sage (*Salvia mellifera*), tamarisk (*Tamarix ramossisima*), toyon (*Heteromeles arbutifolia*), Peruvian pepper (*Schinus molle*), and ornamental pine (*Pinus* sp.).

Riversidean Sage Scrub

The Riversidean Sage Scrub vegetation community was observed in varying degrees of quality in various areas of the Project area within the Murrieta Creek floodplain where flows are infrequent or absent outside of the rainy season, and on the foothills of the Santa Rosa Mountains. This community is dominated by woody perennials and supports an understory of weedy/early successional species. Plant species observed in this community include California sagebrush, California buckwheat, mulefat, lemonadeberry, chamise (*Adenostoma fasciculatum*), ragweed, white sage (*Salvia apiana*), Russian thistle (*Salsola tragus*), tocalote, tamarisk, horseweed (*Erigeron* sp.), black sage, red brome (*Bromus madritensis* ssp. *rubens*), and elderberry (*Sambucus nigra*). Species densities along Murrieta Creek vary in conjunction with relative disturbance, while densities within the foothills are relatively high.

California Buckwheat Scrub

The California Buckwheat Scrub vegetation community occurs on a hill southeast of the Murrieta Creek floodplain. This community is densely vegetated with, and dominated by, California buckwheat, which is indicative of land that formerly supported a more diverse scrub community prior to significant disturbance and was allowed to revegetate naturally. Other plant species observed in this community include ragweed, tocalote, doveweed, red brome, and ripgut brome (*Bromus diandrus*).

Disturbed

Disturbed areas are those that no longer comprise a natural plant community and are found throughout the Project area. These areas have been significantly impacted by decades of human disturbance (i.e., agricultural activities, storage/staging activities, ongoing weed abatement activities, and onsite and surrounding development). Vegetation densities within disturbed areas vary throughout the site from very dense to barren and are relative to the degree and regularity of disturbance. Disturbed areas within the site primarily support non-native weedy/early successional plant species. Plant species observed within the disturbed areas of the site include cheeseweed (*Malva parviflora*), horseweed, short-podded mustard (*Hirschfeldia incana*), Bermuda grass (*Cynodon dactylon*), prickly-lettuce (*Lactuca serriola*), annual sunflower, Russian thistle, horseweed, tree tobacco, tamarisk, red brome, and ripgut brome.

Developed

Developed areas encompass all building/structures and paved or otherwise impervious surfaces. The developed areas within the Project area are generally comprised of existing paved road right-of-way and adjacent developments. Vegetation observed within these areas was minimal and consisted of ornamental/landscaped plants associated with surrounding development and weedy/early successional species adapted to growing in heavily disturbed conditions.

Wildlife

Plant communities provide foraging habitat, nesting and denning sites, and shelter from adverse weather or predation. This section provides a discussion of those wildlife species observed, expected, or not expected to occur on-site. The discussion is to be used as a general reference and is limited by the season, time of day, and weather condition in which the survey was conducted. Wildlife observations were based on calls, songs, scat, tracks, burrows, and actual sightings of animals.

Fish

The only fish species observed during the field investigation was mosquitofish (*Gambusia affinis*), a non-native species used in vector control. This species was observed in a small, ponded area outside of a storm drain outlet in the cottonwood-willow riparian woodland near Calle Del Oso Oro. This area is fed exclusively by urban runoff from surrounding residential and commercial development and no native fish species are expected to occur. In addition, no fish or hydrogeomorphic features that would provide suitable habitat for native fish species were observed outside of this area.

Amphibians

No amphibians were observed during the field investigation. The cottonwood-willow riparian woodland vegetation community provides marginal habitat to sport amphibian species adapted to significant human disturbance and development. Common amphibian species that have the potential to occur onsite include Baja California tree frog (*Pseudacris hypochondriaca*) and garden slender salamander (*Batrachoseps major major*).

Reptiles

The Project area provides suitable habitat for reptilian species adapted to the region. Reptilian species observed during the field investigation include western side-blotched lizard (*Uta stansburiana elegans*) and Great Basin fence lizard (*Sceloporus occidentalis longipes*). Other common reptile species that have the potential to occur in the Project area include southern alligator lizard (*Elgaria multicarinata*), gopher snake (*Pituophis catenifer*), and coachwhip (*Coluber flagellum piceus*).

Birds

The Project area provides suitable foraging and nesting habitat for avian species adapted to the region. Avian species detected during the field investigation include lesser goldfinch (*Carduelis psaltria*), white-crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), house finch (*Haemorhous mexicanus*), Say's phoebe (*Sayornis saya*), Anna's hummingbird (*Calypte anna*), Bewick's wren (*Thryomanes bewickii*), California scrub-jay (*Aphelocoma californica*), California towhee (*Melozone crissalis*), bushtit (*Psaltriparus minimus*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*) California quail (*Callipepla california*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), Cassin's kingbird (*Tyrannus vociferans*), spotted towhee (*Pipilo maculatus*), rock pigeon (*Columbia liva*), yellow-rumped warbler (*Setophaga coronata*), and European starling (*Sturnus vulgaris*).

Mammals

The Project area provides suitable foraging and denning habitat for mammalian species adapted to significant human disturbance and development. However, most mammal species are nocturnal and are difficult to observe during a diurnal field visit. Mammals detected during the field assessment included desert cottontail (*Sylvilagus audubonii*), pocket gopher (*Thomomys* sp.), California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*), kangaroo rat (*Dipodomys* sp.), and racoon (*Procyon lotor*). Other mammalian species that have the potential to occur on the Project area include opossum (*Didelphis virginiana*), deer mouse (*Peromyscus maniculatus*), and California mouse (*Peromyscus californicus*). In addition, the Project area provides suitable foraging habitat and minimal roosting habitat for local bat species (*Myotis* sp). Project activities are not expected to result in direct impacts to areas that support roosting habitat for bats.

Nesting Birds

The Project area provides suitable foraging and cover habitat for year-round/seasonal avian residents, migrating songbirds, and raptors that occur in the area. Further, the open unvegetated areas within the disturbed portions of the site provide suitable nesting opportunity for ground-nesting birds such as killdeer (*Charadrius vociferans*).

Nesting birds are protected pursuant to the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (Sections 3503, 3503.5, 3511, and 3513 prohibit the take, possession, or destruction of birds, their nests, or eggs). In order to ensure no impacts occur to birds protected under the MBTA, a nesting bird clearance survey is recommended to be conducted prior to any Project related activities.

Migratory Corridors and Linkages

Habitat linkages provide links between larger habitat areas that are separated by development. Wildlife corridors are similar to linkages but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species yet inadequate for others. Wildlife corridors are significant features for dispersal, seasonal migration, breeding, and foraging. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources. Even though the majority of the Project area is developed, portions of the pipeline alignment will cross Murrieta Creek. In accordance with the MSHCP, Murrieta Creek has been identified as a Proposed Constrained Linkage[5]. This linkage is constrained along most of its length by existing urban development and agricultural uses that comprise portions of the Cities of Temecula and Murrieta. Riparian habitat within Murrieta Creek provides suitable habitat within this linkage for edge avian species (e.g., yellow warbler (*Setophaga petechia*), least Bell's vireo (*Vireo bellii pusillus*), and yellow-breasted chat (*Icteria virens*). Further, on-site vegetation communities provide stopover habitat for migrating avian species. However, Project activities adjacent to Murrieta Creek will be confined to existing right-of-way and will utilize trenchless construction to avoid impacts to Murrieta Creek. As a result, implementation of the proposed Project has the potential to have temporary/indirect impacts on migratory corridors and linkages but is not expected to have any permanent or long-term impacts on migratory corridors or linkages in the surrounding area.

[5] A constricted connection expected to provide for movement of identified MSCHP listed species between Core Areas, where options for assembly of the connection are limited due to existing patterns of use.

Jurisdictional Areas

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates discharge of dredge and/or fill materials into "waters of the United States" pursuant to Section 404 of the CWA and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFW regulates alterations to streambed and associated plant communities pursuant to Section 1602 of the Fish and Game Code, and the Regional Board regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

A query of the National Wetlands Inventory determined that approximately five (5) to seven (7) riverine resources and one (1) freshwater pond were identified within the Project area. These features were identified using aerial photography from 1974 and were compared against observations made during the field investigation.

Based on the results of the field investigation, three (3) to six (6) riverine resources were identified within the boundaries of the Project. The major riverine feature throughout the site, Murrieta Creek, transects the site from northwest to southeast and joins Temecula Creek south of the site to form the Santa Margarita River, which ultimately drains into the Pacific Ocean. The other riverine features observed within the Project area were determined to be ephemeral drainages that follow on-site topography and terminate within the Murrieta Creek floodplain.

Murrieta Creek and its associated tributaries on or within the immediate vicinity of the pipeline alignments will fall under the jurisdictional authority of the Corps, Regional Board and CDFW. If any impacts are anticipated to occur to these features a formal jurisdictional delineation report should be prepared to assist the applicant in acquiring the necessary regulatory approvals. Any anticipated impacts to these features, from the proposed Project, will require the applicant to obtain a CWA Section 404 permit from the Corps, CWA Section 401 Water Quality Certification from the Regional Board, and a Section 1602 Streambed Alteration Agreement from CDFW. However, at this time, the proposed pipeline alignments will be installed under the jurisdictional features using a trenchless method to avoid impacts to jurisdictional waters.

All activities related to Project implementation near Murrieta Creek and its tributaries will be confined to existing right-of-way or utilize trenchless construction in order to avoid impacts to Murrieta Creek and its tributaries. Therefore, Project implementation will not result in impacts to Corps, Regional Board, or CDFW jurisdiction and regulatory approvals will not be required.

Special-Status Biological Resources

The CNDDB was queried for reported locations of special-status plant and wildlife species as well as special-status natural plant communities in the Murrieta USGS 7.5-minute quadrangle. A search of published records of these species was conducted within this quadrangle using the CDFW's CNDDB Rarefind 5 online software and CNDDB Quickview Tool. The California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California supplied information regarding the distribution and habitats of vascular plants in the vicinity of the Project. The field investigation was used to assess the ability of the plant communities found on-site to provide suitable habitat for relevant special-status plant and wildlife species.

The literature search identified forty-six (46) special-status plant species, sixty-one (61) special-status wildlife species, and four (4) special-status plant communities as having potential to occur within the Murrieta quadrangle. Special-status plant and wildlife species were evaluated for their potential to occur

within the Project boundaries based on habitat requirements, availability, and quality of suitable habitat, and known distributions. Species determined to have the potential to occur within the general vicinity of the Project are presented in Appendix C, *Potentially Occurring Special-Status Biological Resources*, and discussed below.

Special-Status Plants

Forty-six (46) special-status plant species have been recorded in the CNDDB and CNPS in the Murrieta quadrangle (refer to Appendix C). No special-status plant species were observed on-site during the field investigation. The majority of the Project consists of heavily disturbed or developed land that has been subject to a variety of anthropogenic disturbances that have reduced, if not eliminated, the ability of the site to provide suitable habitat for special-status plant species. However, the undisturbed conditions in the foothill portion of the site supports Riversidean sage scrub habitat that may provide suitable habitat for some of the special-status plant species. Based on habitat requirements for the identified special-status species, and known distributions, it was determined that the foothill portion of the site has a low potential to support chaparral sand-verbena (*Abronia villosa* var. *aurita*, 1B.1), Catalina mariposa-lily (*Calochortus weedii* var. *intermedius*, 4.2), intermediate mariposa-lily (*Calochortus weedii* var. *intermedius*, 1B.2), smooth tarplant (*Centromadia pungens* ssp. *laevis*, 1B.1), Parry's spineflower (*Chorizanthe parryi* var. *parryi*, 1B.1), San Miguel savory (*Clinopodium chandleri*, 1B.2), paniculate tarplant (*Deinandra paniculata*, 4.2), curving tarplant (*Holocarpha virgata* ssp. *elongata*, 4.2), vernal barley (*Hordeum intercedens*, 3.2), pride-of-California (*Lathyrus splendens*, 4.3), intermediate monardella (*Monardella hypoleuca* ssp. *intermedia*, 1B.3), Engelmann oak (*Quercus engelmannii*, 4.2), bottle liverwort (*Sphaerocarpos drewei*, 1B.2), and San Bernardino aster (*Symphotrichum defoliatum*, 1B.2).

Special-Status Wildlife

Sixty-one (61) special-status wildlife species have been reported in the Murrieta quadrangle (refer to Appendix C). No special-status animal species were observed on-site. Based on habitat requirements for the identified special-status wildlife species, and known distributions, it was determined that the undeveloped portions of the Project area have a high potential to support Cooper's hawk (*Accipiter cooperii), sharp-shinned hawk (Accipiter striatus), yellow warbler (Setophaga petechia), and least Bell's vireo (Vireo bellii pusillus); a moderate potential to support southern California rufous-crowned sparrow (Aimophila ruficeps canescens), Bell's sage sparrow (Artemisiospiza belli belli), orangethroat whiptail (Aspidoscelis hyperthra), coastal whiptail (Aspidoscelis tigris stejnegeri), Costa's hummingbird (Calypte costae), red-diamond rattlesnake (Crotalus ruber), California horned lark (Eremophila alpestris actia), loggerhead shrike (Lanius ludovicianus), San Diego black-tailed jackrabbit (Lepus californicus bennettii), coast horned lizard (Phrynosoma blainvillii), and coastal California gnatcatcher (Polioptila californica californica); and a low potential to support great egret (Ardea alba), great blue heron (Ardea herodias), California glossy snake (Arizona elegans occidentalis), burrowing owl (Athene cunicularia), Dulzura pocket mouse (Chaetodipus californicus femoralis), northwestern San Diego pocket mouse (Chaetodipus fallax fallax), northern harrier (Circus hudsonius), Dulzura kangaroo rat (Dipodomys simulans), white-tailed kite (Elanus leucurus), willow flycatcher (Empidonax traillii), western mastiff bat (Eumpos perotis californicus), merlin (Falco columbarius), prairie falcon (Falco mexicanus), American peregrine falcon (Falco peregrinus anatum), yellow-breasted chat (Icterio virens), Los Angeles pocket mouse (Perognathus longimembris brevnasus), and Lawrence's goldfinch (Spinus lawrencei).*

Special-Status Plant Communities

The CNDDB lists four (4) special-status habitats as being identified within the Murrieta quadrangle: Southern Coast Live Oak Riparian Forest, Southern Interior Basalt Flow Vernal Pool, Southern Sycamore

Alder Riparian Woodland, and Valley Needlegrass Grassland. No CDFW special-status plant communities occur within the boundaries of the Project area. Therefore, no special-status plant communities will be impacted by Project implementation.

Critical Habitat

Under the federal Endangered Species Act, "Critical Habitat" is designated at the time of listing of a species or within one year of listing. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. All federal agencies are required to consult with the United States Fish and Wildlife Service (USFWS) regarding activities they authorize, fund, or permit which may affect a federally listed species or its designated Critical Habitat. The purpose of the consultation is to ensure that Projects will not jeopardize the continued existence of the listed species or adversely modify or destroy its designated Critical Habitat. The designation of Critical Habitat does not affect private landowners, unless a Project they are proposing is on federal lands, uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highways Administration or a CWA Permit from the Corps). If a there is a federal nexus, then the federal agency that is responsible for providing the funding or permit would consult with the USFWS.

The Project is not located within federally designated Critical Habitat (Exhibit 4, *Critical Habitat*). The nearest federally designated Critical Habitat is located approximately 0.5 miles southwest of the site for spreading navarretia (*Navarretia fossalis*) and 1.9 miles west of the site for thread-leaved brodiaea (*Brodiaea filifolia*). Therefore, implementation of the proposed Project will not result in any impacts or adverse modification to designated Critical Habitat.

	Potentially Significant Impact	Less-Than-Significant Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – Would the Project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

	Potentially Significant Impact	Less-Than-Significant Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

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

The Project area consists of both developed and undeveloped land within the City of Murrieta. The site occurs within an area that has undergone a conversion from natural habitats to a mosaic of industrial, commercial, and residential development, and undeveloped parcels. The majority of undeveloped areas within the site have been significantly impacted by decades of human disturbance (i.e., agricultural activities and surrounding development), while two areas continue to support viable habitat. The site supports three (3) vegetation communities: cottonwood-willow riparian woodland, Riversidean sage scrub, and California buckwheat scrub. In addition, the site also supports two (2) land cover types that would be classified as developed and disturbed.

Special-Status Plant Species

Forty-six (46) special-status plant species have been recorded in the CNDDB and CNPS Database in the Murrieta quadrangle. No special-status plant species were observed on-site during field investigation. The majority of the Project consists of heavily disturbed or developed land that has been subject to a variety of anthropogenic disturbances that have reduced, if not eliminated, the ability of the site to provide suitable habitat for special-status plant species.[6] However, the undisturbed conditions in the foothill portion of the site supports Riversidean sage scrub habitat that may provide suitable habitat for some of the special-status plant species. In an effort to increase coverage for unlisted but regionally sensitive plants under the California Environmental Quality Act (CEQA), the CNPS began publishing sensitivity rankings for special-status plant species, these rankings are provided above.

The plants that were determined to have a low potential to occur within the Project area are not regulated under the federal or state Endangered Species Act. Therefore, these special-status plants do not rise to the level of a species of concern under CEQA. Due to Project construction occurring in previously disturbed

6 ELMT Consulting (April 2021). *Western Municipal Water District Murrieta Water and Sewer Master Plan Project Habitat Assessment*; Page 18

areas and the identified special-status plant species having a low potential to occur would only occur within undisturbed areas near the Project area, potential Project related impacts to the aforementioned special-status species, in undeveloped areas, is less than significant under CEQA and no mitigation would be required. The majority of the proposed Project will be confined to existing right-of-way and will not have the potential to impact special-status plant species.

Special-Status Wildlife Species

No special-status wildlife species were observed during the field investigation. Based on habitat requirements for the identified special-status wildlife species, and known distributions, it was determined that the undeveloped portions of the Project area have a high potential to support Cooper's hawk, sharp-shinned hawk, yellow warbler, and least Bell's vireo; a moderate potential to support southern California rufous-crowned sparrow, Bell's sage sparrow, orangethroat whiptail, coastal whiptail, Costa's hummingbird, red-diamond rattlesnake, California horned lark, loggerhead shrike, San Diego black-tailed jackrabbit, coast horned lizard, and coastal California gnatcatcher; and a low potential to support great egret, great blue heron, California glossy snake, burrowing owl, Dulzura pocket mouse, northwestern San Diego pocket mouse, northern harrier, Dulzura kangaroo rat, whitetailed kite, willow flycatcher, western mastiff bat, merlin, prairie falcon, American peregrine falcon, yellow-breasted chat, Los Angeles pocket mouse, and Lawrence's goldfinch.

The majority of the Project activities will be confined to existing ROW and will utilize trenchless construction to avoid impacts to all drainage features and associated riparian vegetation and will not result in any impacts to special-status species. To ensure no indirect impacts to special-status wildlife species occur, the following mitigation measures shall be implemented. Implementation of MM BIO-1 would reduce impacts by ensuring that nesting birds will not be impacted by construction activities, which would lessen impacts to a less than significant level. Implementation of MM BIO-2 would reduce impacts by ensuring that no special-status wildlife is impacted in any significant way during construction.

MM-BIO-1 Pre-Construction Nesting Bird Clearance Survey

All construction activities shall comply with the federal Migratory Bird Treaty Act of 1918 (MBTA) and California Fish and Game Code Sections 3503, 3511 and 3513. The MBTA governs the taking and killing of migratory birds, their eggs, parts, and nests and prohibits the take of any migratory bird, their eggs, parts, and nests. This mitigation measure shall be implemented prior to all Project activities. Compliance with the MBTA shall be accomplished by completing the following:

Construction activities involving vegetation removal shall be conducted between September 1 and January 31 to avoid nesting season. If construction occurs inside the peak nesting season (between February 1 and August 31), a pre-construction survey by a qualified Biologist shall be conducted within 72 hours prior to construction activities to identify any active nesting locations. If the Biologist does not find any active nests, the construction work shall be allowed to proceed. The biologist conducting the clearance survey shall document a negative survey with a report indicating that no impacts to active avian nests shall occur.

If the Biologist finds an active nest within the pre-construction survey area and determines that the nest may be impacted, the Biologist shall delineate an appropriate buffer zone around the nest. The size of the buffer shall be determined by the Biologist and shall be based on the nesting species, its sensitivity to disturbance, expected types of disturbance, and location in relation to the construction activities. These buffers are typically 300 feet from the nests of non-listed species and 500 feet from the nests of raptors

and listed species. Any active nests observed during the survey shall be mapped on an aerial photograph. Only construction activities (if any) that have been approved by a Biological Monitor shall take place within the buffer zone until the nest is vacated. The Biologist shall serve as a Construction Monitor when construction activities take place near active nest areas to ensure that no inadvertent impacts on these nests occur. Results of the pre-construction survey and any subsequent monitoring shall be provided to the Property Owner/Developer and the City. The monitoring report shall summarize the results of the nest monitoring, describe construction restrictions currently in place, and confirm that construction activities can proceed within the buffer area without jeopardizing the survival of the young birds.

MM-BIO-2 Pre-Construction Survey for Special-Status Wildlife Species

Undeveloped portions of the Project area provide low to moderated quality habitat for several special-status wildlife species. Therefore, a pre-construction survey for special-status species is recommended prior to Project activities within undeveloped areas. During the survey, biologists will document observations of special-status species. If individuals or sign of are observed on or immediately adjacent to the proposed Project footprint, then coordination with the USFWS and/or CDFW will need to occur. If impacts to special-status species will occur from the Project, then the appropriate permits will need to be obtained prior to the start of Project activities, if any. The preconstruction survey should take place no more than 14 days prior to construction.

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

Portions of the Project occur adjacent to or cross Murrieta Creek. However, all Project activities within Murrieta Creek will be confined to existing right-of-way and utilize trenchless construction to avoid impacts to the creek and associated riparian vegetation. Therefore, development of the Project has no impact to Corps, Regional Board, or CDFW jurisdiction and regulatory approvals will not be required.

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

The site occurs within an area that has undergone a conversion from natural habitats to a combination of industrial, commercial, and residential development, and undeveloped parcels. The majority of undeveloped areas within the site have been significantly impacted by decades of human disturbance. As a result, no federally protected wetlands occur onsite. Therefore, no impact will occur.

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

Project activities adjacent to Murrieta Creek will be confined to existing ROW and will utilize trenchless construction to avoid impacts to Murrieta Creek. As a result, implementation of the proposed Project has the potential to have temporary/indirect impacts on migratory corridors and linkages but is not expected to have any permanent or long-term impacts on migratory corridors or linkages in the surrounding area. Less than significant impact is expected.

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

The Project would not conflict with any local policy or ordinances protecting biological resources, such as tree preservation policy or ordinance. Thus, no impacts would occur.

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

The Project is located within the boundaries of the Western Riverside County MSHCP; however, WMWD is not a permittee under the MSHCP, and the requirements set forth in the MSHCP do not need apply to their Projects.

Additionally, the proposed Project is also located within the Fee Area, established by the County in 1996, for protecting the Stephens' Kangaroo Rat (*Dipodomys stephensi*) (SKR), a federally and State listed species that is protected by the SKR Habitat Conservation Plan (SKR HCP) (County Ordinance No. 663.10). However, Section 10(d) of the Ordinance specifically exempts development of any parcel used by local, state, or federal entities for governmental purposes (i.e., public works, schools) from payment of mitigation fees. As such, this Project is a public works Project and WMWD is exempt from fee payment (Section 10(d) of Riverside County Ordinance 663.10).

3.5 Cultural Resources

BCR Consulting, LLC. (BCR Consulting) prepared a Cultural Resources Constraints Analysis for undeveloped portions of the Murrieta Water Master Plan Project (the subject alignments) located in the Cities of Murrieta and Wildomar, Riverside County, California. The purpose of this study was to form preliminary recommendations based on a cultural resources records search, sample field survey, Native American communications, and paleontological overview.

Eastern Information Center (EIC) staff completed the cultural resources records search using records housed at the University of California, Riverside. The records search included a review of all recorded historic and prehistoric archaeological sites, as well as recorded built environment resources within 0.5 miles of the subject alignments. The research also reviewed known cultural resource reports completed within the 0.5-mile radius. This research has revealed that 155 previous cultural resources studies have resulted in 106 cultural resources identified within 0.5-miles of the subject alignments. See Table 3 below for a list of the cultural resources found within 0.5 miles of subject alignments. Of the resources identified, seven have been plotted within or adjacent to the subject alignments. Refer to Appendix C to this Initial Study for the previous studies conducted within 0.5-miles of the subject alignment.

Table 3: Maximum Daily Construction Emissions

USGS 7.5 Min Quad	Cultural Resources Within 0.5-miles of Subject Alignments
Murrieta, California (1979)	P-33-000718: Prehistoric bedrock milling feature P-33-001085: Prehistoric lithic scatter* P-33-001086: Prehistoric/historic habitation debris P-33-001279: Prehistoric unknown P-33-001299: Prehistoric unknown P-33-001301: Prehistoric lithic scatter and feature P-33-001305: Prehistoric/historic habitation debris P-33-001307: Prehistoric lithic scatter P-33-001312: Prehistoric Unknown P-33-003412: Prehistoric lithic scatter and bedrock milling feature* P-33-003701: Prehistoric bedrock milling feature P-33-003702: Prehistoric bedrock milling feature P-33-003709: Prehistoric lithic scatter and bedrock milling feature* P-33-004142: Prehistoric lithic scatter P-33-004143: Prehistoric lithic scatter P-33-004145: Prehistoric lithic scatter P-33-007427: Historic-period building P-33-007428: Historic-period unknown P-33-007431: Historic-period single-family property P-33-007434: Historic-period single-family property P-33-007435: Historic-period single-family property P-33-007436: Historic-period single-family property P-33-007437: Historic-period single-family property P-33-007438: Historic-period Unknown P-33-007439: Historic-period single-family property P-33-007440: Historic-period farm/ranch P-33-007441: Historic-period farm/ranch P-33-007444: Historic-period farm/ranch P-33-007445: Historic-period single-family property P-33-007457: Historic-period single-family property P-33-007458: Historic-period single-family property P-33-007459: Historic-period single-family property P-33-007460: Historic-period single-family property P-33-007461: Historic-period single-family property P-33-007462: Historic-period single-family property P-33-007463: Historic-period single-family property P-33-007464: Historic-period unknown

USGS 7.5 Min Quad	Cultural Resources Within 0.5-miles of Subject Alignments
	P-33-007465: Historic-period single-family property P-33-007467: Historic-period single-family property P-33-007468: Historic-period single-family property P-33-007469: Historic-period single-family property P-33-007471: Historic-period single-family property P-33-007472: Historic-period structure P-33-007473: Historic-period single-family property P-33-007474: Historic-period single-family property P-33-007475: Historic-period single-family property P-33-007476: Historic-period single-family property P-33-007477: Historic-period single-family property P-33-007478: Historic-period building P-33-007479: Historic-period single-family property P-33-007480: Historic-period single-family property P-33-007816: Historic-period single-family property P-33-008756: Prehistoric unknown P-33-010986: Prehistoric lithic scatter P-33-012344: Prehistoric bedrock milling feature P-33-012345: Prehistoric unknown P-33-012700: Prehistoric bedrock milling feature P-33-012701: Prehistoric unknown* P-33-013107: Prehistoric lithic scatter and bedrock milling feature P-33-013396: Historic-period Wells P-33-013505: Prehistoric lithic scatter P-33-013506: Prehistoric lithic scatter P-33-013507: Prehistoric lithic scatter P-33-013508: Prehistoric lithic scatter P-33-013509: Prehistoric unknown P-33-013510: Prehistoric lithic scatter P-33-013512: Prehistoric unknown P-33-013748: Prehistoric unknown P-33-014794: Prehistoric unknown P-33-014907: Prehistoric habitation debris* P-33-015206: Prehistoric lithic scatter* P-33-015207: Prehistoric unknown* P-33-015304: Prehistoric unknown P-33-015305: Prehistoric unknown P-33-015312: Historic-period building P-33-015789: Historic-period cemetery P-33-015881: Historic-period farm/ranch P-33-015882: Historic-period commercial building P-33-015883: Historic-period commercial building P-33-015884: Historic-period single-family property P-33-015885: Historic-period commercial building P-33-016000: Historic-period religious building P-33-016001: Historic-period single-family property P-33-016002: Historic-period single-family property P-33-016003: Historic-period single-family property P-33-016004: Historic-period single-family property P-33-016011: Historic-period multiple family property P-33-016014: Historic-period single-family property P-33-016015: Historic-period single-family property P-33-016710: Historic-period farm/ranch P-33-016988: Historic-period Unknown P-33-017013: Historic-period single-family property P-33-017048: Prehistoric bedrock milling feature P-33-017136: Historic-period single-family property P-33-017366: Prehistoric Unknown P-33-018623: Historic-period refuse scatter P-33-018624: Prehistoric hearth P-33-019856: Prehistoric unknown P-33-020991: Historic-period farm/ranch

USGS 7.5 Min Quad	Cultural Resources Within 0.5-miles of Subject Alignments
	P-33-024819: Prehistoric lithic scatter P-33-024864: Historic-period farm/ranch P-33-026431: Historic-period single-family property P-33-028178: Prehistoric unknown P-33-028179: Historic-period refuse scatter P-33-028525: Prehistoric unknown P-33-028833: Historic-period single family property

*Within or adjacent to subject alignment.

Native American Communications

Sacred Lands File search with the Native American Heritage Commission (NAHC) has been initiated by BCR Consulting. The Sacred Lands file search revealed that Native American resource(s) are located in the area. The results did not indicate the nature or location of the resource(s) and recommended contacting the Pechanga Band of Luiseno Indians (Pechanga) for more information. The NAHC also provided a list of other potentially concerned tribes and individuals to be contacted regarding the current Project. While a Project and California Environmental Quality Act (CEQA) document has not been proposed, the Western Municipal Water District (WMWD) initiated Assembly Bill 52 Native American Consultation to engage Tribes early in the planning process. To that end WMWD also hosted a conference call for the Murrieta Water Master Plan Project on February 3, 2021 with representatives of Pechanga, Kimley-Horn, and BCR Consulting. During the conference call, WMWD and Kimley Horn representatives described the goals of the proposed Master Plan. Pechanga representatives requested ongoing consultation and indicated that the area had high potential for cultural and traditional resources, with two or three Traditional Cultural Properties that contained human remains in the area. Pechanga representatives also indicated that proximity to local water sources heightened significance of the area, and they described potential for historic sites to contain prehistoric resources that have not been previously identified. They also expressed interest in developing a Memorandum of Understanding to help define appropriate cultural resource protocols for any proposed Project. Finally, Pechanga representatives asked that they be allowed to contribute ethnographic information for any cultural resource documents.

Pedestrian Field Visit

BCR Consulting Archaeological Field Director Joseph Orozco, M.A., R.P.A., and BCR Consulting Staff Historian George Brentner, B.A., conducted a preliminary reconnaissance pedestrian inventory of a 90-percent sample of the Project site at along and within 10 to 15 meters of the accessible subject alignments on January 15th, January 20th, and January 25th, 2021. Survey was focused in undeveloped areas or where native soil was exposed. No archaeological resources were identified within the subject alignments during the survey. Please note that the records search results were received after the field survey was complete. Therefore, if avoidance of areas containing cultural resources is not possible, additional fieldwork will be necessary to assess potential for impacts to cultural resources that have been identified within or adjacent to the subject alignments.

Summary

The pedestrian field survey and the archaeological records search have indicated that there are at least seven archaeological sites within or adjacent to the subject alignments, and many more in the vicinity. The NAHC has identified positive results during the Sacred Lands File search. Pechanga representatives have emphasized sensitivity for prehistoric and historic resources and have identified Traditional Cultural Properties in the area. Therefore, when a Project is proposed, a full cultural resource assessment, including review of the results presented in this report, a records search summary, intensive pedestrian inventory of portions of the subject alignments that have not been surveyed, archaeological testing in areas near known

resources, continuing Native American Consultation (as required by the lead agency), and completion of a technical report will be necessary pursuant to CEQA and/or Section 106 of the National Historic Preservation Act (NHPA) as appropriate. The assessment should be performed under the supervision of a cultural resource professional that meets the Secretary of the Interior's Professional Qualification Standards for Archaeology.

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

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

The records search conducted for the proposed Project (Appendix C) resulted in the identification of 155 previously conducted resource studies within the 0.5-mile radius, and of these, 106 cultural resources have been identified within 0.5 miles of the subject alignments. Of these, seven (7) have been identified within or adjacent to the subject alignments.

Pursuant to CEQA Guidelines, Section 15064.5(a)(3), a resource may be considered to be "historically significant" by the lead agency if the resource meets the criteria for listing. A resource is eligible for listing in the CRHR if the State Historical Resources Commission determines that it is a significant resource and that it meets any of the following NRHP criteria (PRC Section 5024.1[c]):

1. Associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. Associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

Resources less than 50 years old are not considered for listing in the CRHR, but they may be considered if it can be demonstrated that sufficient time has passed to understand the historical importance of the resource (see 14 CCR 4852[d][2]). No historic built environment resources were identified within the subject alignments as a result of the records search. Therefore, the proposed Project would have no impact to historic built environment resources.

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

No archaeological resources were identified within the subject alignments during the survey. However, there are at least seven archaeological sites adjacent to the subject alignments, and many more in the vicinity. Therefore, when a Project is proposed, a full cultural resource assessment, including review of the results presented in this report, a records search summary, intensive pedestrian inventory of portions of the subject alignments that have not been surveyed, continuing Native American Consultation (as required by the lead agency), and completion of a technical report will be necessary pursuant to CEQA and/or Section 106 of the National Historic Preservation Act (NHPA) as appropriate. If archaeological testing it needed, it will be determined on a project-by-project basis through consultation with the consulting Tribes. Therefore, if avoidance of areas containing cultural resources is not possible, additional fieldwork will be necessary to assess potential for impacts to cultural resources that have been identified within or adjacent to the subject alignments. No impact is anticipated at this time.

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

There are seven previously recorded significant cultural resources within or adjacent to the subject alignment. In accordance with California Health and Safety Code Section 7050.5, if human remains are discovered during Project construction, work in the immediate vicinity of the discovered remains would cease until the County Coroner has made the necessary findings as to the origin of the remains. Furthermore, pursuant to California Public Resources Code Section 5097.98(b), remains would remain in place and free from disturbance until recommendations for treatment have been made. As such, mitigation measure MM-CUL-1 has been incorporated into the proposed Project to ensure that potential impacts are less than significant with mitigation by providing standard procedures in the event that human remains are encountered during proposed construction. Implementation of MM CUL-1 would reduce impacts should human remains be discovered during excavation or other construction activities, by ensuring proper treatment of prehistoric remains.

MM-CUL-1 If human remains are encountered during activities associated with a proposed Project, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

3.6 Energy

Energy resources include electricity, natural gas, and other fuels. The production of electricity requires the consumption of conversion of energy resources—including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources—into energy. Both the production and the use of energy result in the depletion of nonrenewable resources and emission of pollutants.

Energy Overview

Electricity

Southern California Edison (SCE) is the utility provider in the area surrounding the Project site. According to the California Energy Commission, SCE customers consumed approximately 80 billion kilowatt-hours of electricity in 2019 (CEC 2020a). SCE receives electric power from a variety of sources. According to the 2019 Power Content Label, 35.1% of SCE's power came from renewable energy sources in 2019, including biomass/waste, geothermal, hydroelectric, solar, and wind sources (CEC 2019).

Natural Gas

Southern California Gas (SoCalGas) serves the area surrounding the Project site. SoCalGas serves 21.8 million customers in a 24,000-square-mile service area that includes over 500 communities (SoCalGas 2020). In 2018 (the most recent year for which data is available), SoCalGas delivered 5,424 million therms of natural gas, with the majority going to residential uses (CEC 2020b). Demand for natural gas can vary depending on factors such as weather, price of electricity, the health of the economy, environmental regulations, energy-efficiency programs, and the availability of alternative renewable energy sources. Natural gas is available from a variety of in-state and out-of-state sources and is provided throughout the state in response to market supply and demand.

Petroleum

Transportation accounts for the majority of California's total energy consumption (CEC 2018). There are more than 36 million registered vehicles in California, and those vehicles consume an estimated 17 billion gallons of fuel each year (CEC 2019c; DMV 2019). Gasoline and other vehicle fuels are commercially provided commodities. Petroleum currently accounts for approximately 92% of California's transportation energy consumption (CEC 2020b). However, technological advances, market trends, consumer behavior, and government policies could result in significant changes in fuel consumption by type and in total. At the federal and state levels, various policies, rules, and regulations have been enacted to improve vehicle fuel efficiency, promote the development, and use of alternative fuels, reduce transportation-source air pollutants and GHG emissions, and reduce vehicle miles traveled.

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

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

The service providers, supply sources, and estimated consumption for electricity, natural gas, and petroleum is discussed below.

Construction Energy Use

Electricity

Temporary electric power for as-necessary lighting and electronic equipment would be provided by SCE. The amount of electricity used during construction would be minimal because typical demand would stem from electrically powered hand tools. The electricity used for construction activities would be temporary and minimal; therefore, proposed Project construction would not result in wasteful, inefficient, or unnecessary consumption of electricity. Impacts would be less than significant.

Natural Gas

Natural gas is not anticipated to be required during construction of the proposed Project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed under the subsection "Petroleum." Any minor amounts of natural gas that may be consumed as a result of proposed Project construction would be temporary and negligible and would not have an adverse effect; therefore, proposed Project construction would not result in wasteful, inefficient, or unnecessary consumption of natural gas. Impacts would be less than significant.

Petroleum

Petroleum would be consumed throughout construction. Fuel consumed by construction equipment would be the primary energy resource expended over the course of construction. Transportation of construction materials and construction workers would also result in petroleum consumption. Heavy-duty construction equipment, vendor trucks, and haul trucks would use diesel fuel. Construction workers would likely travel to and from the Project site in gasoline-powered vehicles. Once construction activities cease, petroleum use from off-road equipment and transportation vehicles would end. Because of the short-term nature of construction and relevantly small scale of the proposed Project, impacts would be less than significant.

Operational Energy Use

It is anticipated that maintenance activities for the proposed pipelines and associated facilities would be similar in scope and scale to the maintenance activities that are currently conducted for the existing

pipelines that would be connected and other pipelines throughout the District's service area under existing conditions. Anticipated maintenance activities would be minimal and similar to maintenance activities currently occurring for the existing pipelines in the Project area; therefore, the proposed Project's energy demand for maintenance would be similar to existing conditions. In addition, energy used for maintenance purposes would decrease over time, as worker vehicles and equipment become increasingly efficient, in accordance with the energy efficiency and GHG reduction standards. As such, energy use for maintenance purposes would not substantially change under the proposed Project, and no impacts would occur as a result of Project operations and maintenance.

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

The proposed Project would follow applicable energy standards and regulations during the construction phases. In addition, the proposed Project would be built and operated in accordance with all existing, applicable regulations at the time of construction. As such, impacts related to the proposed Project's potential to conflict with plans for renewable energy and energy efficiency would be less than significant.

3.7 Geology and Soils

Topography

The Project site is located within the relatively flat Temecula Valley floor with visible hills to the southwest. Site topography ranges from approximately 1,185 feet above mean sea level in the northwestern portion of the Project site where the service area culminates at Washington Ave, to approximately 1080 feet above mean sea level (MSL) in the eastern corner at the culmination of Douglass Avenue.

California Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Act) was signed into law in 1972 with its primary purpose being to mitigate the hazard of fault rupture by prohibiting the location of structures for human occupancy across the trace of an active fault. The Act requires the State Geologist to delineate "Earthquake Fault Zones" along faults that are "sufficiently active" and "well defined." The Act dictates that cities and counties withhold development permits for Projects within an Earthquake Fault Zone within their jurisdiction until geologic investigations demonstrate that the Projects are not threatened by surface displacements from future earthquakes. Projects include all land divisions and most structures for human occupancy. State law exempts single-family wood-frame and steel-frame dwellings that are less than three stories and are not part of a development of four units or more. However, local agencies can be more restrictive than the State.

Ground Shaking

Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. Magnitude is a measure of the energy released by an earthquake; it is assessed by seismographs. Intensity is a subjective measure of the perceptible effects of seismic energy at a given point and varies with distance from the epicenter and local geologic conditions.

Ground shaking is the primary cause of damage and injury during earthquakes and can result in surface rupture, liquefaction, landslides, lateral spreading, differential settlement, tsunamis, building failure, and broken gas and other utility lines, leading to fire and other collateral damage. The intensity and severity of ground motion is dependent on the earthquake's magnitude, distance from the epicenter and underlying soil and rock properties. Areas underlain by thick, saturated, unconsolidated soils will experience greater shaking motion than areas underlain by firm bedrock.

Seismicity and Seismic Hazards

The City and Sphere of Influence are located within the northern portion of the Peninsular Range geomorphic province, which is characterized by steep, elongated valleys and ranges that generally trend northwestward from the tip of Baja California to the Los Angeles Basin. Features around Murrieta include the Santa Ana Mountains and the Santa Rosa Plateau directly to the west, the Santa Margarita and Agua Tibia ranges approximately 12 to 14 miles to the south, and the San Jacinto ranges approximately 35 miles to the east.

Murrieta is situated within two structural blocks or subdivisions of the Peninsular Range province that are separated by the active Elsinore fault zone, which forms a complex pull-apart basin known as the Temecula Valley that is filled with sedimentary deposits (City of Murrieta, 2011).

Earthquake Induced Liquefaction

Liquefaction is the sudden loss of soil shear strength and sudden increase in porewater pressure caused by shear strains, as could result from an earthquake. Research has shown that saturated, loose to medium-dense sands with a silt content less than about 25 percent and located within the top 40 feet are most susceptible to liquefaction and surface rupture/lateral spreading. These zones delineate regional susceptibility and can vary greatly due to groundwater level changes.

Landslides

Shaking during an earthquake may lead to seismically induced landslides, especially in areas that have previously experienced landslides or slumps, in areas of steep slopes, or in saturated hillsides. The City is generally flat and not at risk from the threat of landslides. Potential areas where seismically induced landslides could occur are in the foothill portions of the City.

Surface Fault Rupture Potential

Rupture of the surface during an earthquake generally is limited to the narrow strip of land immediately adjacent to the fault on which the earthquake is occurring. Surface fault rupture may occur suddenly during an earthquake or slowly in the form of fault creep and almost always follows pre-existing faults, which are zones of weakness. Secondary surface faulting can be triggered by aquifer compaction and subsidence or by the effects of strong ground shaking triggering a slip-on neighboring faults. Not all earthquakes will result in surface rupture and the Alquist-Priolo Earthquake Fault Zone Act initiated a statewide program to identify fault zones that are susceptible to surface rupture. The State has identified two Alquist-Priolo Earthquake Fault Zones within Murrieta, and the Project site. The Temecula Segment of the Elsinore Fault Zone traverses the City, and the Murrieta Creek Fault is located at the extreme southwest corner of the City (City of Murrieta, 2011).

Soil Erosion

Erosion refers to the removal of soil from exposed bedrock surfaces by water or wind. The effects of erosion are intensified with an increase in slope (as water moves faster, it gains momentum to carry more debris), the narrowing of runoff channels (which increases the velocity of water), and by the removal of groundcover (which leaves the soil exposed to erosive forces). Surface improvements, such as paved roads and buildings, decrease the potential for erosion on-site, but can increase the rate and volume of runoff, potentially causing off-site erosion.

Subsidence

Soil subsidence at the land surface can result from both natural and man-made phenomena. Natural phenomena that may induce subsidence include tectonic deformation and seismically induced settlements (liquefaction); soil consolidation; oxidation or dewatering of organic-rich soils; and collapse of subsurface cavities. Human activities that may help induce subsidence include decreases in pore pressure caused by the excessive withdrawal of subsurface fluids (pumping), including water and hydrocarbons.

Paleontological Sensitivity

The geologic units underlying this Project are mapped primarily as alluvial or sandstone deposits dating from the Pliocene to Pleistocene epoch and are considered to be highly paleontologically sensitive (Appendix C). The majority of the Project area falls in sediment that is mapped as both the fanglomerate and sandstone members of the Pauba.

Formation dating from the Pliocene to the Pleistocene. The Pauba Formation is a well-known fossil assemblage containing abundant paleontological resources. The Western Science Center does not have localities within the Project area, but does have numerous Projects within, or just outside, a 1-mile radius including those associated with the Principe Collection, the Gafcon Project, the Village Walk Project, and the Rancho California Water District Project.

The Principe Collection is a salvage collection with limited data, but fossil localities from this collection span across Murrieta and Temecula, California. There are numerous Principe Collection localities within a one-mile radius of the proposed Project area. Specimen from the collection have been identified as Pacific Mastodon (*Mammut pacificus*), Columbian Mammoth (*Mammuthus columbi*), and ancient horse (*Equus sp.*). The Rancho California Water District

Project less than one mile south of the Project area contained fossils identified as mammoth (*Mammuthus columbi*), as well as plant and invertebrate fossils. The Gafcon Project is also less than one mile south of the Project area and contained one fossil locality identified to giant ground sloth (*Paramylodon sp.*). The Village Walk Project is located just over 1 mile east of the Project area and contained Pleistocene fossils identified as mastodon (*Mammut Americanum* now thought to be *Mammut pacificus*), horse (*Equus sp.*) bison (*Bison sp.*), giant ground sloth (*Paramylodon sp.*), wolf (*Canis sp.),* and a tentatively identified *Camelops* specimen. All of the fossil localities nearby are indicative of the types of fossils associated with the Pauba Formation and Pleistocene Southern California and are a good indication of possible finds at the proposed Project area.

	Potentially Significant Impact	Less-Than-Significant Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VII. GEOLOGY AND SOILS – Would the Project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist- Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site	☐	☐	☒	☐

	Potentially Significant Impact	Less-Than-Significant Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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?	☐	☒	☐	☐

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

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

The location of surface rupture generally can be assumed to be along an active or potentially active major fault trace. The damage from surface fault rupture is generally limited to a linear zone that is a few yards wide. The State has identified two Alquist-Priolo Earthquake Fault Zones within Murrieta. The Temecula Segment of the Elsinore Fault Zone traverses the City, and the Murrieta Creek Fault is located at the extreme southwest corner of the City.

In addition, the proposed Project would include replacement and construction of sanitary sewer and water main infrastructure that serves existing development. It would not include construction, nor would it indirectly foster the construction of structures for human habitation.

Before a Project can be permitted within a fault zone, a site-specific geologic investigation must demonstrate that proposed buildings will not be constructed across an Alquist-Priolo Earthquake Fault Zone, County Fault Zone, or any other active or potentially active fault. Structures are required to be set back from active faults. The earthquake fault zones extend approximately 500 feet in width on either side of a major active fault trace and approximately 200 to 300 feet in width on either side of a well-defined minor active fault, as designated by the State. The proposed Project would not construct buildings. Therefore, a less than significant impact would occur with regard to increased exposure of persons or structures to surface fault rupture hazards.

ii) Strong seismic ground shaking?

Due to the strong natural seismic activity of southern California, all structures, including the proposed Project area, is exposed to potential strong seismic ground shaking through their lifespan. Although the Project site is expected to experience moderate to severe ground shaking just as most of Southern California does, the proposed Project would include replacement and realignment of existing sewer infrastructure to serve existing and planned levels of development in the area. The proposed Project would not include construction, nor would it indirectly foster the construction of, structures for human habitation.

In addition, the proposed Project would likely improve the seismic performance of the replaced Project elements by comparison with the existing facilities. Construction of the proposed sewer mains would be designed and constructed consistent with local, regional, and State standards which are required to adhere to state seismic design parameters identified in the California Building Code. Therefore, impacts related to strong seismic ground shaking would be less than significant overall.

iii) Seismic-related ground failure, including liquefaction?

Liquefaction occurs primarily in saturated, loose, fine- to medium-grained soils in areas where the groundwater table is within approximately 50 feet of the surface. Shaking causes the soils to lose strength and behave as liquid. Liquefaction-related effects include loss of bearing strength, ground oscillations, lateral spreading, and flow failures or slumping.

Much of the Project site has been identified as either moderate or very high liquefaction susceptibility (City of Murrieta, 2011). Although the Project site is located within a geologic unit with potential to become unstable during a seismic event, the proposed Project would be designed and constructed consistent with the latest California Building Code (CBC) and State regulations. The proposed Project would also be required to adhere to all applicable local and regional design standards to meet state seismic design parameters as identified in the CBC. Therefore, impacts associated with seismic ground failure would be less than significant.

iv) Landslides?

The proposed Project is not mapped within an earthquake induced landslide zone (City of Murrieta, 2011). Several landslide areas have been mapped in areas along the Santa Ana Mountains and the hills along the northern side of the City, but these areas pose no risk to the Project site. Based on the relatively flat topography and distance of landslide zones to the proposed Project, there is no potential for landslides. Consequently, there would be no impact.

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

Construction activities associated with the proposed Project would include minor earth-disturbing activities (i.e., cut and fill, vegetation removal, grading, trenching, excavation, and movement of soil) that could expose disturbed areas and stockpiled soils to winter rainfall and stormwater runoff. Areas of exposed or stockpiled soils could also be subject to wind or water erosion.

During proposed construction, contractors would be required to comply with federal, state, and local requirements and guidelines to minimize the potential for soil erosion, including the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, 2009-0009- DWQ, as amended by 2010-0014-DWQ (General Construction Permit) and each jurisdiction's stormwater permit. A Stormwater Pollution Prevention Plan (SWPPP) would be prepared, outlining Best Management Practices (BMPs) to minimize stormwater

pollution resulting from erosion and sediment migration from the construction areas. As such, the impact would be less than significant.

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

As discussed in Section 3.7, Geology and Soils, Threshold (a), based on topography and lack of significant slopes in the vicinity of the Project site, there is no potential for landslides at the site. However, a majority of the Project site generally has moderate to very-high susceptibility to liquefaction (City of Murrieta, 2011). Liquefaction could result in sand boiling, ground subsidence and failure, differential settlement, and lateral spreading of the ground. As discussed above in Threshold (a), the proposed Project would be designed and constructed consistent with recommendations from a Project-specific geotechnical investigation. The proposed Project would also be required to adhere to all applicable local and regional design standards to meet state seismic design parameters as identified in the California Building Code. Therefore, impacts associated with unstable soils would be less than significant.

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

According to the U.S. Department of Agriculture Natural Resources Conservation Services (NRCS) Web Soil Survey, the soil underlain the Project site is comprised of a variety of Sandy Loams, which generally have low water storage ability, are well-drained, and have a low capacity to transmit water (USDA 2020).

As identified in Threshold (a), the proposed Project would be designed with recommendations set forth in a site-specific geotechnical investigation, as applicable, to ensure the Project design is appropriate to local soil/substrate conditions. In addition, the proposed Project would be designed and constructed consistent with all applicable local and regional design standards which are required to adhere to state seismic design parameters identified in the California Building Code. Consequently, impacts associated with expansive soils would be less than significant.

e) *Would the Project 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?*

Use of septic tanks or other alternative wastewater disposal systems would not be a part of the proposed Project. The proposed Project would increase the resiliency of the existing wastewater system and support existing and planned sewer demands in the area surrounding the Project site. As such, no impact would occur.

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

The geologic units underlying this Project are mapped primarily as alluvial or sandstone deposits dating from the Pliocene to Pleistocene epoch and are considered to be highly paleontologically sensitive (Appendix C). The Murrieta area is generally underlain by highly fossiliferous rock units that include the Pauba formation and Unnamed Sandstone formation. The San Bernardino County Museum Earth Sciences Division has classified the majority of the City and the Sphere of Influence as having a high potential for containing significant, nonrenewable paleontological resources (City of Murrieta, 2011).

In the event that intact paleontological resources are located on the Project site, ground-disturbing activities associated with construction in the underdeveloped portions of the proposed Project have the potential to destroy a unique paleontological resource or site. Without mitigation, the potential damage to paleontological resources during construction would be a potentially significant impact. However, implementation of MM-GEO-1 would ensure that soils with potential to yield paleontological resources are monitored as needed and any resources identified are treated properly. As such, impacts of the proposed Project would be less than significant with mitigation incorporated during construction.

MM-GEO-1 Paleontological Resources. Any deep excavations into previously undisturbed soil (usually over 5 feet in depth) in the proposed Project area must be monitored by a qualified paleontologist. In the event of an inadvertent discovery, the following measures shall apply:

1) Upon discovery of an unearthed fossil, earthwork within the vicinity of the discovery shall immediately halt, the District shall be notified, and a qualified paleontologist shall evaluate the discovery. Earthwork shall be diverted until the significance of the fossil discovery can be assessed by the qualified paleontologist.

2) If the fossil discovery is deemed significant, and upon recommendation of the paleontologist and approval by the District, the fossils shall be professionally recovered using appropriate recovery techniques based on the type, size, and mode of preservation of the unearthed fossil.

3) Earthwork may resume in the area of the fossil discovery once the fossil has been recovered, and the qualified paleontologist deems the site has been mitigated to the extent necessary. Additional earthwork following the fossil discovery may continue to be monitored for paleontological resources on an as-needed basis, at the discretion of the qualified paleontologist.

4) Recovered fossils shall be prepared, identified, cataloged, and stored in a recognized professional repository along with associated field notes, photographs, and compiled fossil locality data.

5) A final summary report shall be completed that outlines the results of the mitigation program. This report shall include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils. This report shall be submitted to the District, and designated repository.

3.8 Greenhouse Gas Emissions

Environmental Setting

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

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code Section 38505(g) for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride (see also 14 CCR 15364.5). The three GHGs evaluated for GHG emission impacts are CO_2, CH_4, and N_2O. Hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride were not evaluated or estimated in this analysis because the proposed Project would not generate them in measurable quantities.

Gases in the atmosphere can contribute to climate change both directly and indirectly.[6] The Intergovernmental Panel on Climate Change developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of CO_2 equivalent (CO_2e). Consistent with CalEEMod Version 2016.3.2, this GHG emissions analysis assumed the GWP for CH_4 is 25 (emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change Fourth Assessment Report (IPCC 2007).

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

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

As discussed in Section 3.3, Air Quality, of this IS/MND, the Project site is located within the jurisdictional boundaries of the South Coast AQMD. In October 2008, the South Coast AQMD proposed recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development Projects as presented in its Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold (South Coast AQMD 2008). This document, which builds on the previous guidance prepared by the California Air Pollution Control Officers Association, explored various approaches for establishing a significance threshold for GHG emissions. The draft interim CEQA thresholds guidance document was not adopted or approved by the Governing Board. However, in December 2008, the South Coast AQMD adopted an interim 10,000 MT CO_2e per-year screening level threshold for stationary source/industrial Projects for which the South Coast AQMD is the lead agency (see South Coast AQMD Resolution No. 08-35, December 5, 2008).

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

Tier 1. Determine if CEQA categorical exemptions are applicable. If not, move to Tier 2.

Tier 2. Consider whether or not the proposed Project is consistent with a locally adopted GHG reduction plan that has gone through public hearing and CEQA review, that has an approved inventory, includes monitoring, etc. If not, move to Tier 3.

Tier 3. Consider whether the Project generates GHG emissions in excess of screening thresholds for individual land uses. The 10,000 MT CO_2e per-year threshold for industrial uses would be recommended for use by all lead agencies. Under option 1, separate screening thresholds are proposed for residential Projects (3,500 MT CO_2e per year), commercial Projects (1,400 MT CO_2e per year), and mixed-use Projects (3,000 MT CO_2e per year). Under option 2, a single numerical screening threshold of 3,000 MT CO_2e per year would be used for all non-industrial Projects. If the Project generates emissions in excess of the applicable screening threshold, move to Tier 4.

Tier 4. Consider whether the Project generates GHG emissions in excess of applicable performance standards for the Project service population (population plus employment). The efficiency targets were established based on the goal of Assembly Bill (AB) 32 to reduce statewide GHG emissions to 1990 levels by 2020. The 2020 efficiency targets are 4.8 MT CO_2e per-service population for Project-level analyses and 6.6 MT CO_2e per-service population for plan-level analyses. If the Project generates emissions in excess of the applicable efficiency targets, move to Tier 5.

Tier 5. Consider the implementation of CEQA mitigation (including the purchase of GHG offsets) to reduce the Project efficiency target to Tier 4 levels.

Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence." The CEQA Guidelines do not prescribe specific methodologies for performing an assessment, establish specific thresholds of significance, or mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance that are consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009).

To determine the proposed Project's potential to generate GHG emissions that would have a significant impact on the environment, its GHG emissions were compared to the non-industrial land Project quantitative threshold of 3,000 MT CO_2e per year. Because the proposed Project does not include operational sources of emissions, and because the proposed Project does not conform to the standard land use types, the 3,000 MT CO_2e per year threshold, which was identified under Tier 3 Option 1, was applied herein. Per the South Coast AQMD guidance, construction emissions should be amortized over the operational life of the Project (South Coast AQMD 2008). The life of the sewer force main is anticipated to be 100 years, and the valves are anticipated to have an operational life of 70 years. As such, a Project lifetime of 70 years was conservatively assumed. This impact analysis, therefore, compares amortized construction emissions to the proposed South Coast AQMD threshold of 3,000 MT CO_2e per year.

Construction Emissions

Construction of the proposed Project would result in GHG emissions primarily associated with the use of off-road construction equipment, on-road trucks, and worker vehicles. A depiction of expected construction schedules (including information regarding phasing, equipment used during each phase, truck trips, and worker vehicle trips) assumed for the purposes of emissions estimation is provided in Appendix A. On-site sources of GHG emissions include off-road equipment; off-site sources include trucks and worker vehicles. Table 4 presents construction GHG emissions for the proposed Project from on-site and off-site emissions sources.

Table 4: Estimated Annual Construction GHG Emissions

Year	CO2	CH4	N2O	CO2e
	Metric Tons per Year			
2021	466.72	0.13	0.00	469.89
2022	264.99	0.07	0.00	266.80
Amortized Construction Emissions				10.52

Source: See Appendix A for complete results.

Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.

As shown in Table 4, the estimated GHG construction emissions would be 469.89 MT CO_2e in 2021 and 266.80 MT CO_2e in 2022, for a total of 736.69 MT CO_2e. Amortized over 70 years, construction GHG emissions would be 10.52 MT CO_2e per year. In addition, as with Project-generated construction criteria air pollutant emissions, GHG emissions generated during proposed construction activities would be short term, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

Operational Emissions

Once Project construction is complete, no operational activities associated with the proposed Project would occur (i.e., no routine daily equipment operation or vehicle trips would be required). Because the proposed

Project would not result in any long-term operational activities, there would be no potential GHG emissions impacts associated with operational GHG emissions.

As shown in Table 3, amortized Project-generated construction emissions would not exceed the 3,000 South Coast AQMD threshold. Therefore, GHG emissions impacts would be less than significant.

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

The proposed Project would result in less-than-significant impacts related to conflicts with GHG emission reduction plans, for the reasons described below.

Consistency with the Riverside County Climate Action Plan

The City of Murrieta Climate Action Plan (CAP) was adopted in July 2011. The CAP focused on reducing 2020 GHG emissions to 15% below 2009 levels. The City of Murrieta is currently in the process of updating the CAP which is still in draft form. The CAP Update will focus on reducing emissions for 2030 and 2035 and establish a 2050 emissions goal which is important for long-term planning. The reduction targets for 2030 are based on reducing citywide GHG emissions to 40% below 2016 levels, 50% below 2016 levels by 2035, and 80% below 2016 levels by 2050. As part of the CAP Update, the City will require development Projects to complete a CAP Consistency Checklist, however the checklist would not apply to the proposed Project.

Consistency with CARB's Scoping Plan

The CARB Scoping Plan, approved by CARB in 2008 and updated in 2014 and 2017, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The Scoping Plan is not directly applicable to specific Projects, nor is it intended to be used for Project-level evaluations. Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., Low Carbon Fuel Standard), among others.

Consistency with the Southern California Association of Governments 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy

SCAG's 2016 RTP/SCS is a regional growth-management strategy that targets per-capita GHG reduction from passenger vehicles and light-duty trucks in the Southern California region. The 2020 RTP/SCS incorporates local land use Projections and circulation networks in city and county general plans. The 2020 RTP/SCS is not directly applicable to the proposed Project because the purpose of the 2020 RTP/SCS is to provide direction and guidance by making the best transportation and land use choices for future development. The proposed Project would not conflict with implementation of the strategies identified in the 2020 RTP/SCS that would reduce GHG emissions.

Consistency with Executive Order S-3-05 and Senate Bill 32

The proposed Project would not impede the attainment of the GHG reduction goals for 2030 or 2050, as identified in Executive Order S-3-05 and Senate Bill (SB) 32. Executive Order S-3-05 establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050. SB 32 establishes a statewide GHG emissions reduction target whereby

CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030. While there are no established protocols or thresholds of significance for that future year analysis, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014).

CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the First Update to the Climate Change Scoping Plan that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014). With regard to the 2050 target for reducing GHG emissions to 80% below 1990 levels, the First Update to the Climate Change Scoping Plan states that the level of reduction is achievable in California (CARB 2014). CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and Executive Order S-3-05. This is confirmed in the Second Update, which states (CARB 2017):

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

The proposed Project would not interfere with implementation of any of the above-described GHG reduction goals for 2030 or 2050 because the Project would not exceed the South Coast AQMD's recommended threshold of 3,000 MT CO_2e per year (South Coast AQMD 2008). Because the proposed Project would not exceed the threshold, this analysis provides support for the conclusion that the Project would not impede the state's trajectory toward the above-described statewide GHG reduction goals for 2030 or 2050.

The proposed Project's consistency with the State's Scoping Plan would assist in meeting each jurisdiction's contribution to GHG emission reduction targets in California. With respect to future GHG targets under SB 32 and Executive Order S-3-05, CARB has also made clear its legal interpretation that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet the SB 32 40% reduction target by 2030 and the Executive Order S-3-05 80% reduction target by 2050. This legal interpretation by an expert agency provides evidence that future regulations will be adopted to continue the trajectory toward meeting these future GHG targets.

Based on the above considerations, the proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. This impact would be less than significant.

3.9 Hazards and Hazardous Materials

A regulatory records search was performed for the proposed Project and immediate vicinity using the State Water Resources Control Board GeoTracker database (SWRCB 2020) and the California Department of Toxic Substances Control EnviroStor database (DTSC 2020). These lists are a compilation of information from various sources listing potential and confirmed hazardous waste and hazardous substances sites in California in accordance with Section 65962.5 of the California Government Code.

The GeoTracker database search identified 5 sites within approximately 1.0 mile of the Project site, all of which are within the confines of the Project area and the Murrieta Service Retail Area. All sites are closed Leaking Underground Storage Tank (LUST) cases that have been remedied. These sites are located at Madison Ave., Guava St., Washington Ave., and 2 cases on Ivy St.

The California Department of Toxic Substances Control (DTSC) Envirostor Database identified no active sites within approximately 1.0 mile of the Project area and seven inactive sites that have been previously certified, or have no action required. None of the Project site would be included under any airport land use plans and is not located within the vicinity of an airport.

There are several schools within the Project area, and within 1.0 mile of the Project area. These include Murrieta Elementary School, River Springs Charter School, Murrieta Valley High School, Murrieta Canyon Academy, Thompson Middle School, and Cole Canyon Middle School.

The California Department of Forestry and Fire Protection (CAL FIRE) classifies land in California based on fire hazard severity. An area that is not located within State of California CAL FIRE jurisdiction (state responsibility area [SRA]) is designated as either a local responsibility area (LRA) or federal responsibility area (FRA) for fire protection. All of the Project site within city or county jurisdictions is designated as an LRA. A majority of the Project site is classified as a non-very high fire hazard severity zone (Non-VHFHSZ), with only the southern portion of the Project site classified as very high fire hazard severity zone (VHFHSZ) (CAL FIRE 2009a, 2009b, 2009c).

	Potentially Significant Impact	Less-Than-Significant Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS – Would the Project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	

	Potentially Significant Impact	Less-Than-Significant Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

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

Proposed Project construction would involve the incidental transport and use of small quantities of common hazardous materials to operate construction equipment, such as oils, lubricants, and fuels, as well as specific materials for building construction, such as asphalt and concrete. Hazardous materials would be stored in designated areas away from environmentally sensitive areas in quantities that would not pose significant hazard to the public in the event of a release.

The California Department of Toxic Substances Control has primary regulatory authority for enforcing hazardous materials regulations. State hazardous waste regulations are contained primarily in Title 22 of the California Code of Regulations. The California Occupational Safety and Health Administration has developed rules and regulations regarding worker safety around hazardous and toxic substances. If used, transported, and stored or disposed of properly, these materials do not pose a substantial risk or hazard to the public or the environment. Any potential impacts associated with the routine transport, use, or disposal of hazardous materials, although minimal, would be further minimized with adherence to applicable regulations. As such, impacts would be less than significant.

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

Accidental spills or releases of hazardous materials during proposed Project construction could result in the exposure of workers and the environment to hazardous materials. As noted in Threshold (a) above, proposed Project construction activities would only require the use of minor amounts of hazardous materials. However, a SWPPP would be prepared prior to issuance of grading permits and implemented during all ground-disturbing activities. The BMPs identified in the SWPPP would minimize the potential for

hazardous, toxic, or petroleum substances release at the Project site during construction and establish emergency response procedures in the unlikely event a release would occur. Occasional maintenance activities during Project operation would not require use of hazardous materials. As such, impacts associated with accidental release of hazardous materials would be less than significant.

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

There are several schools located within 1.0 mile of the Project area, including within the Project area itself. These schools are Murrieta Elementary School, Cole Canyon Elementary School, Thompson Middle School, Murrieta Mesa High School, Murrieta Valley High School, Murrieta Canyon Academy, Springs Charter School, and Calvary Murrieta Christian School. Due to the small-scale localized nature of construction and operation of the Project, it is not anticipated that the proposed Project would pose risk regarding the hazardous emissions or the handling of hazardous materials within close proximity of a school. The small-scale nature of the construction that may occur in close proximity to any school would not be conducted with a substantial amount of hazardous material on-site such that substantial emissions could occur, due to standard operating procedures of water main and sewer pipe construction. As such, a less than significant impact would occur.

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

A search of publicly available databases did not return any listed active sites within the Project site, or within 1.0 mile of the Project site. However, there are seven (7) inactive sites within the Project area. These sites are either in evaluation, are certified, or no other action required (DTSC, 2020). As such, it is not anticipated that the inactive sites would pose any hazard to the public or the environment. Therefore, impacts would be less than significant.

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?

The proposed Project is not located within the vicinity of an airport land use plan. As such, the proposed Project would result in no impact.

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

Neither does the Project site nor the various streets and ROW contain any emergency facilities, nor does it serve as an emergency evacuation route. During construction, the proposed Project would be required to maintain adequate emergency access for emergency vehicles as required by the applicable jurisdiction. Because the proposed Project would not interfere with an adopted emergency response or evacuation plan, impacts would be less than significant.

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

Nearly the entire Project site is classified as Non-VHFHSZ. However, the southern portions of the Project site are more prone to fire hazards, and as a result, are designated as LRA VHFHSZ. (CAL FIRE 2009a, 2009b, 2009c). In addition, the Project site is located within an area largely developed with industrial, commercial, and residential land uses. Because the proposed Project does not involve the construction of

structures that could exacerbate the potential for wildfires, the proposed Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. No Impact would occur.

3.10 Hydrology and Water Quality

The Project site is located in the Santa Margarita River Watershed, which comprises approximately 750 square miles. Murrieta Creek and Temecula Creek collect water from the upper watershed and represent the main tributaries to the Santa Margarita River. Murrieta Creek and Temecula Creek collect water from the upper watershed and represent the main tributaries to the Santa Margarita River. Western portions of the City are within the southern portion of the Santa Ana River Basin. The regional boundary for the two basins divides the Santa Margarita River drainage area from that of the San Jacinto River, which normally terminates in Lake Elsinore. The Santa Margarita Watershed drains the southwest portion of Riverside County including areas of the Cities of Menifee, Murrieta, Wildomar, and unincorporated County of Riverside, and all of the City of Temecula. Stormwater runoff from these areas collects into Murrieta and Temecula creeks and combines to form the Santa Margarita River in Temecula. The Santa Margarita River flows through the "Gorge" and into San Diego County where it flows past Camp Pendleton into the Santa Margarita Lagoon at the Pacific Ocean (Riverside County Watershed Protection).

The Murrieta Creek is the only drainage that is located within the vicinity of the Project. The Murrieta Creek is 13 miles long, and heads on the northern edge of the community of Wildomar, flows southeast through Temecula Valley to the confluence of Temecula Creek and the head of Santa Margarita River (USGS 2020).

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 06065C2715G, the land surrounding the Murrieta Creek has several flood zone classifications, including Zone AE, Zone AH, and Zone X. The remaining portions of the Project site are not located within any flood zone designation (FEMA 2008). The Zone AE designation indicates an area subject to inundation by 1 percent-annual-chance shallow flooding. Flood Zone X is classified by the Federal Emergency Management Agency as an area of minimal flood hazard and is located above the 0.2% annual flood chance floodplain.

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

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

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

The proposed Project involves construction of sewer gravity mains and water supply infrastructure improvements that traverse the Murrieta Retail Service Area within the City of Murrieta. Construction activities associated with the proposed Project would include minor earth-disturbing activities (i.e., cut and fill, vegetation removal, grading, trenching, excavation, and movement of soil) that could expose disturbed areas and stockpiled soils to winter rainfall and stormwater runoff. Areas of exposed or stockpiled soils could also be subject to wind or water erosion.

As described in Section 3.9, Threshold (b), a SWPPP would be prepared prior to issuance of grading permits and implemented during all ground-disturbing activities. The SWPPP would include BMPs to prevent discharge of polluted runoff from the Project site to storm drains and surface waterways, and to prevent wind and water erosion from preconstruction through construction site restoration activities.

During proposed construction, contractors would be required to comply with federal, state, and local requirements and guidelines to minimize the potential for polluted stormwater runoff, including the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, 2009-0009-DWQ, as amended by 2010-0014-DWQ (General Construction Permit) and each applicable jurisdiction's Municipal Separate Storm Sewer System (MS4) permit.

Following construction of the proposed Project, the sewer system would be operated and maintained in accordance with each jurisdiction's MS4. Adherence to construction BMPs and the various regulatory requirements governing construction, the proposed Project would not violate any applicable water quality standards or otherwise degrade water quality. As such, impacts would be less than significant.

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

The Project is located within the Murrieta-Temecula Basin and the French Basin, which are the two major groundwater basins within the City of Murrieta and its sphere of influence. The proposed Project would not result in the construction of new impervious surfaces that would prevent water from infiltrating into the groundwater. In addition, the proposed Project would not include development that would increase water demand in the area surrounding the Project site. As such, the proposed Project would not substantially deplete groundwater supplies or interfere with groundwater recharge, and instead would facilitate water storage and movement. Impacts would be less than significant.

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

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

Construction of the proposed Project could temporarily alter the existing drainage patterns surrounding the proposed pipeline trenches from construction activities. Excavated soils would be susceptible to water and wind erosion. Implementation of the SWPPP during construction activities would minimize erosion of loose excavated soils. In addition, trenching activities would be limited to a 500 LF segment at any given time, which would minimize the amount of soil subject to erosion. Upon completion of construction activities, the Project alignment would be restored to existing conditions. As such, the proposed Project would not permanently alter the existing drainage pattern of the site resulting in substantial erosion or siltation. Impacts would be less than significant.

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

Construction of the proposed Project could temporarily alter the existing drainage patterns surrounding the sewer force main trench. Construction trenching would be limited to a 500 LF segment at any given time, and the construction area would be restored to existing conditions upon completion of construction within the segment. The Project would not significantly impact the rate or amount of surface water within the Project site that could result in flooding on- or off-site. Therefore, impacts would be less than significant.

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

Construction of the proposed Project would temporarily alter the existing drainage pattern surrounding the active Project footprint. Upon completion of construction, the Project site would be restored to existing conditions. As such, the proposed Project would not result in permanent changes to the drainage system that would create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems. Impacts would be less than significant.

iv) impede or redirect flood flows?

Construction of the proposed Project would temporarily alter the existing drainage pattern surrounding the active Project footprint. Upon completion of construction, the Project site would be restored to existing conditions. As such, the proposed Project would not result in permanent changes to the drainage system that would impede or redirect flood flows. No Impact would occur.

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

The Pacific Ocean is located more than 20 miles from the Project site; therefore, there is no potential for tsunamis to impact the proposed Project. In addition, the Project site and immediate surrounding area do not contain steep hillsides subject to mudflow. The nearest water body to the Project site is Lake Elsinore, which is located approximately 8.5 miles northwest and upstream of the Project site. Due to distance from the nearest water bodies and hillsides, the proposed Project would not be subject to seiches, mudflows, and/or tsunamis.

Some of the Project alternatives will traverse the Murrieta Creek, with the adjacent area to the creek being located in a 100-year flood zone (FEMA 2008). The proposed Project would result in temporary impacts within the 100-year flood zone because the pipelines would be installed below ground, primarily within existing paved roadways. Upon completion of construction, the Project site would be restored to existing conditions. As such, the proposed Project would not result in long-term impacts within a 100-year flood zone that would risk release of pollutants due to Project site inundation. Impacts would be less than significant.

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

Refer to Thresholds (a) and (b) above. The proposed Project would comply with applicable stormwater quality standards during short-term construction activities and appropriate BMPs would be implemented to address potential water quality impacts. As such, the proposed Project would not conflict with implementation of a water quality control plan or groundwater management plan. No impact would occur.

3.11 Land Use and Planning

The proposed Project is located within the City of Murrieta. Figures 7, *Land Use Map,* and 8, *Zoning Map* illustrate the general plan land use and zoning designations within the Project alignment, respectively. Note that portions of the Project alignment within public right-of-way do not have land use designations.

The proposed Project, being comprised of the Murrieta Retail Service Area, as a 6.5-mile area, has multiple different land use designations and zonings. The most prominent of these zonings include the following: Much of the area along I-15 includes commercial zoning area on the eastern portion of the Project includes land zoned for business park, innovation, and industrial. To the south is civic/institutional land, and nearly all of the land in the south-central area is zoned for large-lot residential. Most of the land in the western area of the Project is zoned for Single-family residential.

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

a) Would the Project physically divide an established community?

All of the Project alternatives would be installed below ground. Once construction is complete, all construction areas would be restored to existing conditions, consistent with all design standards applicable in each respective jurisdiction. As such, the proposed Project would not include permanent features that would physically divide an established community. The proposed Project would be implemented to replace or install new underground pipelines for sewers and water supply infrastructure and provide adequate water and wastewater services for the existing and planned water and wastewater demand within the service area. Therefore, no impact would occur.

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

The installation, operation, and maintenance of utilities are considered to be an allowable use on lands within the proposed Project footprint. As such, the proposed Project would be consistent with the general plan land use and zoning designations for the Project site. Furthermore, as discussed in Threshold (a) above, the proposed Project alternatives concern existing water and wastewater infrastructure and would not create aboveground features. As the Project is solely proposed to support existing local jurisdiction land use planning, there would be no impact related to conflict with applicable land use plans, policies, or regulations.

3.12 Mineral Resources

Mineral resources within western Riverside County have been located within the City of Murrieta, and these sites contain clay, sand, and gravel (construction), feldspar, feldspar/silica, and gold. The California Geological Survey has established a classification system to denote both the location (i.e., zone) and significance of key extractive mineral resources. Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists are classified as a Mineral Resource Zone (MRZ)-2.

The proposed Project is mapped in MRZ-1, an area of no mineral resource significance. While sand and gravel for construction is a mineral resource found within the Murrieta Retail Service Area, Project construction would not take place at this location. Moreover, any potential mineral resources located within or adjacent to the Project site would not be commercially viable to extract because all properties in the immediate vicinity have either been previously developed with incompatible land uses or are designated for development as various land uses.

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

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

Construction of the proposed Project would involve cut and fill activities for the installation of the gravity mains and pipelines; however, to the extent feasible, material excavated for the installation of the sewer force main and other pipelines would be reused as backfill. Proposed Project construction would require use of common construction materials, such as asphalt, concrete, and gravel. These materials are widely available throughout the region; therefore, the proposed Project would not result in the loss of regionally or locally designated "significant" deposits of mineral resources (i.e., deposits classified by the California Geological Survey as MRZ-2 or deposits listed as locally important on a general plan).

In addition, the Project site is not located within an area known to be underlain by regionally or locally important mineral resources or within an area that has the potential to be underlain by regionally or locally important mineral resources (City of Murrieta 2011). Therefore, the proposed Project would not result in loss of a known mineral resource. No impact would occur.

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

The Project site is not located within an area known to be underlain by regionally or locally important mineral resources (City of Murrieta 2011). In addition, the proposed Project alignment would be installed primarily within existing roadways in an urban setting. The existing land uses would preclude the use of the Project site for future mining activities. As such, implementation of the proposed Project would not result in the loss of availability of a locally important mineral resource recovery site. No impact would occur.

3.13 Noise

Noise Background

Noise is unwanted sound that disturbs human activity. Environmental noise levels typically fluctuate over time, and different types of noise descriptors are used to account for this variability. Noise level measurements include intensity, frequency, and duration, as well as time of occurrence. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). Because of the way the human ear works, a sound must be about 10 dBA greater than the reference sound to be judged as twice as loud. In general, a 3 dBA change in community noise levels is noticeable, while 1-2 dBA changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels typically attenuate (or drop off) at a rate of 6 dBA per doubling of distance from point sources (such as construction equipment). Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dBA per doubling of distance; while noise from a point source typically attenuates at about 6 dBA per doubling of distance. Noise levels may also be reduced by the introduction of intervening structures. For example, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm that breaks the line-of-sight reduces noise levels by 5-10 dBA. The construction style for dwelling units in California generally provides a reduction of exterior-to-interior noise levels of about 30 dBA with closed windows (DOT 2006).

Sensitive Receptors

As discussed in Section 2, Project Description, of this IS/MND, the proposed Project includes four different alternatives. Some land uses are more sensitive to ambient noise levels than other uses due to the amount of noise exposure and the types of activities involved. For example, residences, motels, hotels, schools, libraries, churches, nursing homes, auditoriums, museums, cultural facilities, parks, and outdoor recreation areas are more sensitive to noise than commercial and industrial land uses. To be conservative, construction noise is modeled based on a worst-case scenario. The City of Murrieta Municipal Code Section 16.08.020 identifies the minimum setback for single-family residential as 20 feet. Construction would occur in a linear fashion within the ROW and is anticipated to be contained within one lane of traffic Therefore, without knowing the exact location of the proposed Project pipeline alignment, construction is assumed to occur at a minimum of 20 feet from sensitive receptors.

	Potentially Significant Impact	Less-Than-Significant Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIII. NOISE – Would the Project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

	Potentially Significant Impact	Less-Than-Significant Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☐	☒

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

Construction Noise

Construction of the proposed Project would require the use of heavy equipment for excavation, trenching and pipeline installation, and paving. Construction activities would also involve the use of smaller power tools, generators, and other sources of noise for construction of the proposed facilities, as well as noise from construction-related vehicular traffic. Each construction activity would create elevated short-term construction noise impacts. Construction activities would be temporary and generally limited to daytime hours in accordance with Section 16.30.130 of the City of Murrieta Municipal Code, which regulate construction times and noise emissions related to construction activities. Construction within the City of Murrieta is permitted daily, except Sundays and holidays, from 7:00 a.m. to 8:00 p.m. At lower dBA levels, construction is also permitted daily, except Sundays and holidays, from 8:00 p.m. to 7:00 a.m. No construction is permitted on Sunday or on holidays unless approval is obtained from the city building official or city engineer. Standard equipment that would be in operation during construction would include an excavator, dozer, tractor, mixing truck, paving equipment, and hand tools. None of the equipment would produce high levels of impact-type noise (which would be generated by pile driving, for example, but will not be utilized as part of the proposed Project). Typically, construction equipment operates in alternating cycles of full power and low power, producing average noise levels less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of the construction activities during that time. The typical noise levels for various pieces of construction equipment were calculated for 20 feet and are presented in Table 5. The term dBA is an expression of the relative loudness of sounds in air as perceived by the human ear.

Table 5: Construction Equipment Noise Levels

Equipment Description	Typical Noise Level (dBA) at 50 feet from Source	Typical Noise Level (dBA) at 20 feet from Source[1]
Compressor (air)	80	88
Concrete Mixer	85	93
Excavator	80	88
Dozer	85	93
Generator	82	90
Paver	85	93
Roller	85	83
Saw	76	84
Truck	84	92

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.
Note: [1] Calculated using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1+20Log(d_1/d_2)$
dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance

As presented in Table 5, the concrete mixer, dozer, paver, and roller are anticipated to produce the highest noise levels during construction activities, with a maximum noise level of 93 dBA at 20 feet. The use of 20 feet is conservative and represents a worst-case scenario and it can be assumed that most sensitive receptors would be located at a distance greater than 20 feet. Sound intensity level decreases by 6 dB with the doubling of distance. Therefore at 40 feet, noise levels would be 6 dB lower than those listed under 20 feet and at 100 feet, noise levels would be 6 dB lower than those listed under 50 feet. Construction noise levels would be temporary and would not be sustained throughout the workday, fluctuating as activities start and stop and as workers and equipment are moved. Construction activities are anticipated to take place over an 18-month (or shorter) period but are not anticipated occur at the same location for more than two days. Limiting construction activities to daytime hours would avoid noise impacts during evening and nighttime, when most people are resting or sleeping. Should construction activities need to occur at night (such as concrete pouring activities that require air temperatures to be lower than occur during the day), the District or their contractor(s) would be required to obtain authorization for nighttime work from the City of Murrieta under Municipal Code Section 16.30.030 or Section 16.30.040.

Further, the District would require the contractor to implement measures and methods that would ensure compliance with each jurisdiction's Noise Ordinance's average sound level limits, as applicable. As such, temporary construction noise levels would not exceed levels established by the applicable Noise Ordinance for each jurisdiction and noise impacts during the daytime would be less than significant.

Operational Noise

Operational noise would be limited to occasional maintenance activities along the Project alignment. As such, operational noise would be negligible.

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

Construction activities that might expose persons to excessive groundborne vibration or groundborne noise have the potential to cause a significant impact. Groundborne vibration information related to construction/ heavy equipment activities has been collected by Caltrans. Information from Caltrans indicates that transient vibrations (such as from demolition activity) with a peak particle velocity (PPV) of approximately 0.035 inches per second may be characterized as barely perceptible, and vibration levels of 0.24 inches per second may be characterized as distinctly perceptible. Caltrans uses a damage threshold of 0.2 inches per second PPV for conventional buildings (Caltrans 2013).

Table 6 lists calculated vibration levels at 20 feet for typical construction equipment. Groundborne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Table 6: Typical Construction Equipment Vibration Levels

Equipment Description	Peak Particle Velocity at 25 Feet (in/sec)	Peak Particle Velocity at 20 Feet (in/sec)[1]
Large Bulldozer	0.089	0.1244
Loaded Trucks	0.076	0.1062
Jackhammer	0.035	0.0489
Small Bulldozer/Tractors	0.003	0.0042

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Note: [1] Calculated using the following formula: $PPV_{equip} = PPV_{ref} \times (25/D)1.5$
where: $PPVe_{quip}$ = the peak particle velocity in in/sec of the equipment adjusted for the distance
PPV_{ref} = the reference vibration level in in/sec from Table 7-4 of the Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018.
D = the distance from the equipment to the receiver

Groundborne vibration is typically attenuated over relatively short distances. Assuming the distance from the nearest existing residence is 20 feet, vibration velocities from construction equipment would not exceed 0.01244 inches per second PPV which is below the Caltrans damage threshold for conventional buildings. Therefore, impacts related to groundborne vibration would be less than significant.

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

The proposed Project is not located within the vicinity or within two miles of any airports. No impact would occur.

3.14 Population and Housing

The area surrounding the Project site has seen constant growth and urbanization for many decades and will continue to the future. Table 7 shows population growth over time within the area surrounding the Project site.

Table 7: Population Growth in the Area Surrounding the Project Site

	Population		
Jurisdiction	*2016*[1]	*2045*	Percent Increase
City of Murrieta	113,600	127,700	12.41%

Source:
[1] SCAG 2020

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

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

The proposed Project does not involve the construction of new residential or commercial units that would generate new population. Consequently, the proposed Project would not enable additional development

and population growth beyond what has been previously approved or Projected. Therefore, there would be no impact.

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

The proposed Project would not displace existing homes or people, necessitating the construction of replacement housing elsewhere. As such, there would be no impact.

3.15 Public Services

Fire Protection

Murrieta Fire & Rescue (MFR) is the primary provider of fire suppression and fire prevention services in the City of Murrieta, while the Sphere of Influence is served by the Riverside County Fire Department (RCFD). The MFR also participates in an Automatic Aid Agreement with the RCFD to provide service delivery to the eastern part of the City.

The MFR has five stations located throughout the city to enhance response times throughout the city. MFR participates in the California Master Mutual Aid Agreement. In the event of a major fire, outside resources can be brought into the City as needed (City of Murrieta, 2011).

Police Services

The Murrieta Department provides police protection and crime prevention services for the City of Murrieta. The Murrieta Police Department operates out of the Police Department building located at 2 Town Square Dr.

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

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

i) Fire protection?

Implementation of the proposed Project would not include any new housing, businesses, or other development that would increase demand for fire protection services and facilities; therefore, no impact would occur.

ii) Police protection?

Implementation of the proposed Project would not include any new housing, businesses, or other development that would increase demand for police protection services and facilities, nor degrade the quality of existing services. Access for standard-size police patrol vehicles on all public and private roadways would be maintained during construction; therefore, no impact would occur.

iii) Schools?

Implementation of the proposed Project would not alter existing school facilities or result in an increase in population that would generate new students in the school district. As such, no impact would occur.

iv) Parks?

Implementation of the proposed Project would not alter existing parks or result in an increase in population that would require new or expanded park facilities in the area surrounding the Project site. As such, no impact would occur.

v) Other public facilities?

Implementation of the proposed Project would not include any new housing, businesses, or other development that would require new or expanded other public facilities such as hospitals or libraries in the area surrounding the Project site. As such, no impact would occur.

3.16 Recreation

There are several recreational facilities that are located within the Project boundaries. These include the following:

- Sykes Ranch Park
- Murrieta Equestrian Park
- Town Square Park
- Montafino Park
- Murrieta Elementary School Park
- Calle Estancia Park
- Hunt Park

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

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

There are several recreation facilities within the Project site and the Project vicinity. However, construction of the proposed pipelines would not impact existing recreational land uses or include construction of land uses that would increase residents or workers that would increase the use of existing facilities. As such, implementation of the proposed Project would result in no impact on recreational facilities.

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

No recreational facilities are proposed as part of the Project. As such, implementation of the proposed Project would result in no impact on recreational facilities.

3.17 Transportation

The proposed Project would be installed within existing or planned future roadways within the Project site. The proposed Project would be installed via open-trench construction methods and in accordance with the District standard detail W-1540. Construction would occur in a linear fashion and is anticipated to be contained within one lane of traffic. The following describes the roadways where Project construction is proposed. In the event construction activities must extend beyond a single lane in a particular area, the implementation of the traffic control plan required pursuant to regulations set forth by the applicable jurisdiction would ensure that no full road closures are required, and traffic safety is maintained. Excavation equipment would straddle the trench and deposit spoil material into trucks for storage outside the roadway or stockpiled behind the open trench within the closed traffic lane. The pipe would be staged along the force main alignment, typically within the road shoulder and outside the trench excavation path. Per the District standards, the maximum length of trench that would be opened or partially opened at any one time would be limited to 500 LF. Upon completion of a shift, the contractor would be responsible for backfilling and/or plating open excavations, as well as cleaning, removing barricades, and removing equipment from the roadway.

Major roadways traverse the Murrieta Retail Service Area. Some of these major roads include Washington Ave., Jefferson Ave., Kalmia St., Madison Ave., Los Alamos Rd., and Adams Ave.

The roadways through which the alignment traverses may not provide sufficient area for overnight construction equipment storage. Additional construction staging areas outside the Project alignment are unknown at this time.

Pavement restoration would be conducted per the City of Murrieta. The contractor will coordinate with the City to ensure all paving requirements are met during trenching, backfilling, and grading.

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

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

Project implementation would require temporary partial lane closures within the Project site. During Project construction, vehicles would access the Project site from existing roadways. In addition, Project construction would be limited to one 500-foot trench at any time. Upon completion of construction, the Project site would be restored to existing conditions. Due to the small construction footprint and continued roadway access within the Project site, construction activities associated with the proposed Project would not conflict within any plans or ordinances addressing the circulation system. Impacts would be less than significant.

b) Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

A level of service or vehicle miles traveled analysis was not performed because the proposed Project would not result in a long-term effect on traffic flow, circulation, or traffic congestion. Therefore, the proposed Project would not conflict or be inconsistent with the CEQA Guidelines Section 15064.3, subdivision (b). There would be no impact.

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

The proposed Project would not result in permanent changes to or interfere with the existing vehicular, bicycle, or pedestrian transportation system or increase hazards or incompatible uses. Therefore, there would be no impact regarding hazards due to a design feature or incompatible use.

d) Would the Project result in inadequate emergency access?

The Project site does not contain any emergency facilities, nor does it serve as an emergency evacuation route. During construction, the proposed Project would be required to maintain adequate emergency access for emergency vehicles as required by the applicable jurisdiction. A traffic control plan, pursuant to applicable jurisdiction regulations, would be implemented during all construction activities to ensure that no full road closures are necessary and traffic safety is maintained. As such, the proposed Project would not interfere with an adopted emergency response or evacuation plan, impacts would be less than significant.

3.18 Tribal Cultural Resources

Eastern Information Center (EIC) staff completed the cultural resources records search using records housed at the University of California, Riverside. The records search included a review of all recorded historic and prehistoric archaeological sites, as well as recorded built environment resources within 0.5 miles of the subject alignments. The research also reviewed known cultural resource reports completed within the 0.5-mile radius. This research has revealed that 155 previous cultural resources studies have resulted in 106 cultural resources identified within 0.5-miles of the subject alignments. Of the resources identified, seven have been plotted within or adjacent to the subject alignments (Appendix C) (Refer to Section 3.5, Cultural Resources).

Assembly Bill 52 Outreach

On December 17, 2020 the District mailed notification letters via certified mail to eleven Native American tribes that have requested notification of Project pursuant to AB 52. The following tribes were notified of the proposed Project:

- Agua Caliente Band of Cahuilla Indians
- Morongo Band of Mission Indians
- Pechanga Band of Luiseno Indians
- Torres Martinez Desert Cahuilla Indians
- San Manuel Band of Mission Indians
- Soboba Band of Luiseno Indians

A Sacred Lands File search with the Native American Heritage Commission (NAHC) has been initiated by BCR Consulting. The Sacred Lands file search revealed that Native American resource(s) are located in the area. The results did not indicate the nature or location of the resource(s) and recommended contacting the Pechanga Band of Luiseno Indians (Pechanga) for more information. The NAHC also provided a list of other potentially concerned tribes and individuals to be contacted regarding the current Project. Although a Project and California Environmental Quality Act (CEQA) document has not been proposed, the Western Municipal Water District (WMWD) initiated Assembly Bill 52 Native American Consultation to engage Tribes early in the planning process.

To that end WMWD also hosted a conference call for the Murrieta Water Master Plan Project on February 3, 2021 with representatives of Pechanga, Kimley-Horn, and BCR Consulting. During the conference call, WMWD and Kimley Horn representatives described the goals of the proposed Master Plan. Pechanga representatives requested ongoing consultation and indicated that the area had high potential for cultural and traditional resources, with two or three Traditional Cultural Properties that contained human remains in the area. Pechanga representatives also indicated that proximity to local water sources heightened significance of the area, and they described potential for historic sites to contain prehistoric resources that have not been previously identified. They also expressed interest in developing a Memorandum of Understanding to help define appropriate cultural resource protocols for any proposed Project. Finally, Pechanga representatives asked that they be allowed to contribute ethnographic information for any cultural resource documents.

The Pechanga tribe provided requested clarifications to the tribal cultural resources discussion, at which point AB52 consultation with the tribe was concluded, on December 16, 2021.

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

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

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

As described in Section 3.5 Cultural Resources, Threshold (b), seven known cultural resources have been previously identified within the Project site. The Project area is composed of undeveloped/vacant parcels and developed areas, both of which are typically restricted to existing paved streets within the associated right-of-way. The developed areas are typically industrial, residential, or commercial in land use.

As discussed in Section 3.5 Cultural Resources, Threshold (b), no archaeological resources were identified within the subject alignments during the survey. However, there are at least seven archaeological sites within or adjacent to the subject alignments, and many more in the vicinity. Therefore, when a Project is proposed, a full cultural resource assessment, including review of the results presented in this report, a records search summary, intensive pedestrian inventory of portions of the subject alignments that have not been surveyed, continuing Native American Consultation (as required by the lead agency), and completion of a technical report will be necessary pursuant to CEQA and/or Section 106 of the National Historic Preservation Act (NHPA) as appropriate. If archaeological testing is needed, it will be determined on a project-by-project basis through consultation with the consulting Tribes. MM-CUL-1 would be implemented during construction in the event of an inadvertent discovery of human remains. MM TCR-1 would be implemented during construction in the event of an inadvertent discovery of archaeological resources to allow for assessment and evaluation of the resources. As such, impacts to tribal cultural resources (TCRs) eligible for listing in the CRHR would be less than significant with mitigation incorporated.

MM TCR-1 If, during grading or excavation, any prehistoric archaeological or historic archaeological or architectural remains over 50 years old are unearthed, construction activities in the immediate area should cease until a qualified archaeologist is brought in to assess and evaluate the significance of the resources. Recommendations as to alternative mitigation measures would then be made following consultation with the State Historic Preservation Office (SHPO) and all consulting tribes. In order to mitigate adverse effects on tribal cultural resources determined to be significant, measures would be developed and implemented, i.e., preservation in-place data recovery (including reports), reclamation, relocation, designation as environmentally sensitive areas, and other physical and administrative measures.

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?

No known TCRs have been identified in the Project site through previous archeological investigations or in consultation with affiliated tribes. The pedestrian field survey and the archaeological records search have indicated that there are at least seven archaeological sites within or adjacent to the subject alignments, and many more in the vicinity. The NAHC has identified positive results during the Sacred Lands File search. Pechanga representatives have emphasized sensitivity for prehistoric and historic resources and have identified Traditional Cultural Properties in the area. As noted above, AB 52 consultation was concluded with the Pechanga representatives on December 16, 2021. Due to the likelihood to uncover unknown or undocumented remains that could be determined to be Native American burials for TCRs, MM-CUL-1 would be implemented to ensure inadvertent discoveries are handled properly. As such, impacts to TCRs would be less than significant with mitigation incorporated.

3.19 Utilities and Service Systems

Wastewater

The City of Murrieta is supported by both public and private facilities for wastewater treatment. Developments located outside the public sewer system use on-site septic systems. Septic systems are regulated by the County of Riverside Department of Environmental Health. Wastewater collection for the City and Sphere of Influence areas is provided by the same four water districts that provide potable water: Western Municipal Water District (WMWD), Eastern Municipal Water District (EMWD), Rancho California Water District (RCWD), and Elsinore Valley Municipal Water District (EVMWD). The Santa Rosa Regional Resources Authority (SRRRA) and EMWD are responsible for providing wastewater treatment within the City. Wastewater flows from the WMWD service area flow to the SRRRA treatment plant and EMWD. Wastewater flows from the other districts discharge into RCWD and EMWD interceptors for treatment (MGP, 6-2).

Water

The water supply in Murrieta comes from local sources of groundwater and surface water, imported water from the Metropolitan Water District's Colorado River Aqueduct and the State Water Project, recycled water reclamation facilities, and water transfers and exchanges. Water to the City is provided by WMWD, EMWD, RCWD, and EVMWD. Each water district maintains multiple pressure zones in the City with pump stations and reservoirs.

Solid Waste

Solid waste collection and disposal in the City of Murrieta is conducted by Waste Management of the Inland Empire, a division of Waste Management Inc. Landfills that could receive solid waste from the Project site include the El Sobrante Landfill and the Badlands Sanitary Landfill.

	Potentially Significant Impact	Less-Than-Significant Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – Would the Project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider, which serves or may serve the Project that it has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒

	Potentially Significant Impact	Less-Than-Significant Impact With 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 management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

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

The proposed Project would involve sewer and water supply infrastructure improvements throughout the sewer and water supply network. The proposed Project would improve sewer capacity and water supply for existing and planned land uses within the area surrounding the Project site. The proposed water mains and pipelines, as shown in Figures 2 through 5, would be designed and constructed in accordance with applicable regulations and located in place of the old pipelines. Because the new pipelines would replace old pipelines in the same exact location, the implementation of the Project is not anticipated to require the relocation, modification, or disruption of other utilities. Therefore, impacts would be less than significant.

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

The proposed Project would not require substantial water supply during construction. Water needed for the proposed Project would be minimal and may include water used for dust control during construction. Existing municipal water supplies would be sufficient to accommodate the minor temporary and short-term water needs for the proposed Project. Therefore, impacts would be less than significant.

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

The proposed Project would include installation of sewer gravity mains and new pipelines to support existing and proposed land uses in the area within the Project site. The proposed Project would not require water or create wastewater. As such, no impact would occur.

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

Construction of the proposed Project would generate solid waste as result of pipe installation activities which would replace old pipelines. A majority of exported soil and construction and demolition waste would be hauled to and disposed of at El Sobrante Landfill in accordance with their acceptance criteria. El Sobrante would have adequate capacity to accept the quantities of waste generated by the proposed Project, as there is 3,834,470 tons of remaining capacity. The Badlands Sanitary Landfill in Moreno Valley may also be utilized in accordance with their acceptance criteria. Badlands Landfill would have adequate capacity to accept the quantities of waste generated by the proposed Project, as there is 15,748,799 tons of remaining capacity (CalRecycle, 2020). No impact would occur.

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

Construction and demolition debris would be disposed of in accordance with the waste disposal requirements of El Sobrante Landfill. These requirements include sufficient sampling of appropriate contaminants of potential concern and approval of acceptance from the landfill. No long-term solid waste generation would be expected after proposed construction. No impact would occur.

3.20 Wildfire

CAL FIRE classifies land in California based on fire hazard severity. An area that is not located within an SRA is designated as either an LRA or FRA for fire protection. Nearly the entire Project site is classified as Non-VHFHSZ. However, the far southern portions of the Project site are more prone to fire hazards, and as a result, is designated as LRA VHFHSZ. (CAL FIRE 2009a, 2009b, 2009c).

	Potentially Significant Impact	Less-Than-Significant Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XX. WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

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

The Project is located in an area with many arterial roads that connect to other roadways, such as I-15, which would provide regional access and evacuation to and from the Project site. Construction would be short-term and would adhere to a construction management plan that would not cause construction activity to impede emergency response access.

The Project would also adhere to the City of Murrieta Emergency Operations Plan (EOP) that identifies evacuation routes, emergency facilities, and City personnel and equipment available to effectively deal with emergency situations. Buildout of the proposed Project would not require revisions to the adopted Emergency Operations Plan.

There is one fire station located within the Project area, located at the Murrieta Fire Department Administration at 41825 Juniper St, Murrieta, CA 92562. Additionally, the Project would be subject to the City's *Local Hazard Mitigation Plan* (2017) identifies mitigation goals, objectives, and Projects to reduce

wildfire hazards. Since the Project would not impair an adopted emergency response plan or evacuation plan, impacts would be less than significant.

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

Because of the nature of construction and operation of sewer lines and pipelines, the Project is not anticipated to exacerbate wildfire risks. With adherence to standard City General Plan policies and Municipal Code regulations, compliance with the City's LHMP, and fire code standards and the California Fire Code, impacts would be less than significant.

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

Because of the nature of the proposed Project, the Project will not utilize or require the installation of any additional infrastructure not already in existence. The Project is not anticipated to exacerbate fire risk and is not anticipated to result in ongoing impacts to the environment. Furthermore, the Murrieta Fire Department will review all plans for adequate fire suppression (California Fire Code Chapter 9), fire access (California Fire Code Chapter 5), and emergency evacuation (California Fire Code Chapter 4) as part of the City's review process to ensure compliance with the California Fire Code, as adopted by the City of Murrieta. As a result, impacts would be less than significant.

d) Would 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?

The Project is not anticipated to exacerbate fire risks, including downslope or downstream flooding, landslides, and is not anticipated to result in runoff, post-fire slope instability, or drainage changes. All Project related construction activities would entail opening trenches limited to approximately 500 LF to replace existing water and sewer pipelines. The Project areas are not located in hillsides and as such no risk for landslides, downslope or downstream flooding would occur. Additionally, according to CAL FIRE, the Project area is generally located in a Non-VHFHSZ. As such, implementation of the proposed Project would not expose people or structures the previously noted risks. As a result, impacts would be less than significant.

3.21 Mandatory Findings of Significance

The Environmental Setting included for Section 3.1 through 3.20 is also applicable to this section.

	Potentially Significant Impact	Less-Than-Significant Impact With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number, or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?	☐	☒	☐	☐
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

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

As described in Section 3.4, Biological Resources Threshold (a), the proposed Project has potential for impacts to special-status plants and wildlife. Potential impacts to nesting birds within mature trees, shrubs, and bare ground near the Project alignment would be avoided through implementation of MM-BIO-1. The potential impact of future Projects would necessitate the need for pre-construction surveys for special-status species, as according to MM-BIO-2.

The proposed Project's potential to degrade, threaten, or otherwise eliminate important historical or archaeological resources is analyzed in Section 3.5, Cultural Resources, and Section 3.18, Tribal Cultural Resources. The records search included a review of all recorded historic and prehistoric archaeological sites, as well as recorded built environment resources within 0.5 miles of the subject alignments. The research also reviewed known cultural resource reports completed within the 0.5-mile radius. This research

has revealed that 155 previous cultural resources studies have resulted in 106 cultural resources identified within 0.5-miles of the subject alignments. Of the resources identified, seven have been plotted within or adjacent to the subject alignments. During tribal outreach by the District, the Pechanga tribe requested tribal consultation pursuant to AB 52 because the Project site is within an area with an increased likelihood for presence of TCRs. Nonetheless, potential impacts to unknown subsurface archaeological resources and TCRs would be minimized through implementation of MM-CUL-1. As such, impacts to cultural resources and TCRs would be less than significant with mitigation incorporated.

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

As analyzed throughout Section 3, the proposed Project would result in less-than-significant impacts or no impact to aesthetics, agriculture and forestry resources, air quality, energy, GHG emissions, hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, utilities and service systems, and wildfire. Mitigation would be required to reduce potentially significant impacts related to biological resources, cultural resources, geology, and soils (including paleontological resources), and TCRs. As such, cumulatively considerable impacts associated with the proposed Project would be less than significant with mitigation incorporated.

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

Direct and indirect environmental effects on human beings were analyzed in the following sections: aesthetics, air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, population and housing, and transportation and traffic. As found in discussion of each relevant section, all potential impacts to human beings would be less than significant or result in no impact. The proposed Project would comply with all applicable federal, state, and local policies and regulations. For example, the District would require its contractor to implement measures and methods that would ensure compliance with the average sound level limits established by each jurisdiction's Noise Ordinances, as applicable. As such, the proposed Project would not result in environmental effects that will cause substantial adverse effects on human beings and impacts would be less than significant.

4 References and Preparers

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4.2 List of Preparers

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Appendix A

Air Quality, Greenhouse Gases, and Noise Modeling Output

Murrieta CIP

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	166.20	1000sqft	3.82	166,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	510.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE - Adjusted per the SCE 2018 Corporate Responsibility and Sustainability Report. The report provides intensity factor of CO2e, the CO2 intensity factor is calculated as 513-25 X 0.029-298 X 0.00617=510.44 to avoid double counting.

Land Use - 16,620 total feet of pipe X 10 feet wide = 166,200 suare ft

Construction Phase - schedule based on estimate, construction will occur sequentaily, to be conservative construction phases have been modeled concurrently

Off-road Equipment - demo, grading, and paving phases done in sequence. modeled in CalEEMod concurrently. to be conservative equipment usage was reduce to a max of 3 hours per day per phase.

Off-road Equipment - demo, grading, and paving phases done in sequence. modeled in CalEEMod concurrently. to be conservative equipment usage was reduce to a max of 3 hours per day per phase.

Off-road Equipment - demo, grading, and paving phases done in sequence. modeled in CalEEMod concurrently. to be conservative equipment usage was reduce to a max of 3 hours per day per phase.

Trips and VMT -

Grading - 389.36 cubic yards of soil displaced by pipe

Vehicle Trips - Construction Only - no operation emissions

Vehicle Emission Factors - Construction Only - no operation emissions

Vehicle Emission Factors - Construction Only - no operation emissions

Vehicle Emission Factors - Construction Only - no operation emissions

Road Dust - Construction Only - no operation emissions

Energy Use -

Construction Off-road Equipment Mitigation - Rule 403

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	400.00
tblConstructionPhase	NumDays	8.00	380.00
tblConstructionPhase	NumDays	18.00	372.00
tblGrading	MaterialExported	0.00	389.36
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	510.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.0863	29.7910	22.4747	0.0437	3.3508	1.3972	4.7480	1.4477	1.2915	2.7392	0.0000	4,233.9688	4,233.9688	1.1398	0.0000	4,262.4647
2022	2.6708	25.1878	21.6916	0.0436	3.3527	1.1467	4.4994	1.4482	1.0603	2.5085	0.0000	4,213.9752	4,213.9752	1.1376	0.0000	4,242.4152
Maximum	**3.0863**	**29.7910**	**22.4747**	**0.0437**	**3.3527**	**1.3972**	**4.7480**	**1.4482**	**1.2915**	**2.7392**	**0.0000**	**4,233.9688**	**4,233.9688**	**1.1398**	**0.0000**	**4,262.4647**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.0863	29.7910	22.4747	0.0437	1.7731	1.3972	3.1702	0.7227	1.2915	2.0141	0.0000	4,233.9688	4,233.9688	1.1398	0.0000	4,262.4647
2022	2.6708	25.1878	21.6916	0.0436	1.7748	1.1467	2.9215	0.7231	1.0603	1.7834	0.0000	4,213.9752	4,213.9752	1.1376	0.0000	4,242.4152
Maximum	**3.0863**	**29.7910**	**22.4747**	**0.0437**	**1.7748**	**1.3972**	**3.1702**	**0.7231**	**1.2915**	**2.0141**	**0.0000**	**4,233.9688**	**4,233.9688**	**1.1398**	**0.0000**	**4,262.4647**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.07**	**0.00**	**34.12**	**50.08**	**0.00**	**27.63**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0731	1.6000e-004	0.0170	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0364	0.0364	1.0000e-004		0.0388
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0731**	**1.6000e-004**	**0.0170**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**6.0000e-005**		**0.0364**	**0.0364**	**1.0000e-004**	**0.0000**	**0.0388**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0731	1.6000e-004	0.0170	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0364	0.0364	1.0000e-004		0.0388
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0731**	**1.6000e-004**	**0.0170**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**6.0000e-005**		**0.0364**	**0.0364**	**1.0000e-004**	**0.0000**	**0.0388**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	7/15/2022	5	400	
2	Grading	Grading	1/30/2021	7/15/2022	5	380	
3	Paving	Paving	2/11/2021	7/15/2022	5	372	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 190

Acres of Paving: 3.82

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	3.00	81	0.73
Demolition	Excavators	3	3.00	158	0.38
Demolition	Rubber Tired Dozers	2	3.00	247	0.40
Grading	Excavators	1	3.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	3.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	3.00	97	0.37
Paving	Cement and Mortar Mixers	2	3.00	9	0.56
Paving	Pavers	1	3.00	130	0.42
Paving	Paving Equipment	2	3.00	132	0.36
Paving	Rollers	2	3.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	3.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	49.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1869	11.7903	8.0869	0.0146		0.5818	0.5818		0.5404	0.5404		1,405.4794	1,405.4794	0.3956		1,415.3690
Total	**1.1869**	**11.7903**	**8.0869**	**0.0146**		**0.5818**	**0.5818**		**0.5404**	**0.5404**		**1,405.4794**	**1,405.4794**	**0.3956**		**1,415.3690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0711**	**0.0405**	**0.5546**	**1.6000e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**159.7126**	**159.7126**	**3.8100e-003**		**159.8078**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1869	11.7903	8.0869	0.0146		0.5818	0.5818		0.5404	0.5404	0.0000	1,405.4794	1,405.4794	0.3956		1,415.3690
Total	**1.1869**	**11.7903**	**8.0869**	**0.0146**		**0.5818**	**0.5818**		**0.5404**	**0.5404**	**0.0000**	**1,405.4794**	**1,405.4794**	**0.3956**		**1,415.3690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1546	9.9000e-004	0.1555	0.0413	9.1000e-004	0.0422		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0711**	**0.0405**	**0.5546**	**1.6000e-003**	**0.1546**	**9.9000e-004**	**0.1555**	**0.0413**	**9.1000e-004**	**0.0422**		**159.7126**	**159.7126**	**3.8100e-003**		**159.8078**

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9897	9.6448	7.7228	0.0146		0.4660	0.4660		0.4332	0.4332		1,405.0429	1,405.0429	0.3947		1,414.9095
Total	**0.9897**	**9.6448**	**7.7228**	**0.0146**		**0.4660**	**0.4660**		**0.4332**	**0.4332**		**1,405.0429**	**1,405.0429**	**0.3947**		**1,414.9095**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0365	0.5115	1.5400e-003	0.1677	9.6000e-004	0.1686	0.0445	8.9000e-004	0.0454		153.8769	153.8769	3.4200e-003		153.9624
Total	**0.0665**	**0.0365**	**0.5115**	**1.5400e-003**	**0.1677**	**9.6000e-004**	**0.1686**	**0.0445**	**8.9000e-004**	**0.0454**		**153.8769**	**153.8769**	**3.4200e-003**		**153.9624**

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9897	9.6448	7.7228	0.0146		0.4660	0.4660		0.4332	0.4332	0.0000	1,405.0429	1,405.0429	0.3947		1,414.9095
Total	**0.9897**	**9.6448**	**7.7228**	**0.0146**		**0.4660**	**0.4660**		**0.4332**	**0.4332**	**0.0000**	**1,405.0429**	**1,405.0429**	**0.3947**		**1,414.9095**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0365	0.5115	1.5400e-003	0.1546	9.6000e-004	0.1555	0.0413	8.9000e-004	0.0421		153.8769	153.8769	3.4200e-003		153.9624
Total	**0.0665**	**0.0365**	**0.5115**	**1.5400e-003**	**0.1546**	**9.6000e-004**	**0.1555**	**0.0413**	**8.9000e-004**	**0.0421**		**153.8769**	**153.8769**	**3.4200e-003**		**153.9624**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7887	0.0000	2.7887	1.2986	0.0000	1.2986			0.0000			0.0000
Off-Road	1.1420	12.9791	7.0511	0.0153		0.5523	0.5523		0.5081	0.5081		1,478.0258	1,478.0258	0.4780		1,489.9764
Total	**1.1420**	**12.9791**	**7.0511**	**0.0153**	**2.7887**	**0.5523**	**3.3409**	**1.2986**	**0.5081**	**1.8067**		**1,478.0258**	**1,478.0258**	**0.4780**		**1,489.9764**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.3000e-004	0.0280	3.6900e-003	1.0000e-004	3.2500e-003	9.0000e-005	3.3400e-003	8.6000e-004	8.0000e-005	9.4000e-004		10.3072	10.3072	6.0000e-004		10.3222
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0717**	**0.0685**	**0.5583**	**1.7000e-003**	**0.1709**	**1.0800e-003**	**0.1720**	**0.0453**	**9.9000e-004**	**0.0463**		**170.0199**	**170.0199**	**4.4100e-003**		**170.1300**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2549	0.0000	1.2549	0.5844	0.0000	0.5844			0.0000			0.0000
Off-Road	1.1420	12.9791	7.0511	0.0153		0.5523	0.5523		0.5081	0.5081	0.0000	1,478.0258	1,478.0258	0.4780		1,489.9764
Total	**1.1420**	**12.9791**	**7.0511**	**0.0153**	**1.2549**	**0.5523**	**1.8072**	**0.5844**	**0.5081**	**1.0925**	**0.0000**	**1,478.0258**	**1,478.0258**	**0.4780**		**1,489.9764**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.3000e-004	0.0280	3.6900e-003	1.0000e-004	3.0100e-003	9.0000e-005	3.0900e-003	8.0000e-004	8.0000e-005	8.8000e-004		10.3072	10.3072	6.0000e-004		10.3222
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1546	9.9000e-004	0.1555	0.0413	9.1000e-004	0.0422		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0717**	**0.0685**	**0.5583**	**1.7000e-003**	**0.1576**	**1.0800e-003**	**0.1586**	**0.0421**	**9.9000e-004**	**0.0430**		**170.0199**	**170.0199**	**4.4100e-003**		**170.1300**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7887	0.0000	2.7887	1.2986	0.0000	1.2986			0.0000			0.0000
Off-Road	0.9901	11.1067	6.8034	0.0153		0.4573	0.4573		0.4207	0.4207		1,477.8167	1,477.8167	0.4780		1,489.7656
Total	**0.9901**	**11.1067**	**6.8034**	**0.0153**	**2.7887**	**0.4573**	**3.2460**	**1.2986**	**0.4207**	**1.7193**		**1,477.8167**	**1,477.8167**	**0.4780**		**1,489.7656**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.9000e-004	0.0255	3.5800e-003	1.0000e-004	5.1800e-003	7.0000e-005	5.2500e-003	1.3400e-003	7.0000e-005	1.4000e-003		10.1898	10.1898	5.7000e-004		10.2042
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0365	0.5115	1.5400e-003	0.1677	9.6000e-004	0.1686	0.0445	8.9000e-004	0.0454		153.8769	153.8769	3.4200e-003		153.9624
Total	**0.0671**	**0.0620**	**0.5151**	**1.6400e-003**	**0.1728**	**1.0300e-003**	**0.1739**	**0.0458**	**9.6000e-004**	**0.0468**		**164.0667**	**164.0667**	**3.9900e-003**		**164.1666**

3.3 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2549	0.0000	1.2549	0.5844	0.0000	0.5844			0.0000			0.0000
Off-Road	0.9901	11.1067	6.8034	0.0153		0.4573	0.4573		0.4207	0.4207	0.0000	1,477.8167	1,477.8167	0.4780		1,489.7656
Total	**0.9901**	**11.1067**	**6.8034**	**0.0153**	**1.2549**	**0.4573**	**1.7122**	**0.5844**	**0.4207**	**1.0051**	**0.0000**	**1,477.8167**	**1,477.8167**	**0.4780**		**1,489.7656**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.9000e-004	0.0255	3.5800e-003	1.0000e-004	4.7600e-003	7.0000e-005	4.8300e-003	1.2300e-003	7.0000e-005	1.3000e-003		10.1898	10.1898	5.7000e-004		10.2042
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0365	0.5115	1.5400e-003	0.1546	9.6000e-004	0.1555	0.0413	8.9000e-004	0.0421		153.8769	153.8769	3.4200e-003		153.9624
Total	**0.0671**	**0.0620**	**0.5151**	**1.6400e-003**	**0.1593**	**1.0300e-003**	**0.1603**	**0.0425**	**9.6000e-004**	**0.0434**		**164.0667**	**164.0667**	**3.9900e-003**		**164.1666**

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4928	4.8586	5.4845	8.4800e-003		0.2598	0.2598		0.2398	0.2398		807.7810	807.7810	0.2529		814.1043
Paving	0.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5197**	**4.8586**	**5.4845**	**8.4800e-003**		**0.2598**	**0.2598**		**0.2398**	**0.2398**		**807.7810**	**807.7810**	**0.2529**		**814.1043**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0948	0.0540	0.7394	2.1400e-003	0.2236	1.3200e-003	0.2249	0.0593	1.2100e-003	0.0605		212.9502	212.9502	5.0800e-003		213.0771
Total	**0.0948**	**0.0540**	**0.7394**	**2.1400e-003**	**0.2236**	**1.3200e-003**	**0.2249**	**0.0593**	**1.2100e-003**	**0.0605**		**212.9502**	**212.9502**	**5.0800e-003**		**213.0771**

3.4 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4928	4.8586	5.4845	8.4800e-003		0.2598	0.2598		0.2398	0.2398	0.0000	807.7810	807.7810	0.2529		814.1043
Paving	0.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5197**	**4.8586**	**5.4845**	**8.4800e-003**		**0.2598**	**0.2598**		**0.2398**	**0.2398**	**0.0000**	**807.7810**	**807.7810**	**0.2529**		**814.1043**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0948	0.0540	0.7394	2.1400e-003	0.2061	1.3200e-003	0.2074	0.0550	1.2100e-003	0.0562		212.9502	212.9502	5.0800e-003		213.0771
Total	**0.0948**	**0.0540**	**0.7394**	**2.1400e-003**	**0.2061**	**1.3200e-003**	**0.2074**	**0.0550**	**1.2100e-003**	**0.0562**		**212.9502**	**212.9502**	**5.0800e-003**		**213.0771**

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4418	4.2893	5.4568	8.4900e-003		0.2201	0.2201		0.2034	0.2034		808.0027	808.0027	0.2530		814.3278
Paving	0.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4687**	**4.2893**	**5.4568**	**8.4900e-003**		**0.2201**	**0.2201**		**0.2034**	**0.2034**		**808.0027**	**808.0027**	**0.2530**		**814.3278**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0887	0.0486	0.6820	2.0600e-003	0.2236	1.2800e-003	0.2248	0.0593	1.1800e-003	0.0605		205.1692	205.1692	4.5600e-003		205.2832
Total	**0.0887**	**0.0486**	**0.6820**	**2.0600e-003**	**0.2236**	**1.2800e-003**	**0.2248**	**0.0593**	**1.1800e-003**	**0.0605**		**205.1692**	**205.1692**	**4.5600e-003**		**205.2832**

3.4 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4418	4.2893	5.4568	8.4900e-003		0.2201	0.2201		0.2034	0.2034	0.0000	808.0027	808.0027	0.2530		814.3278
Paving	0.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4687**	**4.2893**	**5.4568**	**8.4900e-003**		**0.2201**	**0.2201**		**0.2034**	**0.2034**	**0.0000**	**808.0027**	**808.0027**	**0.2530**		**814.3278**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0887	0.0486	0.6820	2.0600e-003	0.2061	1.2800e-003	0.2073	0.0550	1.1800e-003	0.0562		205.1692	205.1692	4.5600e-003		205.2832
Total	**0.0887**	**0.0486**	**0.6820**	**2.0600e-003**	**0.2061**	**1.2800e-003**	**0.2073**	**0.0550**	**1.1800e-003**	**0.0562**		**205.1692**	**205.1692**	**4.5600e-003**		**205.2832**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0731	1.6000e-004	0.0170	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0364	0.0364	1.0000e-004		0.0388
Unmitigated	0.0731	1.6000e-004	0.0170	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0364	0.0364	1.0000e-004		0.0388

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0589					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.5800e-003	1.6000e-004	0.0170	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0364	0.0364	1.0000e-004		0.0388
Total	**0.0731**	**1.6000e-004**	**0.0170**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0364**	**0.0364**	**1.0000e-004**		**0.0388**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0589					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.5800e-003	1.6000e-004	0.0170	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0364	0.0364	1.0000e-004		0.0388
Total	**0.0731**	**1.6000e-004**	**0.0170**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0364**	**0.0364**	**1.0000e-004**		**0.0388**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Murrieta CIP

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	166.20	1000sqft	3.82	166,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	510.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE - Adjusted per the SCE 2018 Corporate Responsibility and Sustainability Report. The report provides intensity factor of CO2e, the CO2 intensity factor is calculated as 513-25 X 0.029-298 X 0.00617=510.44 to avoid double counting.

Land Use - 16,620 total feet of pipe X 10 feet wide = 166,200 suare ft

Construction Phase - schedule based on estimate, construction will occur sequentaily, to be conservative construction phases have been modeled concurrently

Off-road Equipment - demo, grading, and paving phases done in sequence. modeled in CalEEMod concurrently. to be conservative equipment usage was reduce to a max of 3 hours per day per phase.

Off-road Equipment - demo, grading, and paving phases done in sequence. modeled in CalEEMod concurrently. to be conservative equipment usage was reduce to a max of 3 hours per day per phase.

Off-road Equipment - demo, grading, and paving phases done in sequence. modeled in CalEEMod concurrently. to be conservative equipment usage was reduce to a max of 3 hours per day per phase.

Trips and VMT -

Grading - 389.36 cubic yards of soil displaced by pipe

Vehicle Trips - Construction Only - no operation emissions

Vehicle Emission Factors - Construction Only - no operation emissions

Vehicle Emission Factors - Construction Only - no operation emissions

Vehicle Emission Factors - Construction Only - no operation emissions

Road Dust - Construction Only - no operation emissions

Energy Use -

Construction Off-road Equipment Mitigation - Rule 403

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	400.00
tblConstructionPhase	NumDays	8.00	380.00
tblConstructionPhase	NumDays	18.00	372.00
tblGrading	MaterialExported	0.00	389.36
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	510.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.0819	29.7958	22.1189	0.0432	3.3508	1.3972	4.7480	1.4477	1.2915	2.7392	0.0000	4,178.9312	4,178.9312	1.1382	0.0000	4,207.3870
2022	2.6674	25.1920	21.3613	0.0430	3.3527	1.1467	4.4994	1.4482	1.0603	2.5085	0.0000	4,160.9635	4,160.9635	1.1362	0.0000	4,189.3679
Maximum	**3.0819**	**29.7958**	**22.1189**	**0.0432**	**3.3527**	**1.3972**	**4.7480**	**1.4482**	**1.2915**	**2.7392**	**0.0000**	**4,178.9312**	**4,178.9312**	**1.1382**	**0.0000**	**4,207.3870**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.0819	29.7958	22.1189	0.0432	1.7731	1.3972	3.1702	0.7227	1.2915	2.0141	0.0000	4,178.9312	4,178.9312	1.1382	0.0000	4,207.3870
2022	2.6674	25.1920	21.3613	0.0430	1.7748	1.1467	2.9215	0.7231	1.0603	1.7834	0.0000	4,160.9635	4,160.9635	1.1362	0.0000	4,189.3679
Maximum	**3.0819**	**29.7958**	**22.1189**	**0.0432**	**1.7748**	**1.3972**	**3.1702**	**0.7231**	**1.2915**	**2.0141**	**0.0000**	**4,178.9312**	**4,178.9312**	**1.1382**	**0.0000**	**4,207.3870**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.07**	**0.00**	**34.12**	**50.08**	**0.00**	**27.63**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0731	1.6000e-004	0.0170	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0364	0.0364	1.0000e-004		0.0388
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0731**	**1.6000e-004**	**0.0170**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**6.0000e-005**		**0.0364**	**0.0364**	**1.0000e-004**	**0.0000**	**0.0388**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0731	1.6000e-004	0.0170	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0364	0.0364	1.0000e-004		0.0388
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0731**	**1.6000e-004**	**0.0170**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**6.0000e-005**		**0.0364**	**0.0364**	**1.0000e-004**	**0.0000**	**0.0388**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	7/15/2022	5	400	
2	Grading	Grading	1/30/2021	7/15/2022	5	380	
3	Paving	Paving	2/11/2021	7/15/2022	5	372	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 190

Acres of Paving: 3.82

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	3.00	81	0.73
Demolition	Excavators	3	3.00	158	0.38
Demolition	Rubber Tired Dozers	2	3.00	247	0.40
Grading	Excavators	1	3.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	3.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	3.00	97	0.37
Paving	Cement and Mortar Mixers	2	3.00	9	0.56
Paving	Pavers	1	3.00	130	0.42
Paving	Paving Equipment	2	3.00	132	0.36
Paving	Rollers	2	3.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	3.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	49.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1869	11.7903	8.0869	0.0146		0.5818	0.5818		0.5404	0.5404		1,405.4794	1,405.4794	0.3956		1,415.3690
Total	**1.1869**	**11.7903**	**8.0869**	**0.0146**		**0.5818**	**0.5818**		**0.5404**	**0.5404**		**1,405.4794**	**1,405.4794**	**0.3956**		**1,415.3690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0698**	**0.0419**	**0.4476**	**1.4400e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**143.2790**	**143.2790**	**3.3100e-003**		**143.3618**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1869	11.7903	8.0869	0.0146		0.5818	0.5818		0.5404	0.5404	0.0000	1,405.4794	1,405.4794	0.3956		1,415.3690
Total	**1.1869**	**11.7903**	**8.0869**	**0.0146**		**0.5818**	**0.5818**		**0.5404**	**0.5404**	**0.0000**	**1,405.4794**	**1,405.4794**	**0.3956**		**1,415.3690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1546	9.9000e-004	0.1555	0.0413	9.1000e-004	0.0422		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0698**	**0.0419**	**0.4476**	**1.4400e-003**	**0.1546**	**9.9000e-004**	**0.1555**	**0.0413**	**9.1000e-004**	**0.0422**		**143.2790**	**143.2790**	**3.3100e-003**		**143.3618**

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9897	9.6448	7.7228	0.0146		0.4660	0.4660		0.4332	0.4332		1,405.0429	1,405.0429	0.3947		1,414.9095
Total	**0.9897**	**9.6448**	**7.7228**	**0.0146**		**0.4660**	**0.4660**		**0.4332**	**0.4332**		**1,405.0429**	**1,405.0429**	**0.3947**		**1,414.9095**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0655	0.0377	0.4123	1.3800e-003	0.1677	9.6000e-004	0.1686	0.0445	8.9000e-004	0.0454		138.0508	138.0508	2.9800e-003		138.1253
Total	**0.0655**	**0.0377**	**0.4123**	**1.3800e-003**	**0.1677**	**9.6000e-004**	**0.1686**	**0.0445**	**8.9000e-004**	**0.0454**		**138.0508**	**138.0508**	**2.9800e-003**		**138.1253**

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9897	9.6448	7.7228	0.0146		0.4660	0.4660		0.4332	0.4332	0.0000	1,405.0429	1,405.0429	0.3947		1,414.9095
Total	**0.9897**	**9.6448**	**7.7228**	**0.0146**		**0.4660**	**0.4660**		**0.4332**	**0.4332**	**0.0000**	**1,405.0429**	**1,405.0429**	**0.3947**		**1,414.9095**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0655	0.0377	0.4123	1.3800e-003	0.1546	9.6000e-004	0.1555	0.0413	8.9000e-004	0.0421		138.0508	138.0508	2.9800e-003		138.1253
Total	**0.0655**	**0.0377**	**0.4123**	**1.3800e-003**	**0.1546**	**9.6000e-004**	**0.1555**	**0.0413**	**8.9000e-004**	**0.0421**		**138.0508**	**138.0508**	**2.9800e-003**		**138.1253**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7887	0.0000	2.7887	1.2986	0.0000	1.2986			0.0000			0.0000
Off-Road	1.1420	12.9791	7.0511	0.0153		0.5523	0.5523		0.5081	0.5081		1,478.0258	1,478.0258	0.4780		1,489.9764
Total	**1.1420**	**12.9791**	**7.0511**	**0.0153**	**2.7887**	**0.5523**	**3.3409**	**1.2986**	**0.5081**	**1.8067**		**1,478.0258**	**1,478.0258**	**0.4780**		**1,489.9764**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.6000e-004	0.0282	4.3000e-003	9.0000e-005	3.2500e-003	9.0000e-005	3.3400e-003	8.6000e-004	8.0000e-005	9.5000e-004		10.0483	10.0483	6.5000e-004		10.0646
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0705**	**0.0701**	**0.4519**	**1.5300e-003**	**0.1709**	**1.0800e-003**	**0.1720**	**0.0453**	**9.9000e-004**	**0.0463**		**153.3273**	**153.3273**	**3.9600e-003**		**153.4264**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2549	0.0000	1.2549	0.5844	0.0000	0.5844			0.0000			0.0000
Off-Road	1.1420	12.9791	7.0511	0.0153		0.5523	0.5523		0.5081	0.5081	0.0000	1,478.0258	1,478.0258	0.4780		1,489.9764
Total	**1.1420**	**12.9791**	**7.0511**	**0.0153**	**1.2549**	**0.5523**	**1.8072**	**0.5844**	**0.5081**	**1.0925**	**0.0000**	**1,478.0258**	**1,478.0258**	**0.4780**		**1,489.9764**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.6000e-004	0.0282	4.3000e-003	9.0000e-005	3.0100e-003	9.0000e-005	3.0900e-003	8.0000e-004	8.0000e-005	8.9000e-004		10.0483	10.0483	6.5000e-004		10.0646
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1546	9.9000e-004	0.1555	0.0413	9.1000e-004	0.0422		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0705**	**0.0701**	**0.4519**	**1.5300e-003**	**0.1576**	**1.0800e-003**	**0.1586**	**0.0421**	**9.9000e-004**	**0.0431**		**153.3273**	**153.3273**	**3.9600e-003**		**153.4264**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7887	0.0000	2.7887	1.2986	0.0000	1.2986			0.0000			0.0000
Off-Road	0.9901	11.1067	6.8034	0.0153		0.4573	0.4573		0.4207	0.4207		1,477.8167	1,477.8167	0.4780		1,489.7656
Total	**0.9901**	**11.1067**	**6.8034**	**0.0153**	**2.7887**	**0.4573**	**3.2460**	**1.2986**	**0.4207**	**1.7193**		**1,477.8167**	**1,477.8167**	**0.4780**		**1,489.7656**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.2000e-004	0.0257	4.1600e-003	9.0000e-005	5.1800e-003	7.0000e-005	5.2500e-003	1.3400e-003	7.0000e-005	1.4000e-003		9.9316	9.9316	6.3000e-004		9.9473
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0655	0.0377	0.4123	1.3800e-003	0.1677	9.6000e-004	0.1686	0.0445	8.9000e-004	0.0454		138.0508	138.0508	2.9800e-003		138.1253
Total	**0.0661**	**0.0633**	**0.4164**	**1.4700e-003**	**0.1728**	**1.0300e-003**	**0.1739**	**0.0458**	**9.6000e-004**	**0.0468**		**147.9825**	**147.9825**	**3.6100e-003**		**148.0726**

3.3 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2549	0.0000	1.2549	0.5844	0.0000	0.5844			0.0000			0.0000
Off-Road	0.9901	11.1067	6.8034	0.0153		0.4573	0.4573		0.4207	0.4207	0.0000	1,477.8167	1,477.8167	0.4780		1,489.7656
Total	**0.9901**	**11.1067**	**6.8034**	**0.0153**	**1.2549**	**0.4573**	**1.7122**	**0.5844**	**0.4207**	**1.0051**	**0.0000**	**1,477.8167**	**1,477.8167**	**0.4780**		**1,489.7656**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.2000e-004	0.0257	4.1600e-003	9.0000e-005	4.7600e-003	7.0000e-005	4.8300e-003	1.2300e-003	7.0000e-005	1.3000e-003		9.9316	9.9316	6.3000e-004		9.9473
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0655	0.0377	0.4123	1.3800e-003	0.1546	9.6000e-004	0.1555	0.0413	8.9000e-004	0.0421		138.0508	138.0508	2.9800e-003		138.1253
Total	**0.0661**	**0.0633**	**0.4164**	**1.4700e-003**	**0.1593**	**1.0300e-003**	**0.1603**	**0.0425**	**9.6000e-004**	**0.0434**		**147.9825**	**147.9825**	**3.6100e-003**		**148.0726**

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4928	4.8586	5.4845	8.4800e-003		0.2598	0.2598		0.2398	0.2398		807.7810	807.7810	0.2529		814.1043
Paving	0.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5197**	**4.8586**	**5.4845**	**8.4800e-003**		**0.2598**	**0.2598**		**0.2398**	**0.2398**		**807.7810**	**807.7810**	**0.2529**		**814.1043**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0931	0.0559	0.5969	1.9200e-003	0.2236	1.3200e-003	0.2249	0.0593	1.2100e-003	0.0605		191.0387	191.0387	4.4100e-003		191.1491
Total	**0.0931**	**0.0559**	**0.5969**	**1.9200e-003**	**0.2236**	**1.3200e-003**	**0.2249**	**0.0593**	**1.2100e-003**	**0.0605**		**191.0387**	**191.0387**	**4.4100e-003**		**191.1491**

3.4 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4928	4.8586	5.4845	8.4800e-003		0.2598	0.2598		0.2398	0.2398	0.0000	807.7810	807.7810	0.2529		814.1043
Paving	0.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5197**	**4.8586**	**5.4845**	**8.4800e-003**		**0.2598**	**0.2598**		**0.2398**	**0.2398**	**0.0000**	**807.7810**	**807.7810**	**0.2529**		**814.1043**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0931	0.0559	0.5969	1.9200e-003	0.2061	1.3200e-003	0.2074	0.0550	1.2100e-003	0.0562		191.0387	191.0387	4.4100e-003		191.1491
Total	**0.0931**	**0.0559**	**0.5969**	**1.9200e-003**	**0.2061**	**1.3200e-003**	**0.2074**	**0.0550**	**1.2100e-003**	**0.0562**		**191.0387**	**191.0387**	**4.4100e-003**		**191.1491**

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4418	4.2893	5.4568	8.4900e-003		0.2201	0.2201		0.2034	0.2034		808.0027	808.0027	0.2530		814.3278
Paving	0.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4687**	**4.2893**	**5.4568**	**8.4900e-003**		**0.2201**	**0.2201**		**0.2034**	**0.2034**		**808.0027**	**808.0027**	**0.2530**		**814.3278**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0873	0.0503	0.5497	1.8500e-003	0.2236	1.2800e-003	0.2248	0.0593	1.1800e-003	0.0605		184.0678	184.0678	3.9700e-003		184.1670
Total	**0.0873**	**0.0503**	**0.5497**	**1.8500e-003**	**0.2236**	**1.2800e-003**	**0.2248**	**0.0593**	**1.1800e-003**	**0.0605**		**184.0678**	**184.0678**	**3.9700e-003**		**184.1670**

3.4 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4418	4.2893	5.4568	8.4900e-003		0.2201	0.2201		0.2034	0.2034	0.0000	808.0027	808.0027	0.2530		814.3278
Paving	0.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4687**	**4.2893**	**5.4568**	**8.4900e-003**		**0.2201**	**0.2201**		**0.2034**	**0.2034**	**0.0000**	**808.0027**	**808.0027**	**0.2530**		**814.3278**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0873	0.0503	0.5497	1.8500e-003	0.2061	1.2800e-003	0.2073	0.0550	1.1800e-003	0.0562		184.0678	184.0678	3.9700e-003		184.1670
Total	**0.0873**	**0.0503**	**0.5497**	**1.8500e-003**	**0.2061**	**1.2800e-003**	**0.2073**	**0.0550**	**1.1800e-003**	**0.0562**		**184.0678**	**184.0678**	**3.9700e-003**		**184.1670**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0731	1.6000e-004	0.0170	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0364	0.0364	1.0000e-004		0.0388
Unmitigated	0.0731	1.6000e-004	0.0170	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0364	0.0364	1.0000e-004		0.0388

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0589					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.5800e-003	1.6000e-004	0.0170	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0364	0.0364	1.0000e-004		0.0388
Total	**0.0731**	**1.6000e-004**	**0.0170**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0364**	**0.0364**	**1.0000e-004**		**0.0388**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0589					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.5800e-003	1.6000e-004	0.0170	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0364	0.0364	1.0000e-004		0.0388
Total	**0.0731**	**1.6000e-004**	**0.0170**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0364**	**0.0364**	**1.0000e-004**		**0.0388**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Murrieta CIP

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	166.20	1000sqft	3.82	166,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	510.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE - Adjusted per the SCE 2018 Corporate Responsibility and Sustainability Report. The report provides intensity factor of CO2e, the CO2 intensity factor is calculated as 513-25 X 0.029-298 X 0.00617=510.44 to avoid double counting.

Land Use - 16,620 total feet of pipe X 10 feet wide = 166,200 suare ft

Construction Phase - schedule based on estimate, construction will occur sequentaily, to be conservative construction phases have been modeled concurrently

Off-road Equipment - demo, grading, and paving phases done in sequence. modeled in CalEEMod concurrently. to be conservative equipment usage was reduce to a max of 3 hours per day per phase.

Off-road Equipment - demo, grading, and paving phases done in sequence. modeled in CalEEMod concurrently. to be conservative equipment usage was reduce to a max of 3 hours per day per phase.

Off-road Equipment - demo, grading, and paving phases done in sequence. modeled in CalEEMod concurrently. to be conservative equipment usage was reduce to a max of 3 hours per day per phase.

Trips and VMT -

Grading - 389.36 cubic yards of soil displaced by pipe

Vehicle Trips - Construction Only - no operation emissions

Vehicle Emission Factors - Construction Only - no operation emissions

Vehicle Emission Factors - Construction Only - no operation emissions

Vehicle Emission Factors - Construction Only - no operation emissions

Road Dust - Construction Only - no operation emissions

Energy Use -

Construction Off-road Equipment Mitigation - Rule 403

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	400.00
tblConstructionPhase	NumDays	8.00	380.00
tblConstructionPhase	NumDays	18.00	372.00
tblGrading	MaterialExported	0.00	389.36
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	510.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.3777	3.6748	2.7252	5.3200e-003	0.4389	0.1724	0.6113	0.1777	0.1594	0.3371	0.0000	466.7237	466.7237	0.1266	0.0000	469.8895
2022	0.1855	1.7638	1.5006	3.0200e-003	0.2977	0.0803	0.3780	0.1081	0.0742	0.1823	0.0000	264.9952	264.9952	0.0722	0.0000	266.7994
Maximum	**0.3777**	**3.6748**	**2.7252**	**5.3200e-003**	**0.4389**	**0.1724**	**0.6113**	**0.1777**	**0.1594**	**0.3371**	**0.0000**	**466.7237**	**466.7237**	**0.1266**	**0.0000**	**469.8895**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.3777	3.6748	2.7252	5.3200e-003	0.2292	0.1724	0.4016	0.0885	0.1594	0.2479	0.0000	466.7232	466.7232	0.1266	0.0000	469.8890
2022	0.1855	1.7638	1.5006	3.0200e-003	0.1523	0.0803	0.2326	0.0536	0.0742	0.1278	0.0000	264.9949	264.9949	0.0722	0.0000	266.7991
Maximum	**0.3777**	**3.6748**	**2.7252**	**5.3200e-003**	**0.2292**	**0.1724**	**0.4016**	**0.0885**	**0.1594**	**0.2479**	**0.0000**	**466.7232**	**466.7232**	**0.1266**	**0.0000**	**469.8890**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**48.21**	**0.00**	**35.90**	**50.30**	**0.00**	**27.67**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-4-2021	4-3-2021	0.8493	0.8493
2	4-4-2021	7-3-2021	1.0685	1.0685
3	7-4-2021	10-3-2021	1.0803	1.0803
4	10-4-2021	1-3-2022	1.0749	1.0749
5	1-4-2022	4-3-2022	0.8955	0.8955
6	4-4-2022	7-3-2022	0.9054	0.9054
7	7-4-2022	9-30-2022	0.1194	0.1194
		Highest	1.0803	1.0803

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0133	2.0000e-005	2.1200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.1200e-003	4.1200e-003	1.0000e-005	0.0000	4.4000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0133**	**2.0000e-005**	**2.1200e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.1200e-003**	**4.1200e-003**	**1.0000e-005**	**0.0000**	**4.4000e-003**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0133	2.0000e-005	2.1200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.1200e-003	4.1200e-003	1.0000e-005	0.0000	4.4000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0133**	**2.0000e-005**	**2.1200e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.1200e-003**	**4.1200e-003**	**1.0000e-005**	**0.0000**	**4.4000e-003**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	7/15/2022	5	400	
2	Grading	Grading	1/30/2021	7/15/2022	5	380	
3	Paving	Paving	2/11/2021	7/15/2022	5	372	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 190

Acres of Paving: 3.82

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	3.00	81	0.73
Demolition	Excavators	3	3.00	158	0.38
Demolition	Rubber Tired Dozers	2	3.00	247	0.40
Grading	Excavators	1	3.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	3.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	3.00	97	0.37
Paving	Cement and Mortar Mixers	2	3.00	9	0.56
Paving	Pavers	1	3.00	130	0.42
Paving	Paving Equipment	2	3.00	132	0.36
Paving	Rollers	2	3.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	3.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	49.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1543	1.5327	1.0513	1.8900e-003		0.0756	0.0756		0.0703	0.0703	0.0000	165.7538	165.7538	0.0467	0.0000	166.9202
Total	**0.1543**	**1.5327**	**1.0513**	**1.8900e-003**		**0.0756**	**0.0756**		**0.0703**	**0.0703**	**0.0000**	**165.7538**	**165.7538**	**0.0467**	**0.0000**	**166.9202**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3600e-003	5.6300e-003	0.0614	1.9000e-004	0.0214	1.3000e-004	0.0216	5.6900e-003	1.2000e-004	5.8100e-003	0.0000	17.3325	17.3325	4.0000e-004	0.0000	17.3426
Total	**8.3600e-003**	**5.6300e-003**	**0.0614**	**1.9000e-004**	**0.0214**	**1.3000e-004**	**0.0216**	**5.6900e-003**	**1.2000e-004**	**5.8100e-003**	**0.0000**	**17.3325**	**17.3325**	**4.0000e-004**	**0.0000**	**17.3426**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1543	1.5327	1.0513	1.8900e-003		0.0756	0.0756		0.0703	0.0703	0.0000	165.7536	165.7536	0.0467	0.0000	166.9200
Total	**0.1543**	**1.5327**	**1.0513**	**1.8900e-003**		**0.0756**	**0.0756**		**0.0703**	**0.0703**	**0.0000**	**165.7536**	**165.7536**	**0.0467**	**0.0000**	**166.9200**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3600e-003	5.6300e-003	0.0614	1.9000e-004	0.0198	1.3000e-004	0.0199	5.2800e-003	1.2000e-004	5.4000e-003	0.0000	17.3325	17.3325	4.0000e-004	0.0000	17.3426
Total	**8.3600e-003**	**5.6300e-003**	**0.0614**	**1.9000e-004**	**0.0198**	**1.3000e-004**	**0.0199**	**5.2800e-003**	**1.2000e-004**	**5.4000e-003**	**0.0000**	**17.3325**	**17.3325**	**4.0000e-004**	**0.0000**	**17.3426**

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0693	0.6751	0.5406	1.0200e-003		0.0326	0.0326		0.0303	0.0303	0.0000	89.2244	89.2244	0.0251	0.0000	89.8509
Total	**0.0693**	**0.6751**	**0.5406**	**1.0200e-003**		**0.0326**	**0.0326**		**0.0303**	**0.0303**	**0.0000**	**89.2244**	**89.2244**	**0.0251**	**0.0000**	**89.8509**

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2200e-003	2.7300e-003	0.0305	1.0000e-004	0.0115	7.0000e-005	0.0116	3.0600e-003	6.0000e-005	3.1300e-003	0.0000	8.9923	8.9923	2.0000e-004	0.0000	8.9972
Total	**4.2200e-003**	**2.7300e-003**	**0.0305**	**1.0000e-004**	**0.0115**	**7.0000e-005**	**0.0116**	**3.0600e-003**	**6.0000e-005**	**3.1300e-003**	**0.0000**	**8.9923**	**8.9923**	**2.0000e-004**	**0.0000**	**8.9972**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0693	0.6751	0.5406	1.0200e-003		0.0326	0.0326		0.0303	0.0303	0.0000	89.2242	89.2242	0.0251	0.0000	89.8508
Total	**0.0693**	**0.6751**	**0.5406**	**1.0200e-003**		**0.0326**	**0.0326**		**0.0303**	**0.0303**	**0.0000**	**89.2242**	**89.2242**	**0.0251**	**0.0000**	**89.8508**

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2200e-003	2.7300e-003	0.0305	1.0000e-004	0.0106	7.0000e-005	0.0107	2.8400e-003	6.0000e-005	2.9100e-003	0.0000	8.9923	8.9923	2.0000e-004	0.0000	8.9972
Total	**4.2200e-003**	**2.7300e-003**	**0.0305**	**1.0000e-004**	**0.0106**	**7.0000e-005**	**0.0107**	**2.8400e-003**	**6.0000e-005**	**2.9100e-003**	**0.0000**	**8.9923**	**8.9923**	**2.0000e-004**	**0.0000**	**8.9972**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3718	0.0000	0.3718	0.1598	0.0000	0.1598	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1370	1.5575	0.8461	1.8300e-003		0.0663	0.0663		0.0610	0.0610	0.0000	160.9011	160.9011	0.0520	0.0000	162.2021
Total	**0.1370**	**1.5575**	**0.8461**	**1.8300e-003**	**0.3718**	**0.0663**	**0.4380**	**0.1598**	**0.0610**	**0.2208**	**0.0000**	**160.9011**	**160.9011**	**0.0520**	**0.0000**	**162.2021**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	3.4400e-003	4.7000e-004	1.0000e-005	3.8000e-004	1.0000e-005	3.9000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000	1.1102	1.1102	7.0000e-005	0.0000	1.1119
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7200e-003	5.2000e-003	0.0567	1.8000e-004	0.0198	1.2000e-004	0.0199	5.2500e-003	1.1000e-004	5.3600e-003	0.0000	15.9992	15.9992	3.7000e-004	0.0000	16.0086
Total	**7.8000e-003**	**8.6400e-003**	**0.0571**	**1.9000e-004**	**0.0202**	**1.3000e-004**	**0.0203**	**5.3500e-003**	**1.2000e-004**	**5.4700e-003**	**0.0000**	**17.1095**	**17.1095**	**4.4000e-004**	**0.0000**	**17.1205**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1673	0.0000	0.1673	0.0719	0.0000	0.0719	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1370	1.5575	0.8461	1.8300e-003		0.0663	0.0663		0.0610	0.0610	0.0000	160.9009	160.9009	0.0520	0.0000	162.2019
Total	**0.1370**	**1.5575**	**0.8461**	**1.8300e-003**	**0.1673**	**0.0663**	**0.2336**	**0.0719**	**0.0610**	**0.1329**	**0.0000**	**160.9009**	**160.9009**	**0.0520**	**0.0000**	**162.2019**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	3.4400e-003	4.7000e-004	1.0000e-005	3.6000e-004	1.0000e-005	3.7000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.1102	1.1102	7.0000e-005	0.0000	1.1119
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7200e-003	5.2000e-003	0.0567	1.8000e-004	0.0182	1.2000e-004	0.0184	4.8700e-003	1.1000e-004	4.9800e-003	0.0000	15.9992	15.9992	3.7000e-004	0.0000	16.0086
Total	**7.8000e-003**	**8.6400e-003**	**0.0571**	**1.9000e-004**	**0.0186**	**1.3000e-004**	**0.0187**	**4.9600e-003**	**1.2000e-004**	**5.0800e-003**	**0.0000**	**17.1095**	**17.1095**	**4.4000e-004**	**0.0000**	**17.1205**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2589	0.0000	0.2589	0.0978	0.0000	0.0978	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0693	0.7775	0.4762	1.0700e-003		0.0320	0.0320		0.0295	0.0295	0.0000	93.8457	93.8457	0.0304	0.0000	94.6045
Total	**0.0693**	**0.7775**	**0.4762**	**1.0700e-003**	**0.2589**	**0.0320**	**0.2909**	**0.0978**	**0.0295**	**0.1272**	**0.0000**	**93.8457**	**93.8457**	**0.0304**	**0.0000**	**94.6045**

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.8200e-003	2.7000e-004	1.0000e-005	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.6402	0.6402	4.0000e-005	0.0000	0.6411
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2200e-003	2.7300e-003	0.0305	1.0000e-004	0.0115	7.0000e-005	0.0116	3.0600e-003	6.0000e-005	3.1300e-003	0.0000	8.9923	8.9923	2.0000e-004	0.0000	8.9972
Total	**4.2600e-003**	**4.5500e-003**	**0.0307**	**1.1000e-004**	**0.0119**	**7.0000e-005**	**0.0120**	**3.1500e-003**	**6.0000e-005**	**3.2300e-003**	**0.0000**	**9.6325**	**9.6325**	**2.4000e-004**	**0.0000**	**9.6383**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1165	0.0000	0.1165	0.0440	0.0000	0.0440	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0693	0.7775	0.4762	1.0700e-003		0.0320	0.0320		0.0295	0.0295	0.0000	93.8456	93.8456	0.0304	0.0000	94.6044
Total	**0.0693**	**0.7775**	**0.4762**	**1.0700e-003**	**0.1165**	**0.0320**	**0.1485**	**0.0440**	**0.0295**	**0.0735**	**0.0000**	**93.8456**	**93.8456**	**0.0304**	**0.0000**	**94.6044**

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.8200e-003	2.7000e-004	1.0000e-005	3.3000e-004	0.0000	3.3000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.6402	0.6402	4.0000e-005	0.0000	0.6411
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2200e-003	2.7300e-003	0.0305	1.0000e-004	0.0106	7.0000e-005	0.0107	2.8400e-003	6.0000e-005	2.9100e-003	0.0000	8.9923	8.9923	2.0000e-004	0.0000	8.9972
Total	**4.2600e-003**	**4.5500e-003**	**0.0307**	**1.1000e-004**	**0.0110**	**7.0000e-005**	**0.0110**	**2.9200e-003**	**6.0000e-005**	**3.0000e-003**	**0.0000**	**9.6325**	**9.6325**	**2.4000e-004**	**0.0000**	**9.6383**

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0572	0.5636	0.6362	9.8000e-004		0.0301	0.0301		0.0278	0.0278	0.0000	85.0056	85.0056	0.0266	0.0000	85.6710
Paving	3.1200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0603**	**0.5636**	**0.6362**	**9.8000e-004**		**0.0301**	**0.0301**		**0.0278**	**0.0278**	**0.0000**	**85.0056**	**85.0056**	**0.0266**	**0.0000**	**85.6710**

3.4 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.9500e-003	6.7000e-003	0.0730	2.3000e-004	0.0255	1.5000e-004	0.0257	6.7700e-003	1.4000e-004	6.9100e-003	0.0000	20.6212	20.6212	4.8000e-004	0.0000	20.6332
Total	**9.9500e-003**	**6.7000e-003**	**0.0730**	**2.3000e-004**	**0.0255**	**1.5000e-004**	**0.0257**	**6.7700e-003**	**1.4000e-004**	**6.9100e-003**	**0.0000**	**20.6212**	**20.6212**	**4.8000e-004**	**0.0000**	**20.6332**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0572	0.5636	0.6362	9.8000e-004		0.0301	0.0301		0.0278	0.0278	0.0000	85.0055	85.0055	0.0266	0.0000	85.6709
Paving	3.1200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0603**	**0.5636**	**0.6362**	**9.8000e-004**		**0.0301**	**0.0301**		**0.0278**	**0.0278**	**0.0000**	**85.0055**	**85.0055**	**0.0266**	**0.0000**	**85.6709**

3.4 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.9500e-003	6.7000e-003	0.0730	2.3000e-004	0.0235	1.5000e-004	0.0237	6.2800e-003	1.4000e-004	6.4200e-003	0.0000	20.6212	20.6212	4.8000e-004	0.0000	20.6332
Total	**9.9500e-003**	**6.7000e-003**	**0.0730**	**2.3000e-004**	**0.0235**	**1.5000e-004**	**0.0237**	**6.2800e-003**	**1.4000e-004**	**6.4200e-003**	**0.0000**	**20.6212**	**20.6212**	**4.8000e-004**	**0.0000**	**20.6332**

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0309	0.3003	0.3820	5.9000e-004		0.0154	0.0154		0.0142	0.0142	0.0000	51.3105	51.3105	0.0161	0.0000	51.7122
Paving	1.8800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0328**	**0.3003**	**0.3820**	**5.9000e-004**		**0.0154**	**0.0154**		**0.0142**	**0.0142**	**0.0000**	**51.3105**	**51.3105**	**0.0161**	**0.0000**	**51.7122**

3.4 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6200e-003	3.6400e-003	0.0406	1.3000e-004	0.0154	9.0000e-005	0.0155	4.0900e-003	8.0000e-005	4.1700e-003	0.0000	11.9898	11.9898	2.6000e-004	0.0000	11.9963
Total	**5.6200e-003**	**3.6400e-003**	**0.0406**	**1.3000e-004**	**0.0154**	**9.0000e-005**	**0.0155**	**4.0900e-003**	**8.0000e-005**	**4.1700e-003**	**0.0000**	**11.9898**	**11.9898**	**2.6000e-004**	**0.0000**	**11.9963**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0309	0.3003	0.3820	5.9000e-004		0.0154	0.0154		0.0142	0.0142	0.0000	51.3105	51.3105	0.0161	0.0000	51.7121
Paving	1.8800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0328**	**0.3003**	**0.3820**	**5.9000e-004**		**0.0154**	**0.0154**		**0.0142**	**0.0142**	**0.0000**	**51.3105**	**51.3105**	**0.0161**	**0.0000**	**51.7121**

3.4 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6200e-003	3.6400e-003	0.0406	1.3000e-004	0.0142	9.0000e-005	0.0143	3.7900e-003	8.0000e-005	3.8700e-003	0.0000	11.9898	11.9898	2.6000e-004	0.0000	11.9963
Total	**5.6200e-003**	**3.6400e-003**	**0.0406**	**1.3000e-004**	**0.0142**	**9.0000e-005**	**0.0143**	**3.7900e-003**	**8.0000e-005**	**3.8700e-003**	**0.0000**	**11.9898**	**11.9898**	**2.6000e-004**	**0.0000**	**11.9963**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0133	2.0000e-005	2.1200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.1200e-003	4.1200e-003	1.0000e-005	0.0000	4.4000e-003
Unmitigated	0.0133	2.0000e-005	2.1200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.1200e-003	4.1200e-003	1.0000e-005	0.0000	4.4000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.3100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-004	2.0000e-005	2.1200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.1200e-003	4.1200e-003	1.0000e-005	0.0000	4.4000e-003
Total	**0.0133**	**2.0000e-005**	**2.1200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.1200e-003**	**4.1200e-003**	**1.0000e-005**	**0.0000**	**4.4000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.3100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-004	2.0000e-005	2.1200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.1200e-003	4.1200e-003	1.0000e-005	0.0000	4.4000e-003
Total	**0.0133**	**2.0000e-005**	**2.1200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.1200e-003**	**4.1200e-003**	**1.0000e-005**	**0.0000**	**4.4000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Habitat Assessment

WESTERN MUNICIPAL WATER DISTRICT
MURRIETA WATER AND SEWER
MASTER PLAN PROJECT

CITY OF MURRIETA, RIVERSIDE COUNTY, CALIFORNIA

Habitat Assessment

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April 2021

WESTERN MUNICIPAL WATER DISTRICT
MURRIETA WATER AND SEWER
MASTER PLAN PROJECT

CITY OF MURRIETA, RIVERSIDE COUNTY, CALIFORNIA

Habitat Assessment

The undersigned certify that the statements furnished in this report and exhibits present data and information required for this biological evaluation, and the facts, statements, and information presented is a complete and accurate account of the findings and conclusions to the best of our knowledge and beliefs.

Travis J. McGill
Director

Thomas J. McGill, Ph.D.
Managing Director

April 2021

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Section 1 Introduction

This report contains the findings of ELMT Consulting's (ELMT) Habitat Assessment for Western Municipal Water District's (WMWD) Murrieta Water and Sewer Master Plan Project (project site or site) located in the City of Murrieta, Riverside County, California. ELMT biologist Jacob H. Lloyd Davies conducted a field survey and evaluated the condition of the habitats within the general vicinity of the undeveloped areas of the project area on December 17, 2020.

The field investigation was conducted to characterize existing site conditions and assess the probability of occurrence of special-status[1] plant and wildlife species, and document sensitive habitats and jurisdictional drainages that could pose a constraint to implementation of the project. This report provides a detailed assessment of the suitability of the on-site habitat to support special-status plant and wildlife species that were identified by the California Natural Diversity Database (CNDDB) and other electronic databases as potentially occurring in the vicinity of the project area.

It should be noted that the project is located within the boundaries of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP); however, WMWD is not a permittee under the MSHCP. Although the requirements set forth in the MSHCP do not need apply to their projects, the MSHCP provides guidance for analyze potential impacts to biological resources.

1.1 PROJECT LOCATION

The project is generally located west and south of Interstate 215 and north and east of the Santa Rosa Mountains in the City of Murrieta, Riverside County, California (Exhibit 1, *Regional Vicinity*). The project is depicted on the Murrieta quadrangle of the United States Geological Survey's (USGS) 7.5-minute topographic map series within unsectioned portions of Township 7 South, Range 4 West and Township 7 South, Range 3 West (Exhibit 2, *Site Vicinity*). The proposed project would traverse the Murrieta Retail Service Area, which is a 6.5 square mile area in the City of Murrieta that is located to the southwest of Interstate 15. The area is bounded on the west by the Santa Rosa Mountains, to the south by the City of Temecula, to the east by the central and eastern portions of the City of Murrieta, and to the north by the City of Wildomar. Refer to Exhibit 3, *Project Site*.

1.2 PROJECT DESCRIPTION

The WMWD has tens of thousands of feet of gravity mains in the Murrieta Retail Service Area. These gravity mains primarily traverse existing roadways for all land uses in the service area, which include commercial and residential land uses. All new gravity mains will primarily be constructed underneath existing streets. The Project is on the south end of the WMWD service area boundary, bordered by Eastern Municipal Water District (EMWD) to the northeast and Elsinore Valley Municipal Water

[1] As used in this report, "special-status" refers to plant and wildlife species that are federally or State listed, proposed, or candidates; plant species that have been designated a CNPS Rare Plant Rank; and wildlife species that are designated by the CDFW as fully protected, species of special concern, or watch list species.

District (EVMWD) to the Northwest. The area is essentially surrounded by Rancho California Water District (RCWD).

Due to elevation changes, the service area is split into two pressure zones: the 1280 Zone and the 1430 Zone. The 1280 Zone is the larger of the two zones, containing almost 42 miles of water pipelines. The 1430 Zone serves the more elevated, northwest portion of the system. It contains almost 11 miles of water pipelines.

Project Components

WMWD has developed three future supply alternatives to the existing setting in the Murrieta retail service area, with a fourth supply alternative identified by West Yost.

Status Quo Supply

The status quo supply will have the same supply sources as the existing system. This alternative will require the upsizing of pipes within the retail area, however, well production will stay the same. The supply at the Los Alamos connection will be increased to almost 12 cfs for peak hour demand. These improvements include the proposal of 1,295 feet of the 16" pipe, 268 feet of the 20" pipe, and 1,045 feet of the 24" pipe.

EVMWD Supply Alternative

One of the alternative supply options identified by WMWD involved wheeling water through EVMWD. After wheeling the water through EVMWD, it would be provided to the Murrieta Service Area through two connection points; a connection that already exists as an emergency connection on Washington Ave and a proposed connection to the existing Grizzly Ridge tank in WMWD's 1430 zone. The existing connection on Washington Ave would be capable of delivering 2,000 gpm, while the proposed connection to the Grizzly Ridge tank would be capable of delivering 2,939 gpm. This second connection would require an estimated 3,000 ft of pipeline to be constructed along Wyman Road from the connection to EVMWD to the Grizzly Ridge Tank. With the wells already maxed out, this additional 4,939 gpm would not be enough to satisfy projected built-out demand. Therefore, the existing Los Alamos connection would need to continue to supply a small amount of water during build out MDD conditions. Additionally, the Auld Valley Pump Station will have to be upgraded to provide capacity for the water wheeling to WMWD through the EVMWD system. This will require 100ft of new piping, and new pressure reducing equipment on-site.

This alternative would require new pipe and new equipment at the point of connection to the 1280 zone, as water is supplied through the 1430 zone. 3,000 feet in new 18" pipe is proposed for this alternative. Upsizing is proposed to occur for 10,058 feet of 16" pipe, 3,460 feet of 18" pipe, and 102 feet of 20" pipe.

RCWD Supply Alternative

The other supply alternative identified involved wheeling water through the RCWD. Up to 11 cfs (4,937 gpm) during average day conditions and up to 22 cfs (9,874 gpm) during max day conditions would be supplied through the connection point located in the heart of the Murrieta service area.

A location for the connection point between the RCWD 1305 Zone and the WMWD Murrieta Service Area 1280 Zone was chosen close to an RCWD pipe where there would be the smallest length of deficient pipe during built-out PHD for the new supply. Like the status quo supply scenario, water would still need to be pumped up to the 1430 Zone. 3,991 feet of 16" pipe is proposed to be upsized under this alternative.

Hybrid Supply Scenario

During the analysis of the other three supply alternatives, a fourth supply alternative that combines the EVMWD and RCWD supply alternatives was created. The lower 1280 Zone would be supplied by a combination of the two wells and the proposed RCWD connection while the 1430 Zone would be completely supplied by the existing EVMWD connection. This alternative reduces the need for a second connection to EVMWD because the 2,000 gpm that the existing connection is capable of delivering would be sufficient to fulfill the build-out MDD of the 1430 Zone, which is only 1,286 gpm. Also, because the two zones would each receive their own separate external supply, this alternative eliminates the need for a pump station or a pressure reducing valve station between pressure zones, except in emergency situations. The pump station would be kept active for emergency scenarios. See Refer to

The hybrid supply alternative CIP is very similar to the RCWD CIP. All of the pipes proposed for improvement are located at the connection point to RCWD. The amount of flow being supplied through the EVMWD connection in the 1430 Zone is small enough that the existing pipes are adequate in that area. 3,582 feet of 16" pipe is proposed to be upsized under this scenario.

Sewer Gravity Mains

The proposed project alignment and improvements occur at many different streets throughout the service area. Below are the streets that will have new gravity sewer mains installed:

Tributary to SRRRA Gravity Mains

- Jefferson Avenue, beginning at intersection of Jefferson Ave and Kalmia St, extending until Waller St
- Adams Avenue, between Kalmia St and Lemon St
- Willis Way, beginning at Kalmia St entrance and extending straight west under private property
- Kalmia St, beginning at Hayes Ave intersection
- Jenny Ln
- Calle Ortega

- Hawthorn St
- Brown Rd
- Hayes Ave, beginning at Brown Rd, and ending at Fig St
- Fig St
- Douglass Ave, beginning at Fig St intersection
- Guava St, beginning at Washington Ave, and ending where De Luz Rd begins
- De Luz Rd, extending to the undeveloped hills
- Washington Ave, between the Patton Ave and Hawthorn St intersections

Tributary to EMWD Mains

- Fig St. north of Jefferson Ave
- Madison Ave, adjacent to and east of Fig St. intersection
- Larchmont Ln, extended to Monroe Ave.

Construction Activities

The proposed Project would be installed via open-trench construction methods and in accordance with the District standard detail W-1540. Construction would occur in a linear fashion and is anticipated to be contained within one lane of traffic (approximately 12-feet wide). In the event construction activities must extend beyond a single lane in a particular area, the implementation of the traffic control plan required pursuant to regulations set forth by the applicable jurisdiction would ensure that no full road closures are required, and traffic safety is maintained. Excavation equipment would straddle the trench and deposit spoil material into trucks for storage outside the roadway or stockpiled behind the open trench within the closed traffic lane. The pipe would be staged along the force main alignment, typically within the road shoulder and outside the trench excavation path. Per the District standards, the maximum length of trench that would be opened or partially opened at any one time would be limited to 500 LF. Upon completion of a shift, the contractor would be responsible for backfilling and/or plating open excavations, as well as cleaning, removing barricades, and removing equipment from the roadway.

The roadways through which the alignment traverses may not provide sufficient area for overnight construction equipment storage. Additional construction staging areas outside the project alignment are unknown at this time.

The contractor will coordinate the use of empty parking lots and other disturbed areas near the project alignment. No project staging would occur within existing disturbed habitat or non-native grasslands. Furthermore, the contractor must comply with applicable mitigation measures to ensure potential environmental impacts would be less than significant.

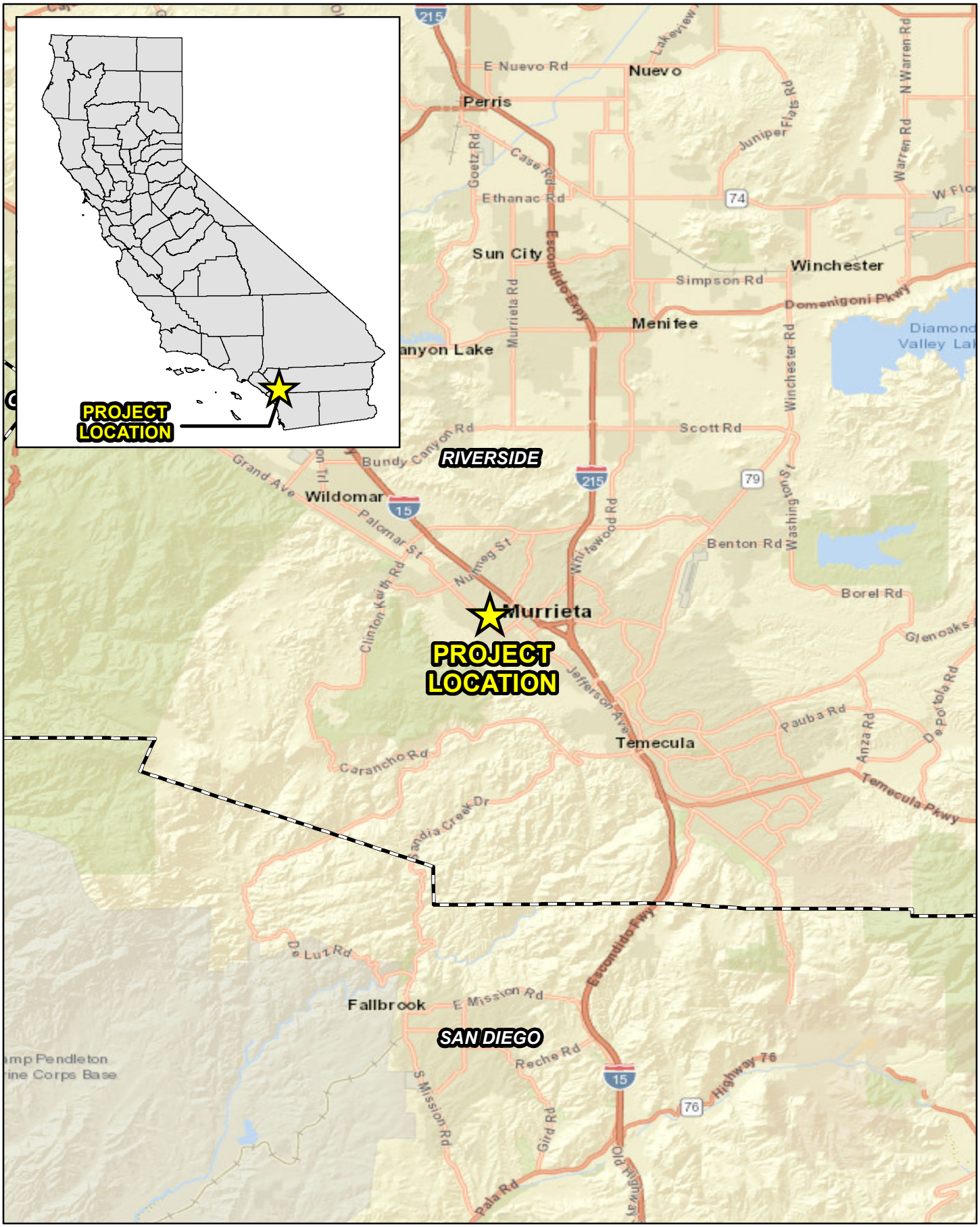
Pavement restoration would be conducted per the City of Murrieta. The contractor will coordinate with the City to ensure all paving requirements are met during trenching, backfilling, and grading.

Special Construction

Open-cut construction has potential to impact existing channels/waterways, large underground utilities, culverts, or bridges along the alignment. Where open-cut trenching would result in impacts to channels/waterways or Caltrans and railroad ROW, trenchless construction is proposed. Auger boring construction, also referred to as jack- and-bore construction, is suitable for the trenchless construction undercrossings that have been identified at Heacock Channel, Perris Valley Channel Lateral A, Perris Valley Channel Lateral B, and the I-215/SCRRA ROW.

Auger boring uses a cutting head attached to an auger string. A steel casing pipe would be simultaneously jacked into the bore hole as the auger is advanced. The auger string would be lengthened through the bore to the receiving site. Each pit location would be constructed with depths sufficient to maintain the desired pipe alignment. The carrier pipe would be subsequently installed within the steel casing pipe.

Auger bore installations are suitable for short installations, less than approximately 450 to 500 feet, and can only be constructed in linear alignments. If groundwater is present, the auger does not control the water and can flood the jacking and/or receiving pits. Other trenchless construction methods, such as microtunneling and horizontal directional drilling, are more appropriate where groundwater is a consideration. It is assumed auger bore installations would be sufficient for all necessary trenchless construction associated with the proposed project.



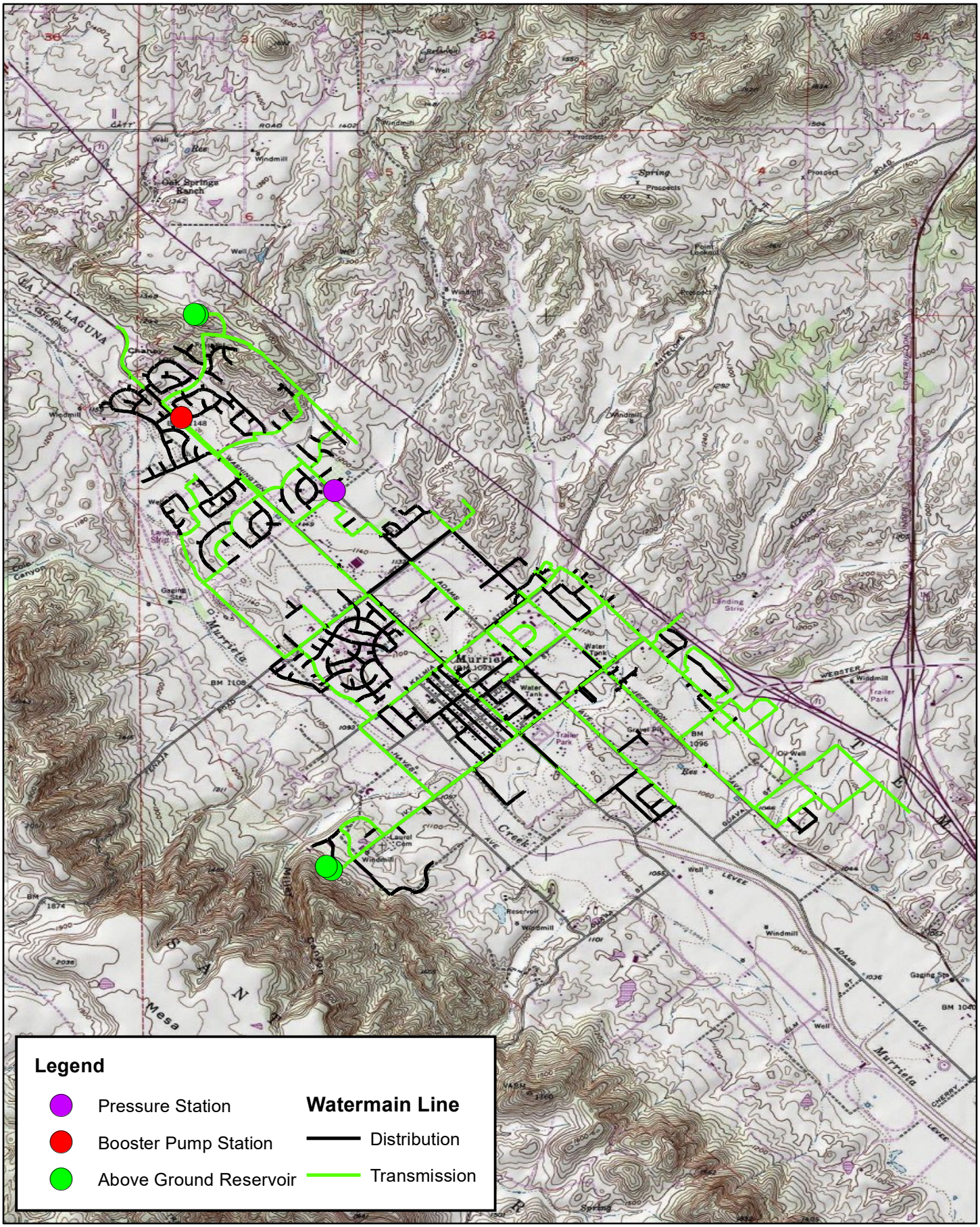
MURRIETA WATER AND SEWER MASTER PLAN
HABITAT ASSESSMENT

Regional Vicinity

ELMT CONSULTING

Source: World Street Map, Riverside County

Exhibit 1



MURRIETA WATER AND SEWER MASTER PLAN
HABITAT ASSESSMENT

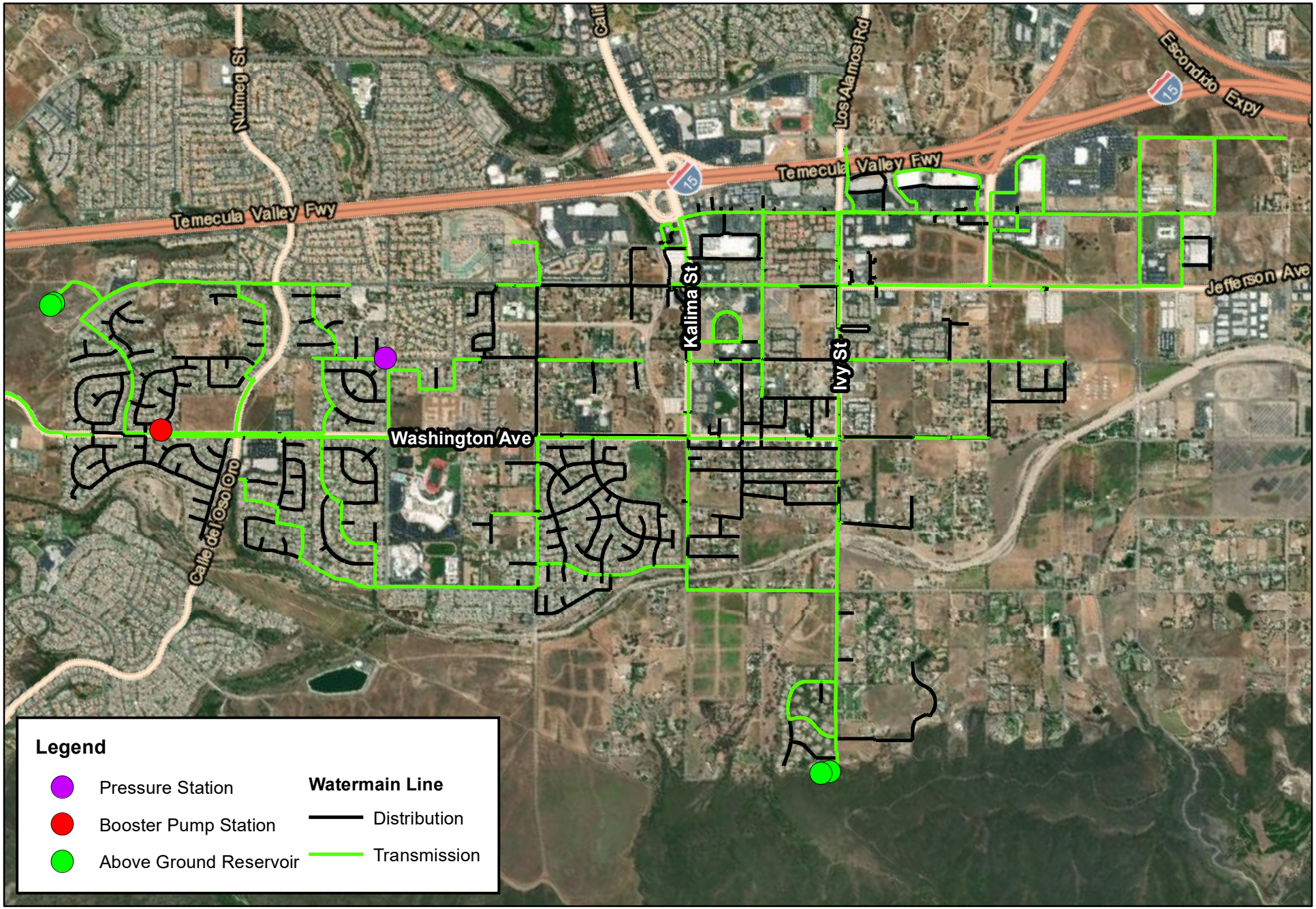
ELMT CONSULTING

0 0.625 1.25 2.5 Miles

Source: USA Topographic Map, Riverside County

Site Vicinity

Exhibit 2



MURRIETA WATER AND SEWER MASTER PLAN
HABITAT ASSESSMENT

Project Site

Exhibit 3

ELMT CONSULTING

0 1,250 2,500 5,000 Feet

Source: ESRI Aerial Imagery, Riverside County

Section 2 Methodology

A thorough literature review and records search was conducted to determine which special-status biological resources have the potential to occur on or within the general vicinity of the project. In addition, a general habitat assessment and field investigation of the project area was conducted and provided information about the existing conditions within the project area and the potential for special-status biological resources to occur.

2.1 LITERATURE REVIEW

Prior to conducting the field investigation, a literature review and records search was conducted for special-status biological resources potentially occurring on or within the vicinity of the project. Previously recorded occurrences of special-status plant and wildlife species and their proximity to the project were determined through a query of the CDFW's CNDDB Rarefind 5, the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California, Calflora Database, compendia of special-status species published by CDFW, and the United States Fish and Wildlife Service (USFWS) species listings.

Literature detailing biological resources previously observed in the vicinity of the project and historical land uses were reviewed to understand the extent of disturbances to the habitats on-site. Standard field guides and texts on special-status and non-special-status biological resources were reviewed for habitat requirements, as well as the following resources:

- Google Earth Pro historic aerial imagery (1996-2020);
- CDFW 2012 Staff Report on Burrowing Owl Mitigation;
- Western Riverside County Multiple Species Habitat Conservation Plan:
- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), Soil Survey; and
- USFWS Critical Habitat designations for Threatened and Endangered Species.

The literature review provided a baseline from which to inventory the biological resources potentially occurring within the project area. Additional recorded occurrences of these species found on or near the project were derived from database queries. The CNDDB ArcGIS database was used, in conjunction with ArcGIS software, to locate the nearest occurrence and determine the distance from the project area.

2.2 FIELD INVESTIGATION

ELMT biologist Jacob H. Lloyd Davies inventoried and evaluated the extent and conditions of the plant communities found within the boundaries of the project on December 17, 2020. Plant communities identified on aerial photographs during the literature review were verified by walking meandering transects through the plant communities and along boundaries between plant communities. The plant communities were evaluated for their potential to support special-status plant and wildlife species. In addition, field staff identified any natural corridors and linkages that may support the movement of

wildlife through the area. Special attention was given to special-status habitats and/or undeveloped areas, which have higher potentials to support special-status plant and wildlife species.

All plant and wildlife species observed, as well as dominant plant species within each plant community, were recorded. Wildlife detections were made through observation of scat, trails, tracks, burrows, nests, and/or visual and aural observation. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, condition of on-site plant communities, and presence of potential jurisdictional drainage and/or wetland features were noted.

2.3 SOIL SERIES ASSESSMENT

On-site and adjoining soils were researched prior to the field visit using the USDA NRCS Soil Survey for Riverside County, California. In addition, a review of the local geological conditions and historical aerial photographs was conducted to assess the ecological changes the project area has undergone.

2.4 PLANT COMMUNITIES

Plant communities were mapped using 7.5-minute USGS topographic base maps and aerial photography. The plant communities were classified in accordance with Sawyer, Keeler-Wolf and Evens (2009), CDFW (2003), and Holland (1986), delineated on an aerial photograph, and then digitized into GIS Arcview. The Arcview application was used to compute the area of each plant community in acres.

2.5 PLANTS

Common plant species observed during the field survey were identified by visual characteristics and morphology in the field and recorded in a field notebook. Unusual and less-familiar plants were photographed in the field and identified in the laboratory using taxonomical guides. Taxonomic nomenclature used in this study follows the 2012 Jepson Manual (Hickman 2012). In this report, scientific names are provided immediately following common names of plant species (first reference only).

2.6 WILDLIFE

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other sign were recorded during surveys in a field notebook. Field guides were used to assist with identification of species during surveys included The Sibley Field Guide to the Birds of Western North America (Sibley 2003) for birds, A Field Guide to Western Reptiles and Amphibians (Stebbins 2003) for herpetofauna, and A Field Guide to Mammals of North America (Reid 2006). Although common names of wildlife species are fairly well standardized, scientific names are provided immediately following common names in this report (first reference only).

2.7 JURISDICTIONAL DRAINAGES AND WETLANDS

Aerial photography was reviewed prior to conducting a field investigation in order to locate and inspect potential natural drainage features, ponded areas, or water bodies that may be considered riparian/riverine habitat and/or fall under the jurisdiction of the United State Army Corps of Engineers (Corps), Regional Water Quality Control Board (Regional Board), or CDFW. In general, surface drainage features indicated as blue-line streams on USGS maps that are observed or expected to exhibit evidence of flow are considered potential riparian/riverine habitat and are also subject to state and federal regulatory jurisdiction.

Section 3 Existing Conditions

3.1 LOCAL CLIMATE

Riverside County features a somewhat cooler version of a Mediterranean climate, or semi-arid climate, with warm, sunny, dry summers and cool, rainy, mild winters. Relative to other areas in Southern California, winters are colder with frost and with chilly to cold morning temperatures common. Climatological data obtained for the City of Murrieta indicates the annual precipitation averages 15.56 inches per year. Almost all of the precipitation in the form of rain occurs in the months between December and March, with hardly any occurring between the months of October and April. The wettest month is February, with a monthly average total precipitation of 4.16 inches, and the driest months are June and August, with monthly average total precipitations of 0.01 inches. The average maximum and minimum temperatures are 77.4- and 50-degrees Fahrenheit (° F) respectively with July and August (monthly average high 91° F) being the hottest months and December (monthly average low 40° F) being the coldest. The temperature during the site visit was in the low 50s to high 60s ° F with light to full cloud cover overhead.

3.2 TOPOGRAPHY AND SOILS

Onsite surface elevation ranges from approximately 1,050 to 1,290 feet above mean sea level. The project area generally slopes from northwest to southeast, with the exception of the southeast corner, which occurs on the foothills of the Santa Rosa Mountains and supports the highest onsite elevation. Topography varies throughout the site and includes flat areas, rolling hills, and drainages. Based on the USDA NRCS Soil Survey, the project area is generally underlain by an Urban land-Monserate-Exeter-Arlington soils complex. Onsite soil compaction varies across the project area, ranging from heavily compacted due to previously development to relatively undisturbed in areas that support natural vegetation communities.

3.3 SURROUNDING LAND USES

The project area is located in an urbanized area that has undergone a conversion from natural habitats to a mosaic of residential, recreational, commercial, and industrial developments with heavily disturbed/isolated undeveloped parcels spaced throughout. This area was historically composed of agricultural lands and have undergone rapid growth both residentially and commercially over the past decades which have resulted in the degradation of natural habitat in the valley and along Murrieta Creek. Along with this growth, naturally occurring rivers and streams that once occurred in this region have been channelized for flood control purposes altering the soils and their habitats that once supported sensitive plant and wildlife species known to occur in the area.

Areas surrounding the proposed alignments are composed of a mix of residential, commercial, and industrial developments, vacant parcels, water treatment facilities, and natural areas associated with Murrieta Creek, and the foothills of the Santa Rosa Mountains. The site is bounded on the east by Interstate 15, to west by the Santa Rosa Mountains, to the south by the City of Temecula, to the east by the central and eastern portions of the City of Murrieta, and to the north by the City of Wildomar.

Section 4 Discussion

4.1 SITE CONDITIONS

Onsite and surrounding land uses have heavily disturbed, if not completely eliminated, naturally occurring habitats from the majority of the proposed project footprint and surrounding area, with the exception of Murrieta Creek, and the foothills of the Santa Rosa Mountains. The project area has been subject to various types of human disturbance including development, vegetation clearing, and flood control channelization activities. Although Murrieta Creek has been channelized, this watercourse is earthen lined and supports native plant communities.

The proposed pipeline alternatives will primarily be installed within existing paved road right-of-way and dirt access roads except where they cross Murrieta Creek and tributaries. However, it is anticipated that a trenchless installation method will be used to install the pipelines under Murrieta Creek and any other potential drainage features.

4.2 VEGETATION

The project area is composed of undeveloped/vacant parcels and developed areas, both of which are typically restricted to existing paved streets within the associated right-of-way. The site supports three (3) vegetation communities: cottonwood-willow riparian woodland, Riversidean sage scrub and California buckwheat scrub. In addition, the site supports two (2) land cover types that would be described as disturbed and developed. These vegetation communities and land cover types are described in further detail below.

4.2.1 Cottonwood-Willow Riparian Woodland

The Cottonwood-Willow Riparian Woodland community extends along the Murrieta Creek floodplain near the intersection of Calle Del Oso Oro and Washington Avenue and terminates off-site before Nighthawk Trail. Murrieta Creek is primarily earthen in this area and a storm drain outlet near Washington Avenue provides this plant community with stormwater and urban runoff. This community is dominated by stands of cottonwood (*Populus fremontii*), red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepsis*). The understory of the cottonwood-willow riparian woodland community is composed of a diverse array of native and non-native species, including ornamentals associated with adjacent development. Additional plant species observed in this community include sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*), mulefat (*Baccharis salicifolia*), coyotebrush (*Baccharis pilularis*), lemonadeberry (*Rhus integrifolia*), mugwort (*Artemisia douglasiana*), pomegranate (*Punica granatum*), cattails (*Typha* sp.), eucalyptus (*Eucalyptus* sp.), sunflower (*Helianthus annuus*), telegraph weed (*Heterotheca grandiflora*), ragweed (*Ambrosia psilostachya*), California buckwheat (*Eriogonum fasciculatum*), tree tobacco (*Nicotiana glauca*), tocalote (*Centaurea melitensis*), prickly pear (*Opuntia* sp.), doveweed (*Croton setiger*), pampas grass (*Cortaderia selloana*), cocklebur (*Xanthium strumarium*), heliotrope (*Heliotropium curassavicum*), California sagebrush (*Artemisia californica*), olive (*Olea europa*), blackberry (*Rubus armeniacus*), black sage

(*Salvia mellifera*), tamarisk (*Tamarix ramossisima*), toyon (*Heteromeles arbutifolia*), Peruvian pepper (*Schinus molle*), and ornamental pine (*Pinus* sp.).

4.2.2 Riversidean Sage Scrub

The Riversidean Sage Scrub vegetation community was observed in varying degrees of quality in various areas of the project area within the Murrieta Creek floodplain where flows are infrequent or absent outside of the rainy season, and on the foothills of the Santa Rosa Mountains. This community is dominated by woody perennials and supports an understory of weedy/early successional species. Plant species observed in this community include California sagebrush, California buckwheat, mulefat, lemonadeberry, chamise (*Adenostoma fasciculatum*), ragweed, white sage (*Salvia apiana*), Russian thistle (*Salsola tragus*), tocalote, tamarisk, horseweed (*Erigeron* sp.), black sage, red brome (*Bromus madritensis* ssp. *rubens*), and elderberry (*Sambucus nigra*). Species densities along Murrieta Creek vary in conjunction with relative disturbance, while densities within the foothills are relatively high.

4.2.3 California Buckwheat Scrub

The California Buckwheat Scrub vegetation community occurs on a hill southeast of the Murrieta Creek floodplain. This community is densely vegetated with, and dominated by, California buckwheat, which is indicative of land that formerly supported a more diverse scrub community prior to significant disturbance and was allowed to revegetate naturally. Other plant species observed in this community include ragweed, tocalote, doveweed, red brome, and ripgut brome (*Bromus diandrus*).

4.2.4 Disturbed

Disturbed areas are those that no longer comprise a natural plant community and are found throughout the project area. These areas have been significantly impacted by decades of human disturbance (i.e. agricultural activities, storage/staging activities, ongoing weed abatement activities, and onsite and surrounding development). Vegetation densities within disturbed areas vary throughout the site from very dense to barren and are relative to the degree and regularity of disturbance. Disturbed areas within the site primarily support non-native weedy/early successional plant species. Plant species observed within the disturbed areas of the site include cheeseweed (*Malva parviflora*), horseweed, short-podded mustard (*Hirschfeldia incana*), Bermuda grass (*Cynodon dactylon*), prickly-lettuce (*Lactuca serriola*), annual sunflower, Russian thistle, horseweed, tree tobacco, tamarisk, red brome, and ripgut brome.

4.2.5 Developed

Developed areas encompass all building/structures and paved or otherwise impervious surfaces. The developed areas within the project area are generally comprised of existing paved road right-of-way and adjacent developments. Vegetation observed within these areas was minimal and consisted of ornamental/landscaped plants associated with surrounding development and weedy/early successional species adapted to growing in heavily disturbed conditions.

4.3 WILDLIFE

Plant communities provide foraging habitat, nesting and denning sites, and shelter from adverse weather or predation. This section provides a discussion of those wildlife species observed, expected, or not expected to occur on-site. The discussion is to be used as a general reference and is limited by the season, time of day, and weather condition in which the survey was conducted. Wildlife observations were based on calls, songs, scat, tracks, burrows, and actual sightings of animals.

4.3.1 Fish

The only fish species observed during the field investigation was mosquitofish (*Gambusia affinis*), a non-native species used in vector control. This species was observed in a small, ponded area outside of a storm drain outlet in the cottonwood-willow riparian woodland near Calle Del Oso Oro. This area is fed exclusively by urban runoff from surrounding residential and commercial development and no native fish species are expected to occur. In addition, no fish or hydrogeomorphic features that would provide suitable habitat for native fish species were observed outside of this area.

4.3.2 Amphibians

No amphibians were observed during the field investigation. The cottonwood-willow riparian woodland vegetation community provides marginal habitat to sport amphibian species adapted to significant human disturbance and development. Common amphibian species that have the potential to occur onsite include Baja California tree frog (*Pseudacris hypochondriaca*) and garden slender salamander (*Batrachoseps major major*).

4.3.3 Reptiles

The project area provides suitable habitat for reptilian species adapted to the region. Reptilian species observed during the field investigation include western side-blotched lizard (*Uta stansburiana elegans*) and Great Basin fence lizard (*Sceloporus occidentalis longipes*). Other common reptile species that have the potential to occur on the project area include southern alligator lizard (*Elgaria multicarinata*), gopher snake (*Pituophis catenifer*), and coachwhip (*Coluber flagellum piceus*).

4.3.4 Birds

The project area provides suitable foraging and nesting habitat for avian species adapted to the region. Avian species detected during the field investigation include lesser goldfinch (*Carduelis psaltria*), white-crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), house finch (*Haemorhous mexicanus*), Say's phoebe (*Sayornis saya*), Anna's hummingbird (*Calypte anna*), Bewick's wren (*Thryomanes bewickii*), California scrub-jay (*Aphelocoma californica*), California towhee (*Melozone crissalis*), bushtit (*Psaltriparus minimus*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*) California quail (*Callipepla california*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), Cassin's kingbird (*Tyrannus vociferans*), spotted towhee (*Pipilo maculatus*), rock pigeon (*Columbia liva*), yellow-rumped warbler (*Setophaga coronata*), and European starling (*Sturnus vulgaris*).

4.3.5 Mammals

The project area provides suitable foraging and denning habitat for mammalian species adapted to significant human disturbance and development. However, most mammal species are nocturnal and are difficult to observe during a diurnal field visit. Mammals detected during the field assessment included desert cottontail (*Sylvilagus audubonii*), pocket gopher (*Thomomys* sp.), California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*), kangaroo rat (*Dipodomys* sp.), and racoon (*Procyon lotor*). Other mammalian species that have the potential to occur on the project area include opossum (*Didelphis virginiana*), deer mouse (*Peromyscus maniculatus*), and California mouse (*Peromyscus californicus*). In addition, the project area provides suitable foraging habitat and minimal roosting habitat for local bat species (*Myotis* sp). Project activities are not expected to result in direct impacts to areas that support roosting habitat for bats.

4.4 NESTING BIRDS

The project area provides suitable foraging and cover habitat for year-round/seasonal avian residents, migrating songbirds, and raptors that occur in the area. Further, the open unvegetated areas within the disturbed portions of the site provide suitable nesting opportunity for ground-nesting birds such as killdeer (*Charadrius vociferans*).

Nesting birds are protected pursuant to the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (Sections 3503, 3503.5, 3511, and 3513 prohibit the take, possession, or destruction of birds, their nests or eggs). In order to ensure no impacts occur to birds protected under the MBTA, a nesting bird clearance survey is recommended to be conducted prior to any project related activities.

4.5 MIGRATORY CORRIDORS AND LINKAGES

Habitat linkages provide links between larger habitat areas that are separated by development. Wildlife corridors are similar to linkages, but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species yet inadequate for others. Wildlife corridors are significant features for dispersal, seasonal migration, breeding, and foraging. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources.

Even though the majority of the project area is developed, portions of the pipeline alignment will cross Murrieta Creek. In accordance with the MSHCP, Murrieta Creek has been identified as a Proposed Constrained Linkage[2]. This linkage is constrained along most of its length by existing urban development and agricultural uses that comprise portions of the Cities of Temecula and Murrieta. Riparian habitat within Murrieta Creek provides suitable habitat within this linkage for edge avian species (e.g., yellow warbler (*Setophaga petechia*), least Bell's vireo (*Vireo bellii pusillus*), and yellow-

[2] A constricted connection expected to provide for movement of identified MSCHP listed species between Core Areas, where options for assembly of the connection are limited due to existing patterns of use.

breasted chat (*Icteria virens*). Further, on-site vegetation communities provide stopover habitat for migrating avian species. However, project activities adjacent to Murrieta Creek will be confined to existing right-of-way and will utilize trenchless construction to avoid impacts to Murrieta Creek. As a result, implementation of the proposed project has the potential to have temporary/indirect impacts on migratory corridors and linkages but is not expected to have any permanent or long term impacts on migratory corridors or linkages in the surrounding area.

4.6 JURISDICTIONAL AREAS

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates discharge of dredge and/or fill materials into "waters of the United States" pursuant to Section 404 of the CWA and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFW regulates alterations to streambed and associated plant communities pursuant to Section 1602 of the Fish and Game Code, and the Regional Board regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

A query of the National Wetlands Inventory determined that approximately five (5) to seven (7) riverine resources and one (1) freshwater pond were identified within the project area. These features were identified using aerial photography from 1974 and were compared against observations made during the field investigation.

Based on the results of the field investigation, three (3) to six (6) riverine resources were identified within the boundaries of the project. The major riverine feature throughout the site, Murrieta Creek, transects the site from northwest to southeast and joins Temecula Creek south of the site to form the Santa Margarita River, which ultimately drains into the Pacific Ocean. The other riverine features observed within the project area were determined to be ephemeral drainages that follow on-site topography and terminate within the Murrieta Creek floodplain.

Murrieta Creek and its associated tributaries on or within the immediate vicinity of the pipeline alignments will fall under the jurisdictional authority of the Corps, Regional Board and CDFW. If any impacts are anticipated to occur to these features a formal jurisdictional delineation report should be prepared to assist the applicant in acquiring the necessary regulatory approvals. Any anticipated impacts to these features, from the proposed project, will require the applicant to obtain a CWA Section 404 permit from the Corps, CWA Section 401 Water Quality Certification from the Regional Board, and a Section 1602 Streambed Alteration Agreement from CDFW. However, at this time, the proposed pipeline alignments will be installed under the jurisdictional features using a trenchless method to avoid impacts to jurisdictional waters.

All activities related to project implementation near Murrieta Creek and its tributaries will be confined to existing right-of-way or utilize trenchless construction in order to avoid impacts to Murrieta Creek and its tributaries. Therefore, project implementation will not result in impacts to Corps, Regional Board, or CDFW jurisdiction and regulatory approvals will not be required.

4.7 SPECIAL-STATUS BIOLOGICAL RESOURCES

The CNDDB was queried for reported locations of special-status plant and wildlife species as well as special-status natural plant communities in the Murrieta USGS 7.5-minute quadrangle. A search of published records of these species was conducted within this quadrangle using the CDFW's CNDDB Rarefind 5 online software and CNDDB Quickview Tool. The CNPS Inventory of Rare and Endangered Vascular Plants of California supplied information regarding the distribution and habitats of vascular plants in the vicinity of the project. The field investigation was used to assess the ability of the plant communities found on-site to provide suitable habitat for relevant special-status plant and wildlife species.

The literature search identified forty-six (46) special-status plant species, sixty-one (61) special-status wildlife species, and four (4) special-status plant communities as having potential to occur within the Murrieta quadrangle. Special-status plant and wildlife species were evaluated for their potential to occur within the project boundaries based on habitat requirements, availability and quality of suitable habitat, and known distributions. Species determined to have the potential to occur within the general vicinity of the project are presented in Appendix C, *Potentially Occurring Special-Status Biological Resources*, and discussed below.

4.7.1 Special-Status Plants

Forty-six (46) special-status plant species have been recorded in the CNDDB and CNPS in the Murrieta quadrangle (refer to Appendix C). No special-status plant species were observed on-site during the field investigation. The majority of the project consists of heavily disturbed or developed land that has been subject to a variety of anthropogenic disturbances that have reduced, if not eliminated, the ability of the site to provide suitable habitat for special-status plant species. However, the undisturbed conditions in the foothill portion of the site supports Riversidean sage scrub habitat that may provide suitable habitat for some of the special-status plant species. Based on habitat requirements for the identified special-status species, and known distributions, it was determined that the foothill portion of the site has a low potential to support chaparral sand-verbena (*Abronia villosa* var. *aurita*, 1B.1), Catalina mariposa-lily (*Calochortus weedii* var. *intermedius*, 4.2), intermediate mariposa-lily (*Calochortus weedii* var. *intermedius*, 1B.2), smooth tarplant (*Centromadia pungens* ssp. *laevis*, 1B.1), Parry's spineflower (*Chorizanthe parryi* var. *parryi*, 1B.1), San Miguel savory (*Clinopodium chandleri*, 1B.2), paniculate tarplant (*Deinandra paniculata*, 4.2), curving tarplant (*Holocarpha virgata* ssp. *elongata*, 4.2), vernal barley (*Hordeum intercedens*, 3.2), pride-of-California (*Lathyrus splendens*, 4.3), intermediate monardella (*Monardella hypoleuca* ssp. *intermedia*, 1B.3), Engelmann oak (*Quercus engelmannii*, 4.2), bottle liverwort (*Sphaerocarpos drewei*, 1B.2), and San Bernardino aster (*Symphotrichum defoliatum*, 1B.2).

4.7.2 Special-Status Wildlife

Sixty-one (61) special-status wildlife species have been reported in the Murrieta quadrangle (refer to Appendix C). No special-status animal species were observed on-site. Based on habitat requirements for the identified special-status wildlife species, and known distributions, it was determined that the undeveloped portions of the project area have a high potential to support Cooper's hawk (*Accipiter*

cooperii), sharp-shinned hawk (*Accipiter striatus*), yellow warbler (*Setophaga petechia*), and least Bell's vireo (*Vireo bellii pusillus*); a moderate potential to support southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), Bell's sage sparrow (*Artemisiospiza belli belli*), orangethroat whiptail (*Aspidoscelis hyperthra*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), Costa's hummingbird (*Calypte costae*), red-diamond rattlesnake (*Crotalus ruber*), California horned lark (*Eremophila alpestris actia*), loggerhead shrike (*Lanius ludovicianus*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), coast horned lizard (*Phrynosoma blainvillii*), and coastal California gnatcatcher (*Polioptila californica californica*); and a low potential to support great egret (*Ardea alba*), great blue heron (*Ardea herodias*), California glossy snake (*Arizona elegans occidentalis*), burrowing owl (*Athene cunicularia*), Dulzura pocket mouse (*Chaetodipus californicus femoralis*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), northern harrier (*Circus hudsonius*), Dulzura kangaroo rat (*Dipodomys simulans*), white-tailed kite (*Elanus leucurus*), willow flycatcher (*Empidonax traillii*), western mastiff bat (*Eumpos perotis californicus*), merlin (*Falco columbarius*), prairie falcon (*Falco mexicanus*), American peregrine falcon (*Falco peregrinus anatum*), yellow-breasted chat (*Icterio virens*), Los Angeles pocket mouse (*Perognathus longimembris brevnasus*), and Lawrence's goldfinch (*Spinus lawrencei*).

4.7.3 Special-Status Plant Communities

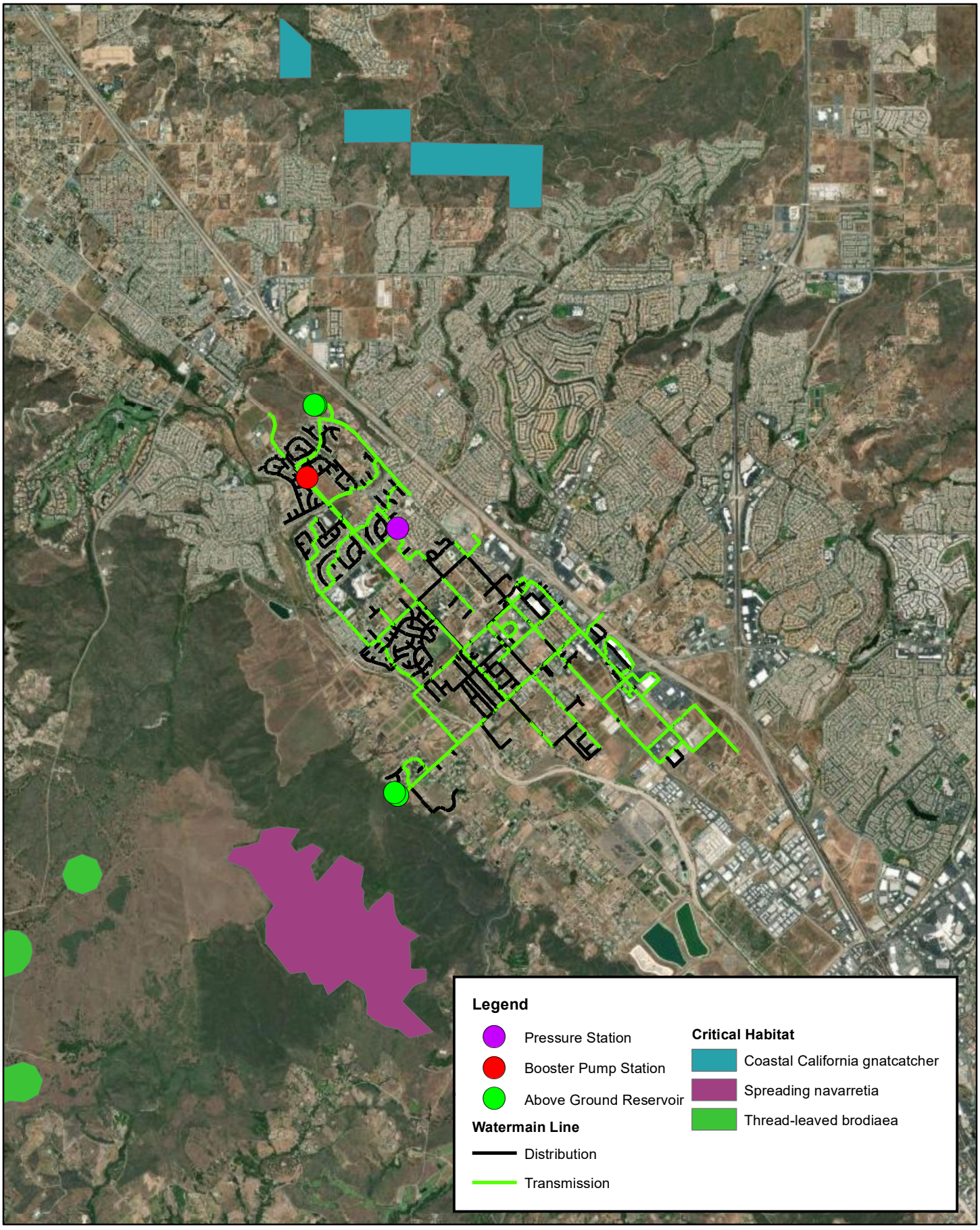
The CNDDB lists four (4) special-status habitats as being identified within the Murrieta quadrangle: Southern Coast Live Oak Riparian Forest, Southern Interior Basalt Flow Vernal Pool, Southern Sycamore Alder Riparian Woodland, and Valley Needlegrass Grassland. No CDFW special-status plant communities occur within the boundaries of the project area. Therefore, no special-status plant communities will be impacted by project implementation.

4.8 CRITICAL HABITAT

Under the federal Endangered Species Act, "Critical Habitat" is designated at the time of listing of a species or within one year of listing. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. All federal agencies are required to consult with the United States Fish and Wildlife Service (USFWS) regarding activities they authorize, fund, or permit which may affect a federally listed species or its designated Critical Habitat. The purpose of the consultation is to ensure that projects will not jeopardize the continued existence of the listed species or adversely modify or destroy its designated Critical Habitat. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing is on federal lands, uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highways Administration or a CWA Permit from the Corps). If a there is a federal nexus, then the federal agency that is responsible for providing the funding or permit would consult with the USFWS.

The project is not located within federally designated Critical Habitat (Exhibit 4, *Critical Habitat*). The nearest federally designated Critical Habitat is located approximately 0.5 miles southwest of the site for spreading navarretia (*Navarretia fossalis*) and 1.9 miles west of the site for thread-leaved brodiaea

(*Brodiaea filifolia*). Therefore, implementation of the proposed project will not result in any impacts or adverse modification to designated Critical Habitat.



MURRIETA WATER AND SEWER MASTER PLAN
HABITAT ASSESSMENT

Critical Habitat

ELMT CONSULTING

0 0.625 1.25 2.5 Miles

Source: ESRI Aerial Imagery, USFWS Critical Habitat, Riverside County

Exhibit 4

Section 6 Conclusion and Recommendations

The project area consists of both developed and undeveloped land within the City of Murrieta. The site occurs within an area that has undergone a conversion from natural habitats to a mosaic of industrial, commercial, and residential development, and undeveloped parcels. The majority of undeveloped areas within the site have been significantly impacted by decades of human disturbance (i.e. agricultural activities and surrounding development), while two areas continue to support viable habitat. The site supports three (3) vegetation communities: cottonwood-willow riparian woodland, Riversidean sage scrub, and California buckwheat scrub. In addition, the site also supports two (2) land cover types that would be classified as developed and disturbed.

Special-Status Plant Species

The plants that were determined to have a low potential to occur within the project area are not regulated under the federal or state Endangered Species Act. In an effort to increase coverage for unlisted but regionally sensitive plants under the California Environmental Quality Act (CEQA), the California Native Plant Society began publishing sensitivity rankings for special-status plant species. Therefore, these special-status plants do not rise to the level of a species of concern under CEQA. Potential project related impacts to the aforementioned special-status species, in undeveloped areas, is less than significant under CEQA and no mitigation would be required. The majority of the proposed project will be confined to existing right-of-way and will not have the potential to impact special-status plant species.

Special-Status Wildlife Species

No special-status wildlife species were observed during the field investigation. Based on habitat requirements for the identified special-status wildlife species, and known distributions, it was determined that the undeveloped portions of the project area have a high potential to support Cooper's hawk, sharp-shinned hawk, yellow warbler, and least Bell's vireo; a moderate potential to support southern California rufous-crowned sparrow, Bell's sage sparrow, orangethroat whiptail, coastal whiptail, Costa's hummingbird, red-diamond rattlesnake, California horned lark, loggerhead shrike, San Diego black-tailed jackrabbit, coast horned lizard, and coastal California gnatcatcher; and a low potential to support great egret, great blue heron, California glossy snake, burrowing owl, Dulzura pocket mouse, northwestern San Diego pocket mouse, northern harrier, Dulzura kangaroo rat, white-tailed kite, willow flycatcher, western mastiff bat, merlin, prairie falcon, American peregrine falcon, yellow-breasted chat, Los Angeles pocket mouse, and Lawrence's goldfinch.

The majority of the project activities will be confined to existing right-of-way and will utilize trenchless construction to avoid impacts to all drainage features and associated riparian vegetation and will not result in any impacts to special-status species. To ensure no indirect impacts to special-status wildlife species occur the following mitigation measures shall be implemented:

BIO-1: Pre-Construction Nesting Bird Clearance Survey

All construction activities shall comply with the federal Migratory Bird Treaty Act of 1918 (MBTA) and California Fish and Game Code Sections 3503, 3511 and 3513. The MBTA governs

the taking and killing of migratory birds, their eggs, parts, and nests and prohibits the take of any migratory bird, their eggs, parts, and nests. This mitigation measure shall be implemented prior to all project activities. Compliance with the MBTA shall be accomplished by completing the following:

Construction activities involving vegetation removal shall be conducted between September 1 and January 31. If construction occurs inside the peak nesting season (between February 1 and August 31), a pre-construction survey by a qualified Biologist shall be conducted within 72 hours prior to construction activities to identify any active nesting locations. If the Biologist does not find any active nests, the construction work shall be allowed to proceed. The biologist conducting the clearance survey shall document a negative survey with a report indicating that no impacts to active avian nests shall occur.

If the Biologist finds an active nest within the pre-construction survey area and determines that the nest may be impacted, the Biologist shall delineate an appropriate buffer zone around the nest. The size of the buffer shall be determined by the Biologist and shall be based on the nesting species, its sensitivity to disturbance, expected types of disturbance, and location in relation to the construction activities. These buffers are typically 300 feet from the nests of non-listed species and 500 feet from the nests of raptors and listed species. Any active nests observed during the survey shall be mapped on an aerial photograph. Only construction activities (if any) that have been approved by a Biological Monitor shall take place within the buffer zone until the nest is vacated. The Biologist shall serve as a Construction Monitor when construction activities take place near active nest areas to ensure that no inadvertent impacts on these nests occur. Results of the pre-construction survey and any subsequent monitoring shall be provided to the Property Owner/Developer and the City. The monitoring report shall summarize the results of the nest monitoring, describe construction restrictions currently in place, and confirm that construction activities can proceed within the buffer area without jeopardizing the survival of the young birds.

BIO-2: Pre-Construciton Survey for Special-Status Wildlife Species
Undeveloped portions of the project area provide low to moderated quality habitat for several special-status wildlife species. Therefore, a pre-construction survey for special-status species is recommended prior to project activities within undeveloped areas. During the survey, biologists will document observations of special-status species. If individuals or sign of are observed on or immediately adjacent to the proposed project footprint, then coordination with the USFWS and/or CDFW may need to occur. If impacts to special-status species will occur from the project, then the appropriate permits will need to be obtained prior to the start of project activities, if any. The pre-construction survey should take place no more than 14 days prior to construction.

Riparian Habitat and Special-Status Natural Communities

Portions of the project occur adjacent to or cross Murrieta Creek. However, all project activities within Murrieta Creek will be confined to existing right-of-way and utilize trenchless construction to avoid impacts to the creek and associated riparian vegetation. Therefore, development of the project will not result in impacts to Corps, Regional Board, or CDFW jurisdiction and regulatory approvals will not be required.

No special-status natural communities were observed within the boundaries of the project area. Therefore, no special-status natural communities will be impacted by project implementation.

Wildlife Corridors and Linkages

Project activities adjacent to Murrieta Creek will be confined to existing right-of-way and will utilize trenchless construction to avoid impacts to Murrieta Creek. As a result, implementation of the proposed project has the potential to have temporary/indirect impacts on migratory corridors and linkages but is not expected to have any permanent or long term impacts on migratory corridors or linkages in the surrounding area.

Local, Regional, and State Plans

The project is located within the boundaries of the Western Riverside County MSHCP; however, WMWD is not a permittee under the MSHCP, and the requirements set forth in the MSHCP do not need apply to their projects.

Additionally, the proposed project is also located within the Fee Area, established by the County in 1996, for protecting the Stephens' Kangaroo Rat (*Dipodomys stephensi*) (SKR), a federally and State listed species that is protected by the SKR Habitat Conservation Plan (SKR HCP) (County Ordinance No. 663.10). However, Section 10(d) of the Ordinance specifically exempts development of any parcel used by local, state or federal entities for governmental purposes (i.e., public works, schools) from payment of mitigation fees. As such, this project is a public works project and WMWD is exempt from fee payment (Section 10(d) of Riverside County Ordinance 663.10).

Section 7 References

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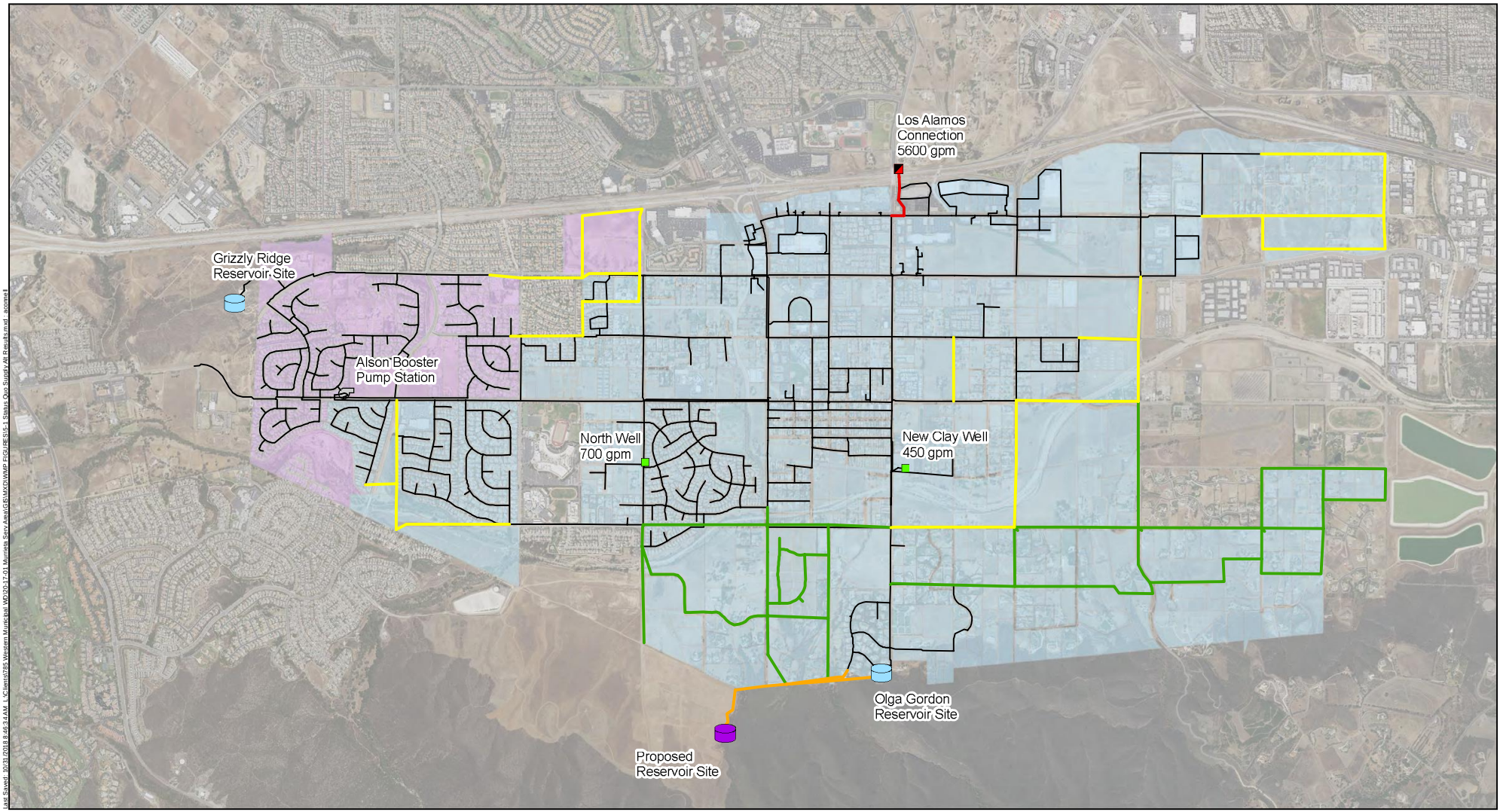
Appendix A Site Plans



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Symbology

- Proposed Reservoir Site
- Existing Reservoir Site
- Interconnection Point
- Production Well
- Alson Booster Pump Station
- Existing Water Main
- Hyraulic Deficiencies
- New Pipe to EVMWD Connection
- Pipe to Proposed New Storage
- Expansion Pipe - North of Murrieta Creek
- Expansion Pipe - South of Murrieta Creek

Parcel Pressure Zone

- 1280
- 1430

0 1,000 2,000
Scale in Feet

WESTERN MUNICIPAL WATER DISTRICT

WEST YOST ASSOCIATES

Figure 5-1

Status Quo Supply Hydraulic Results

Western Municipal Water District
Murrieta Service Area
2018 Master Plan Update

Appendix B Site Photographs

Photograph 1: Representative photo of a developed area adjacent to proposed project activity.

Photograph 2: Representative photo of a disturbed area adjacent to proposed project activities.

Photograph 3: Looking southeast across an undeveloped parcel towards a concrete channel.

Photograph 4: Representative photo of Riversidean sage scrub. The trees on the right side of the photograph are ornamental species associated with adjacent residential development.

Photograph 5: Disturbed land adjacent to Murrieta Creek. The cottonwood-willow riparian woodland is visible in the background.

Photograph 6: Cottonwood-willow riparian woodland adjacent to disturbed land.

Photograph 7: Representative photograph of Riversidean Sage Scrub.

Photograph 8: Representative photograph of California Buckwheat Scrub.

Photograph 9: Developed and disturbed land along the proposed pipeline route.

Photograph 10: An unnamed ephemeral drainage in southeast portion of the project site.

Photograph 11: Portion of Murrieta Creek with potential to support burrowing owl (*Athene cunicularia*).

Photograph 12: Suitable burrows (>4 inches) for burrowing owl.

Appendix C Potentially Occurring Special-Status Biological Resources

Table D-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
WILDLIFE SPECIES				
Accipiter cooperii Cooper's hawk	Fed: None CA: WL	Generally found in forested areas up to 3,000 feet in elevation, especially near edges and rivers. Prefers hardwood stands and mature forests, but can be found in urban and suburban areas where there are tall trees for nesting. Common in open areas during nesting season.	No	**High**. There is suitable foraging and nesting habitat on-site. This species is adapted to urban environments and occurs commonly.
Accipiter striatus sharp-shinned hawk	Fed: None CA: WL	Found in pine, fir and aspen forests. They can be found hunting in forest interior and edges from sea level to near alpine areas. Can also be found in rural, suburban and agricultural areas, where they often hunt at bird feeders. Typically found in southern California in the winter months.	No	**High**. There is suitable foraging habitat on-site; however, this species does not nest in the region. This species is adapted to urban environments and occurs commonly.
Agelaius tricolor tricolored blackbird	Fed: None CA: **THR**/SSC	Range is limited to the coastal areas of the Pacific coast of North America, from Northern California to upper Baja California. Can be found in a wide variety of habitat including annual grasslands, wet and dry vernal pools and other seasonal wetlands, agricultural fields, cattle feedlots, and dairies. Occasionally forage in riparian scrub habitats along marsh borders. Basic habitat requirements for breeding include open accessible water, protected nesting substrate (freshwater marsh dominated by cattails, willows, and bulrushes [*Schoenoplectus* sp.]), and either flooded or thorny or spiny vegetation and suitable foraging space providing adequate insect prey.	No	**Presumed absent.** No suitable habitat is present within or adjacent to the project site.
Aimophila ruficeps canescens southern California rufous-crowned sparrow	Fed: None CA: WL	Typically found between 3,000 and 6,000 feet in elevation. Breed in sparsely vegetated scrubland on hillsides and canyons. Prefers coastal sage scrub dominated by California sagebrush (*Artemisia californica*), but they can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats.	No	**Moderate.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Ammodramus savannarum grasshopper sparrow	Fed: None CA: SSC	Occurs in grassland, upland meadow, pasture, hayfield, and old field habitats. Optimal habitat contains short- to medium-height bunch grasses interspersed with patches of bare ground, a shallow litter layer, scattered forbs, and few shrubs. May inhabit thickets, weedy lawns, vegetated landfills, fence rows, open fields, or grasslands.	No	**Presumed absent.** No suitable habitat is present within or adjacent to the project site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Anaxyrus californicus arroyo toad	Fed: **END** CA: SSC	Occurs in washes and intermittent streams with a mixture of gravel and sandy substrate. Requires a moderate cover of willows, cottonwoods, mulefat, and sycamore to provide shade over the water, and oaks in the upland area to forage for ants.	No	**Presumed absent.** No suitable habitat is present within or adjacent to the project site.
Aquila chrysaetos golden eagle	Fed: None CA: FP; WL	Occupies nearly all terrestrial habitats of the western states except densely forested areas. Favors secluded cliffs with overhanging ledges and large trees for nesting and cover. Hilly or mountainous country where takeoff and soaring are supported by updrafts is generally preferred to flat habitats. Deeply cut canyons rising to open mountain slopes and crags are ideal habitat.	No	**Presumed absent.** No suitable habitat is present within or adjacent to the project site.
Ardea alba great egret	Fed: None CA: None	Yearlong resident throughout California, except for the high mountains and deserts. Feeds and rests in fresh, and saline emergent wetlands, along the margins of estuaries, lakes, and slow-moving streams, on mudflats and salt ponds, and in irrigated croplands and pastures.	No	**Low.** Marginal foraging habitat is present within the undeveloped portions of the site. No suitable nesting habitat is present on-site.
Ardea herodias great blue heron	Fed: None CA: None	Forages along streams, marshes, lakes, and meadows. Nests colonially in tall trees (typically *Eucalyptus* sp.), on cliffsides, or in isolated spots in marshes.	No	**Low.** Marginal foraging habitat is present within the undeveloped portions of the site. No suitable nesting habitat is present on-site.
Arizona elegans occidentalis California glossy snake	Fed: None CA: SSC	Inhabits arid scrub, rocky washes, grasslands, and chaparral habitats.	No	**Low.** Marginal foraging habitat is present within the undeveloped portions of the site.
Artemisiospiza belli belli Bell's sage sparrow	Fed: None CA: WL	Generally prefers semi-open habitats with evenly spaced shrubs 1 – 2 meters in height. Dry chaparral and coastal sage scrub. Less common in tall dense, old chaparral.	No	**Moderate.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Asio flammeus short-eared owl	Fed: None CA: SSC	Suitable habitats include salt- and freshwater marshes, irrigated alfalfa or grain fields, and ungrazed grasslands and old pastures. Tule marsh or tall grasslands with cover 30 to 50 cm in height can support nesting pairs.	No	**Presumed absent.** No suitable habitat is present within or adjacent to the project site.
Aspidoscelis hyperythra orangethroat whiptail	Fed: None CA: WL	Semi-arid brushy areas typically with loose soil and rocks, including washes, streamsides, rocky hillsides, and coastal chaparral.	No	**Moderate.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Aspidoscelis tigris stejnegeri coastal whiptail	Fed: None CA: SSC	Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage - chaparral, woodland, and riparian areas.	No	**Moderate.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Athene cunicularia burrowing owl	Fed: None CA: SSC	Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent upon fossorial mammals for burrows, most notable ground squirrels.	No	**Low.** Portions of the project site along Murrieta Creek provide line-of-site opportunities preferred by burrowing owls and support suitable burrows for roosting. However, there is an abundance of tall perching opportunities for large raptors that prey on burrowing owl.
Baeolophus inornatus oak titmouse	Fed: None CA: None	Common resident in a variety of habitats, but primarily associated with oaks. Occurs in montane hardwood-conifer, montane hardwood, blue, valley, and coastal oak woodlands, and montane and valley foothill riparian habitats in cismontane California, from the Mexican border to Humboldt Co. Range encircles San Joaquin Valley, extending east from the coast through Kern Co. onto the western slope of the Sierra Nevada north to Shasta Co.	No	**Presumed absent.** No suitable habitat is present within or adjacent to the project site.
Bombus crotchii Crotch bumble bee	Fed: None CA: CE	Exclusive to coastal California east towards the Sierra-Cascade Crest; less common in western Nevada.	No	**Presumed absent.** No suitable habitat is present within or adjacent to the project site.
Branchinecta lynchi vernal pool fairy shrimp	Fed: **THR** CA: None	Associated with vernal pools. Can be found in association with other ephemeral habits including alkali pools, seasonal drainages, stock ponds, vernal swales, and rock outcrops.	No	**Presumed absent.** No suitable habitat is present within or adjacent to the project site.
Branchinecta sandiegonensis San Diego fairy shrimp	Fed: **END** CA: None	Occurs only in small, shallow vernal pools which range in depth from 2-12 inches and water temperature from 50-68 ˚F.	No	**Presumed absent.** No suitable habitat is present within or adjacent to the project site.
Buteo regalis ferruginous hawk	Fed: None CA: WL	Occurs primarily in open grasslands and fields, but may be found in sagebrush flats, desert scrub, low foothills, or along the edges of pinyon-juniper woodland. Feeds primarily on small mammals and typically found in agricultural or open fields.	No	**Presumed absent.** No suitable habitat is present within or adjacent to the project site.
Buteo swainsoni Swainson's hawk	Fed: None CA: **THR**	Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grassland or suitable grain or alfalfa fields or livestock pastures.	No	**Presumed absent.** No suitable habitat is present within or adjacent to the project site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Calypte costae Costa's hummingbird	Fed: None CA: None	Desert and semi-desert, arid brushy foothills and chaparral. A desert hummingbird that breeds in the Sonoran and Mojave Deserts. Departs desert heat moving into chaparral, scrub, and woodland habitats.	No	**Moderate.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Chaetodipus californicus femoralis Dulzura pocket mouse	Fed: None CA: SSC	Found most often in grass-chaparral edges, but may also be found in coastal scrub or other habitats, primarily in San Diego County.	No	**Low.** Marginal foraging habitat is present within Murrieta Creek.
Chaetodipus fallax fallax northwestern San Diego pocket mouse	Fed: None CA: SSC	Occurs in desert and coastal habitats in southern California, Mexico, and northern Baja California, from sea level to at least 1,400 meters. Found in a variety of temperate habitats ranging from chaparral and grasslands to scrub forests and deserts. Requires low growing vegetation or rocky outcroppings, as well as sandy soils for burrowing.	No	**Low.** Marginal foraging habitat is present within Murrieta Creek.
Circus hudsonius northern harrier	Fed: None CA: SSC	Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Mostly found in flat, or hummocky, open areas of tall, dense grasses moist or dry shrubs, and edges for nesting, cover, and feeding.	No	**Low.** Marginal foraging habitat is present within the undeveloped portions of the site.
Crotalus ruber red-diamond rattlesnake	Fed: None CA: SSC	It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, cactus or boulder associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake; however, chamise and red shank associations may offer better structural habitat for refuges and food resources for this species than other habitats.	No	**Moderate.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Diadophis punctatus modestus San Bernardino ringneck snake	Fed: None CA: None	Common in open, relatively rocky areas within valley-foothill, mixed chaparral, and annual grass habitats.	No	**Presumed absent.** No suitable habitat is present on-site.
Dipodomys merriami parvus San Bernardino Kangaroo Rat	Fed: **END** CA: CE/SSC	Primarily found in Riversidian alluvial fan sage scrub and sandy loam soils, alluvial fans and flood plains, and along washes with nearby sage scrub. May occur at lower densities in Riversidian upland sage scrub, chaparral and grassland in uplands and tributaries in proximity to Riversidian alluvial fan sage scrub habitats. Tend to avoid rocky substrates and prefer sandy loam substrates for digging of shallow burrows.	No	**Presumed absent.** No suitable habitat is present on-site.

Scientific Name Common Name	**Status**		**Habitat**	**Observed On-site**	**Potential to Occur**
Dipodomys simulans Dulzura kangaroo rat	Fed: CA:	None None	Relatively common in chaparral, coastal sage scrub, Riversidean alluvial fan sage scrub, and peninsular juniper woodland habitats.	No	**Low.** Marginal foraging habitat is present within Murrieta Creek.
Dipodomys stephensi Stephens' kangaroo rat	Fed: CA:	**END** **THR**	Occur in arid and semi-arid habitats with some grass or brush. Prefer open habitats with less than 50% protective cover. Require soft, well-drained substrate for building burrows and are typically found in areas with sandy soil.	No	**Presumed absent.** No suitable habitat is present on-site.
Elanus leucurus white-tailed kite	Fed: CA:	None FP	Occurs in low elevation, open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Uses trees with dense canopies for cover.	No	**Low.** Marginal foraging habitat is present within the undeveloped portions of the site.
Empidonax traillii willow flycatcher	Fed: CA:	None **END**	A rare to locally uncommon, summer resident in wet meadow and montane riparian habitats (2,000 to 8,000 ft) in the Sierra Nevada and Cascade Range. Most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows.	No	**Low.** Marginal foraging habitat is present within Murrieta Creek.
Emys marmorata western pond turtle	Fed: CA:	None SSC	Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. May enter brackish water and even seawater. Found at elevations from sea level to over 5,900 feet (1,800 m).	No	**Presumed absent.** No suitable habitat is present on-site.
Eremophila alpestris actia California horned lark	Fed: CA:	None WL	Generally found in shortgrass prairies, grasslands, disturbed fields, or similar habitat types along the coast or in deserts. Trees are shrubs are usually scarce or absent. Generally rare in montane, coniferous, or chaparral habitats. Forms large flocks outside of the breeding season.	No	**Moderate.** Suitable foraging and nesting habitat are present within undeveloped portions of the site.
Eumops perotis californicus western mastiff bat	Fed: CA:	None SSC	Primarily a cliff-dwelling species, roost generally under exfoliating rock slabs. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least 3 meters below the entrance for flight. In California, it is most frequently encountered in broad open areas. Its foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas.	No	**Low.** Marginal foraging habitat is present within the project site. No suitable roosting habitat is present.
Euphydryas editha quino quino checkerspot butterfly	Fed: CA:	**END** None	Range is now limited to a few populations in Riverside and San Diego counties. Common in meadows and upland sage scrub/chapparal habitat.	No	**Presumed absent.** No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Falco columbarius merlin	Fed: None CA: WL	Nest in forested openings, edges, and along rivers across northern North America. Found in open forests, grasslands, and especially coastal areas with flocks of small songbirds or shorebirds.	No	**Low.** Marginal foraging is present within the undeveloped portions of the site. No suitable nesting habitat is present.
Falco mexicanus prairie falcon	Fed: None CA: WL	Commonly occur in arid and semiarid shrubland and grassland community types. Also occasionally found in open parklands within coniferous forests. During the breeding season, they are found commonly in foothills and mountains which provide cliffs and escarpments suitable for nest sites.	No	**Low.** Marginal foraging is present within the undeveloped portions of the site. No suitable nesting habitat is present.
Falco peregrinus anatum American peregrine falcon	Fed: DL CA: DL, FP	Uncommon winter resident of the inland region of southern California. Active nesting sites are known along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. Breeds mostly in woodland, forest, and coastal habitats. Riparian areas and coastal and inland wetlands are important habitats yearlong, especially in nonbreeding seasons.	No	**Low.** Marginal foraging is present within the undeveloped portions of the site. No suitable nesting habitat is present.
Gila orcuttii arroyo chub	Fed: None CA: SSC	Warm streams of the Los Angeles Plain, which are typically muddy torrents during the winter, and clear quiet brooks in the summer, possibly drying up in places. They are found both in slow-moving and fast-moving sections, but generally deeper than 40 cm.	No	**Presumed absent**. No suitable habitat is present.
Icteria virens yellow-breasted chat	Fed: None CA: SSC	Primarily found in tall, dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories. Nesting areas are associated with streams, swampy ground, and the borders of small ponds. Breeding habitat must be dense to provide shade and concealment. It winters south the Central America.	No	**Low.** Marginal foraging habitat is present within Murrieta Creek.
Lanius ludovicianus loggerhead shrike	Fed: None CA: SSC	Often found in broken woodlands, shrublands, and other habitats. Prefers open country with scattered perches for hunting and fairly dense brush for nesting.	No	**Moderate.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Lepus californicus bennettii San Diego black-tailed jackrabbit	Fed: None CA: SSC	Occurs in diverse habitats, but primarily is found in arid regions supporting shortgrass habitats. Openness of open scrub habitat is preferred over dense chaparral.	No	**Moderate.** The undeveloped portions of the site have the potential to provide suitable habitat.
Linderiella occidentalis Californica linderiella	Fed: None CA: None	Found in large, fairly clear vernal pools and lakes. Found in a variety of natural, and artificial, seasonally ponded habitat types including: vernal pools, swales, ephemeral drainages, stock ponds, reservoirs, ditches, backhoe pits, and ruts caused by vehicular activities.	No	**Presumed absent**. No suitable habitat is present.

Scientific Name Common Name	**Status**		**Habitat**	**Observed On-site**	**Potential to Occur**
Linderiella santarosae Santa Rosa Plateau fairy shrimp	Fed: CA:	None None	Restricted to the Santa Rosa Plateau in Southern Interior Basalt Vernal Pools with cool clear to milky waters that are moderately predictable and remain filled for extended periods of time.	No	**Presumed absent**. No suitable habitat is present.
Lynx rufus pallescens pallid bobcat	Fed: CA:	None None	Found on the western edge of the great basin habitat in extreme northeast California. Live in a variety of habitats including forests, deserts, mountains, swamps and farmland.	No	**Presumed absent.** No suitable habitat is present on-site.
Neotoma lepida intermedia San Diego desert woodrat	Fed: CA:	None SSC	Occurs in coastal scrub communities between San Luis Obispo and San Diego Counties. Prefers moderate to dense canopies, and especially rocky outcrops.	No	**Presumed absent.** No suitable habitat is present on-site.
Pandion haliaetus osprey	Fed: CA:	None WL	Remain close to still or slow-moving bodies of water including oceans, rivers, lakes, mangroves, coastal wetlands, lagoons, reefs, estuaries and marshes. Generally nest in high places, such as trees, power poles, or cliffs.	No	**Presumed absent.** No suitable habitat is present on-site.
Perognathus longimembris brevinasus Los Angeles pocket mouse	Fed: CA:	None SSC	Occurs in lower elevation grasslands and coastal sage scrub communities in and around the Los Angeles Basin. Prefers open ground with fine sandy soils. May not dig extensive burrows, but instead will seek refuge under weeds and dead leaves instead.	No	**Low.** Marginal foraging habitat is present within Murrieta Creek.
Phrynosoma blainvillii coast horned lizard	Fed: CA:	None SSC	Occurs in a wide variety of vegetation types including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest. In inland areas, this species is restricted to areas with pockets of open microhabitat, created by disturbance (i.e. fire, floods, roads, grazing, fire breaks). The key elements of such habitats are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge.	No	**Moderate.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Plegadis chihi white-faced ibis	Fed: CA:	None WL	Prefers to feed in fresh emergent wetland, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded partures and croplands. Nests in dense, fresh emergent wetland.	No	**Presumed absent**. No suitable habitat is present.
Polioptila californica californica coastal California gnatcatcher	Fed: CA:	**THR** SSC	Obligate resident of sage scrub habitats that are dominated by California sagebrush (*Artemisia californica*). This species generally occurs below 750 feet elevation in coastal regions and below 1,500 feet inland. Ranges from the Ventura County, south to San Diego County and northern Baja California and it is less common in sage scrub with a high percentage of tall shrubs. Prefers habitat with more low-growing vegetation.	No	**Moderate.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Rana draytonii California red-legged frog	Fed: **THR** CA: SSC	Found mainly near ponds in humid forests, woodlands, grasslands, coastal scrub, and streamsides with plant cover. Most common in lowlands or foothills. Frequently found in woods adjacent to streams. Occurs along the coast ranges from Mendocino County south and in portions of the Sierra Nevada and Cascades ranges.	No	**Presumed absent**. No suitable habitat is present.
Setophaga petechia yellow warbler	Fed: None CA: SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral. May also use oaks, conifers, and urban areas near stream courses.	No	**High.** Suitable foraging habitat is present within Murrieta Creek.
Spea hammondii western spadefoot	Fed: None CA: SSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washed, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	No	**Presumed absent**. No suitable habitat is present.
Spinus lawrencei Lawrence's goldfinch	Fed: None CA: None	Open woodlands, chaparral, and weedy fields. Closely associated with oaks. Nests in open oak or other arid woodland and chaparral near water.	No	**Low.** Marginal foraging is present within the project site.
Streptocephalus woottoni Riverside fairy shrimp	Fed: **END** CA: None	Freshwater crustacean that is found in vernal pools in the coastal California area.	No	**Presumed absent**. No suitable habitat is present.
Taricha torosa Coast Range newt	Fed: None CA: SSC	Resides in coastal areas. Found near small ponds, creeks, and seeps in woodlands and chaparral.	No	**Presumed absent**. No suitable habitat is present.
Thamnophis hammondii two-striped garter snake	Fed: None CA: SSC	Generally found around pools, creeks, cattle tanks, and other water sources, often in rocky areas, in oak woodland, chaparral, brushland, and coniferous forest.	No	**Presumed absent**. No suitable habitat is present.
Vireo bellii pusillus least Bell's vireo	Fed: **END** CA: **END**	Primarily occupy Riverine riparian habitat that typically feature dense cover within 1 -2 meters of the ground and a dense, stratified canopy. Typically it is associated with southern willow scrub, cottonwood-willow forest, mule fat scrub, sycamore alluvial woodlands, coast live oak riparian forest, arroyo willow riparian forest, or mesquite in desert localities. It uses habitat which is limited to the immediate vicinity of water courses, 2,000 feet elevation in the interior.	No	**High.** Suitable foraging habitat is present within Murrieta Creek.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Xanthocephalus xanthocephalus yellow-headed blackbird	Fed: None CA: SSC	Occurs in freshwater emergent wetlands, and moist, open areas along croplands and mud flats of lacustrine habitats. Prefers to nest in dense wetland vegetation characterized by tules, cattails, or other similar plant species along the border of lakes and ponds.	No	**Presumed absent**. No suitable habitat is present.
PLANT SPECIES				
Abronia villosa* var. *aurita chaparral sand-verbena	Fed: None CA: None CNPS: 1B.1	Grows in sandy soils in coastal sage scrub and in chaparral habitats. Grows in elevation from 262 to 5,249 feet. Blooming period ranges from January to September.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Allium munzii Munz's onion	Fed: **END** CA: **THR** CNPS: 1B.1	Found in chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland. Found at elevations ranging from 974 to 3,510 feet. Blooming period is from March to May.	No	**Presumed absent**. No suitable habitat is present.
Almutaster pauciflorus alkali marsh aster	Fed: None CA: None CNPS: 2B.2	Occurs in wet alkaline and saline soils on shorelines, streambanks, marshes, and seeps with open exposure. Found in elevations from 343 to 2,594 feet. Blooming period ranges from June to October.	No	**Presumed absent**. No suitable habitat is present.
Amsinckia douglasiana Douglas' fiddleneck	Fed: None CA: None CNPS: 4.2	Occurs in rocky, dry soils in cismontane woodlands and valley and foothill grasslands. Found at elevations ranging from 492 to 5,249 feet. Blooming period ranges from March to May.	No	**Presumed absent**. No suitable habitat is present.
Arctostaphylos rainbowensis rainbow manzanita	Fed: None CA: None CNPS: 1B.1	Habitats include vernally mesic areas, sandy coastal bluff scrub, coastal dunes, and mesic coastal prairie. Found at elevations ranging from 3 to 164 feet. Blooming period is from March to May.	No	**Presumed absent**. No suitable habitat is present. The project site occurs outside of the known elevation range for this species.
Ayenia compacta California ayenia	Fed: None CA: None CNPS: 2B.3	Occurs in rocky soils within Mojavean desert scrub and Sonoran desert scrub. Found at elevations ranging from 500 to 3,600 feet. blooming period is from March to April.	No	**Presumed absent**. No suitable habitat is present.
Brodiaea filifolia thread-leaved brodiaea	Fed: **THR** CA: **END** CNPS: 1B.1	Grows in chaparral openings, cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools, often in clay soils. Found at elevations ranging from 82 to 3,675 feet. Blooming period is from March to June.	No	**Presumed absent**. No suitable habitat is present.
Brodiaea orcuttii Orcutt's bridiaea	Fed: None CA: None CNPS: 1B.1	Occurs mostly on mesic, clay habitats and sometimes in serpentine soils. Usually found in vernal pools, valley and foothill grassland, closed-cone coniferous forest, cismontane woodland, chaparral, meadows and seeps, and other small drainages. Found at elevations ranging from 98 to 5,561 feet. Blooming period ranges from May to July.	No	**Presumed absent**. No suitable habitat is present.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Brodiaea santarosae Santa Rosa basalt brodiaea	Fed: None CA: None CNPS: 1B.2	Occurs primarily in soils derived from the Santa Rosa Basalt rock formation; open areas, grasslands, vernal pool edges. Grows in elevations ranging from 1,854 to 3,428 feet. Blooming period is from May to June.	No	**Presumed absent**. No suitable habitat is present. The project site occurs outside of the known elevation range for this species.
Calochortus catalinae Catalina mariposa-lily	Fed: None CA: None CNPS: 4.2	Grows in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats. Found at elevations ranging from 49 to 2,297 feet. Blooming period is from March to June.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Calochortus weedii* var. *intermedius intermediate mariposa-lily	Fed: None CA: None CNPS: 1B.2	Prefers rocky, calcareous soils in chaparral, valley and foothill grassland, and coastal sage scrub habitats. From 360 to 2,265 feet in elevation. Blooming period is from May to July.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Centromadia pungens* ssp. *laevis smooth tarplant	Fed: None CA: None CNPS: 1B.1	Occurs in alkaline soils within chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland habitats. Grows in elevation from 0 to 2,100 feet. Blooming period ranges from April to September.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Chorizanthe parryi var. parryi Parry's spineflower	Fed: None CA: None CNPS: 1B.1	Occurs on sandy and/or rocky soils in chaparral, coastal sage scrub, and sandy openings within alluvial washes and margins. Found at elevations ranging from 951 to 3,773 feet. Blooming period is from April to June.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Chorizanthe polygonoides var. longispina long-spined spineflower	Fed: None CA: None CNPS: 1B.2	Typically found on clay lenses which are largely devoid of shrubs. Can be found on the periphery of vernal pool habitat and even on the periphery of montane meadows near vernal seeps. Found at elevations ranging from 98 to 5,020 feet. Blooming period is from April to July.	No	**Presumed absent**. No suitable habitat is present.
Clinopodium chandleri San Miguel savory	Fed: None CA: None CNPS: 1B.2	Grows in chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland, usually in rocky, gabbroic, or metavolcanic substrate. Found at elevations ranging from 394 to 3,527 feet. Blooming period is from March to July.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Convolvulus simulans small-flowered morning-glory	Fed: None CA: None CNPS: 4.2	Found in clay and serpentinite seeps within chaparral (openings), coastal scrub, valley and foothill grassland. Found at elevations ranging from 98 to 2,297 feet. Blooming period is from March to July.	No	**Presumed absent**. No suitable habitat is present.
Deinandra paniculata paniculate tarplant	Fed: None CA: None CNPS: 4.2	Typically found in vernally mesic, sometimes sandy soils in coastal scrub, valley and foothill grasslands, and vernal pools. Found at elevations ranging from 82 to 3,084 feet. Blooming period is from April to November.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Eryngium aristulatum* var. *parishii San Diego button-celery	Fed: **END** CA: **END** CNPS: 1B.1	Occurs in mesic soils in costal scrub and valley and foothill grasslands, and around vernal pools. Found at elevations ranging from 66 to 2,034 feet. Blooming period is from April to June.	No	**Presumed absent**. No suitable habitat is present.
Erythranthe diffusa Palomar monkeyflower	Fed: None CA: None CNPS: 4.3	Occurs in sandy soils in chaparral and lower montane coniferous forests. Found at elevations ranging from 4,002 to 6,004 feet. Blooming period is from April to June.	No	**Presumed absent**. No suitable habitat is present. The project site occurs outside of the known elevation range for this species.
Geothallus tuberosus Campbell's liverwort	Fed: None CA: None CNPS: 1B.1	Grows in mesic soils in coastal scrub and vernal pool habitats. Found at elevations ranging from 30 to 2,000 feet. This species does not bloom.	No	**Presumed absent**. No suitable habitat is present.
Harpagonella palmeri Palmer's grapplinghook	Fed: None CA: None CNPS: 4.2	Occurs on clay soils in chaparral, coastal scrub, and valley and foothill grasslands habitats. Grows in elevation from 66 to 3,133 feet. Blooming period ranges from March to May.	No	**Presumed absent**. No suitable habitat is present.
Hesperocyparis forbesii Tecate cypress	Fed None CA: None CNPS: 1B.1	Grows in clay, gabbroic, or metavolcanic soils within closed-cone coniferous forest and chaparral habitats. Found at elevations ranging from 260 to 4,920 feet.	No	**Presumed absent**. No suitable habitat is present.
Holocarpha virgata* ssp. *elongata curving tarplant	Fed: None CA: None CNPS: 4.2	Found in chaparral, coastal scrub, valley and foothill grassland, and cismontane woodland. Found at elevations from 197 to 3,609 feet. Blooming period is from May to November.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Hordeum intercedens vernal barley	Fed: None CA: None CNPS: 3.2	Found in coastal dunes, coastal scrub, vernal pools, and valley and foothill grassland habitats. Found at elevations ranging from 16 to 3,281 feet. Blooming period is from March to June.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Juglans californica southern California black walnut	Fed: None CA: None CNPS: 4.2	Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Found at elevations ranging from 164 to 2,953 feet. Blooming period is from March to August.	No	**Presumed absent**. No suitable habitat is present.
Juncus acutus* ssp. *leopoldii southwestern spiny rush	Fed: None CA: None CNPS: 4.2	Found in coastal dunes (mesic), meadows and seeps (alkaline seeps), and marshes and swamps (coastal salt). Found at elevations ranging from 0 to 3,115 feet. Blooming period is from May to July.	No	**Presumed absent**. No suitable habitat is present.
Juncus luciensis Santa Lucia dwarf rush	Fed: None CA: None CNPS: 1B.2	Occurs in wet soils in vernal pools, seeps, streambanks, and meadows. Found at elevations randing from 984 to 6,233 feet. Blooming period is from April to July.	No	**Presumed absent**. No suitable habitat is present.

Scientific Name Common Name	**Status**		**Habitat**	**Observed On-site**	**Potential to Occur**
Lasthenia glabrata* ssp. *coulteri Coulter's goldfields	Fed: CA: CNPS:	None None 1B.1	Prefers playas, vernal pools, and coastal salt marshes and swamps. Found at elevations ranging from 3 to 4,003 feet. Blooming period is from February to June.	No	**Presumed absent**. No suitable habitat is present.
Lathyrus splendens pride-of-California	Fed: CA: CNPS:	None None 4.3	Occurs in highly vegetated chaparral. Found at elevations to 3,444 feet. Blooming period is from March to June.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Lepidium virginicum var. robinsonii Robinson's pepper-grass	Fed: CA: CNPS:	None None 4.3	Dry soils on chaparral and coastal sage scrub from 66 to 4,396 feet in elevation. Blooming period ranges from January to July.	No	**Presumed absent**. No suitable habitat is present.
Lilium parryi lemon lily	Fed: CA: CNPS:	None None 1B.2	Prefers lower montane coniferous forest, riparian forests, upper montane coniferous forests, meadows and seeps. Found at elevations ranging from 4,003 to 9,006 feet. Blooming period is from July to August.	No	**Presumed absent**. No suitable habitat is present. The project site occurs outside of the known elevation range for this species.
Limnanthes alba* ssp. *parishii Parish's meadowfoam	Fed: CA: CNPS:	None **END** 1B.2	Grows in vernally mesic soils within lower montane coniferous forest, meadow and seep, and vernal pool habitats. Found at elevations ranging from 1,970 to 6,560 feet. Blooming period is from April to June.	No	**Presumed absent**. No suitable habitat is present.
Microseris douglasii* ssp. *platycarpha small-flowered microseris	Fed: CA: CNPS:	None None 4.2	Occurs in clay soils in cismontane woodland, coastal scrub, valley and foothill grasslands, and around vernal pools. Found at elevations ranging from 49 to 3,510 feet. Blooming period is from March to May.	No	**Presumed absent**. No suitable habitat is present.
Monardella hypoleuca* ssp. *intermedia intermediate monardella	Fed: CA: CNPS	None None 1B.3	Grows in understories within chaparral, cismontane woodland, and occasionally lower montane coniferous forest habitats. Found at elevations ranging from 1,300 to 4,100 feet. blooming period is from April to September.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Myosurus minimus* ssp. *Apus little mousetail	Fed: CA: CNPS:	None None 3.1	Occurs in areas that have semi-regular inundation in association with vernal pools, alkali vernal pools, and alkali grassland. The species is primarily restricted to clay or alkali soils on alkali vernal floodplains. Found at elevations ranging from 66 to 2,100 feet above msl. Blooming period is from March to June.	No	**Presumed absent**. No suitable habitat is present.
Navarretia fossalis spreading navarretia	Fed: CA: CNPS:	**THR** None 1B.1	Grows in chenopod scrub, assorted shallow freshwater marshes and swamps, playas, and vernal pools. Found at elevations ranging from 98 to 2,149 feet. Blooming period is from April to June.	No	**Presumed absent**. No suitable habitat is present.
Navarretia prostrata prostrate vernal pool navarretia	Fed: CA: CNPS:	None None 1B.2	Coastal scrub, valley and foothill grasslands, and vernal pools. Grows in elevation from 49 to 2,297 feet in elevation. Blooming period ranges from April to July.	No	**Presumed absent**. No suitable habitat is present.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Orcuttia californica California Orcutt grass	Fed: **END** CA: **END** CNPS: 1B.1	Primarily restricted to the southern basaltic claypan vernal pools at the Santa Rosa Plateau, and alkali vernal pools at Skunk Hollow, and at Salt Creek. Grows in elevations ranging from 45 to 2,165 feet above msl. Blooming period is from April to August.	No	**Presumed absent**. No suitable habitat is present.
Polygala cornuta* var. *fishiae Fish's milkwort	Fed: None CA: None CNPS: 4.3	Occurs in chaparral, cismontane woodland, and riparian woodland. Found at elevations ranging from 328 to 3,281 feet. Blooming period is from May to August.	No	**Presumed absent**. No suitable habitat is present.
Pseudognaphalium leucocephalum white rabbit-tobacco	Fed: None CA: None CNPS: 2B.2	Chaparral, cismontane woodland, coastal scrub, riparian woodlands in sandy gravelly soils. Grows in elevation from 3 to 6,890 feet in elevation. Blooming period ranges from July to December.	No	**Presumed absent**. No suitable habitat is present.
Quercus engelmannii Engelmann oak	Fed: None CA: None CNPS: 4.2	Occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. Found at elevations ranging from 164 to 4,265 feet. Blooming period is from March to June.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Romneya coulteri Coulter's matilija poppy	Fed: None CA: None CNPS: 4.2	Found in recently burned areas within chaparral and coastal scrub habitats. Found at elevations ranging from 66 to 3,937 feet. Blooming period is from March to July.	No	**Presumed absent**. No suitable habitat is present.
Scutellaria bolanderi ssp. austromontana southern mountains skullcap	Fed: None CA: None CNPS: 1B.2	Typically grows on the moist embankments of montane creeks. Found at elevations ranging from 1,936 to 7,841 feet above msl. Blooming period is from June to August.	No	**Presumed absent**. No suitable habitat is present. The project site occurs outside of the known elevation range for this species.
Sibaropsis hammittii Hammitt's clay-cress	Fed: None CA: None CNPS: 1B.2	Grows in clay soils within openings of chaparral habitat and valley and foothill grassland habitats. Found at elevations ranging from 2,360 to 3,500 feet. Blooming period is from March to April.	No	**Presumed absent**. No suitable habitat is present. The project site occurs outside of the known elevation range for this species.
Sphaerocarpos drewei bottle liverwort	Fed: None CA: None CNPS: 1B.2	Grows in openings within chaparral and coastal scrub habitats. Found at elevations ranging from 200 to 1,970 feet. This species does not bloom.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.
Symphyotrichum defoliatum San Bernardino aster	Fed: None CA: None CNPS: 1B.2	Coastal scrub, valley and foothill grasslands, and vernal pools. Grows in elevation from 49 to 2,297 feet in elevation. Blooming period ranges from April to July.	No	**Low.** The RSS on the foothills of the Santa Rosa Mountains have the potential to provide suitable habitat.

CDFW SENSITIVE HABITATS				
Southern Coast Live Oak Riparian Forest	CDFW Sensitive Habitat	Open to locally dense evergreen riparian woodlands dominated by *Quercus agrifolia*. This type appears to be richer in herbs and poorer in understory shrubs than other riparian communities. Bottomlands and outer floodplains along larger streams, on fine-grained, rich alluvium. Canyons and valleys of coastal southern California.	No	**Absent**
Southern Interior Basalt Flow Vernal Pool	CDFW Sensitive Habitat	Found only on the Santa Rosa Plateau in Western Riverside County, dominated by native annual plants, with low to moderate levels of perennial herbaceous cover. Concentric rings of flora species often present as the pool evaporates.	No	**Absent**
Southern Sycamore Alder Riparian Woodland	CDFW Sensitive Habitat	Occurs below 2,000 meters in elevation, sycamore and alder often occur along seasonally-flooded banks; cottonwoods and willows are also often present. Poison oak, mugwort, elderberry and wild raspberry may be present in understory.	No	**Absent**
Valley Needlegrass Grassland	CDFW Sensitive Habitat	Occur as patches of native grasslands within valleys. Dominated by perennial bunch grasses with herbaceous annuals intermixed. Supports early successional sub-shrub and suffrutescent species.	No	**Absent**

U.S. Fish and Wildlife Service (Fed) - Federal
END- Federal Endangered
THR- Federal Threatened

California Department of Fish and Wildlife (CA) - California
END- California Endangered
THR- California Threatened
Candidate- Candidate for listing under the California Endangered Species Act
FP- California Fully Protected
SSC- Species of Special Concern
WL- Watch List

California Native Plant Society (CNPS)
California Rare Plant Rank
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2B Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3 Plants About Which More Information is Needed – A Review List
4 Plants of Limited Distribution – A Watch List

CNPS Threat Ranks
0.1- Seriously threatened in California
0.2- Moderately threatened in California
0.3- Not very threatened in California

Appendix D Regulations

Special status species are native species that have been afforded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

Federal Regulations

Endangered Species Act of 1973

Federally listed threatened and endangered species and their habitats are protected under provisions of the Federal Endangered Species Act (ESA). Section 9 of the ESA prohibits "take" of threatened or endangered species. "Take" under the ESA is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The presence of any federally threatened or endangered species that are in a project area generally imposes severe constraints on development, particularly if development would result in "take" of the species or its habitat. Under the regulations of the ESA, the United States Fish and Wildlife Service (USFWS) may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act.

Critical Habitat is designated for the survival and recovery of species listed as threatened or endangered under the ESA. Critical Habitat includes those areas occupied by the species, in which are found physical and biological features that are essential to the conservation of an ESA listed species and which may require special management considerations or protection. Critical Habitat may also include unoccupied habitat if it is determined that the unoccupied habitat is essential for the conservation of the species.

Whenever federal agencies authorize, fund, or carry out actions that may adversely modify or destroy Critical Habitat, they must consult with USFWS under Section 7 of the ESA. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highway Administration or a permit from the U.S. Army Corps of Engineers (Corps)).

If USFWS determines that Critical Habitat will be adversely modified or destroyed from a proposed action, the USFWS will develop reasonable and prudent alternatives in cooperation with the federal institution to ensure the purpose of the proposed action can be achieved without loss of Critical Habitat. If the action is not likely to adversely modify or destroy Critical Habitat, USFWS will include a statement in its biological opinion concerning any incidental take that may be authorized and specify terms and conditions to ensure the agency is in compliance with the opinion.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S. Government Code [USC] 703) makes it unlawful to pursue, capture, kill, possess, or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 10, 21).

The MBTA covers the taking of any nests or eggs of migratory birds, except as allowed by permit pursuant to 50 CFR, Part 21. Disturbances causing nest abandonment and/or loss of reproductive effort (i.e., killing or abandonment of eggs or young) may also be considered "take." This regulation seeks to protect migratory birds and active nests.

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). Six families of raptors occurring in North America were included in the amendment: Accipitridae (kites, hawks, and eagles); Cathartidae (New World vultures); Falconidae (falcons and caracaras); Pandionidae (ospreys); Strigidae (typical owls); and Tytonidae (barn owls). The provisions of the 1972 amendment to the MBTA protects all species and subspecies of the families listed above. The MBTA protects over 800 species including geese, ducks, shorebirds, raptors, songbirds and many relatively common species.

State Regulations

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) provides for the protection of the environment within the State of California by establishing State policy to prevent significant, avoidable damage to the environment through the use of alternatives or mitigation measures for projects. It applies to actions directly undertaken, financed, or permitted by State lead agencies. If a project is determined to be subject to CEQA, the lead agency will be required to conduct an Initial Study (IS); if the IS determines that the project may have significant impacts on the environment, the lead agency will subsequently be required to write an Environmental Impact Report (EIR). A finding of non-significant effects will require either a Negative Declaration or a Mitigated Negative Declaration instead of an EIR. Section 15380 of the CEQA Guidelines independently defines "endangered" and "rare" species separately from the definitions of the California Endangered Species Act (CESA). Under CEQA, "endangered" species of plants or animals are defined as those whose survival and reproduction in the wild are in immediate jeopardy, while "rare" species are defined as those who are in such low numbers that they could become endangered if their environment worsens.

California Endangered Species Act (CESA)

In addition to federal laws, the state of California implements the CESA which is enforced by CDFW. The CESA program maintains a separate listing of species beyond the FESA, although the provisions of each act are similar.

State-listed threatened and endangered species are protected under provisions of the CESA. Activities that may result in "take" of individuals (defined in CESA as; "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") are regulated by CDFW. Habitat degradation or modification is not included in the definition of "take" under CESA. Nonetheless, CDFW has interpreted "take" to include the destruction of nesting, denning, or foraging habitat necessary to maintain a viable breeding population of protected species.

The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the

absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens. State threatened and endangered species are fully protected against take, as defined above.

The CDFW has also produced a species of special concern list to serve as a species watch list. Species on this list are either of limited distribution or their habitats have been reduced substantially, such that a threat to their populations may be imminent. Species of special concern may receive special attention during environmental review, but they do not have formal statutory protection. At the federal level, USFWS also uses the label species of concern, as an informal term that refers to species which might be in need of concentrated conservation actions. As the Species of Concern designated by USFWS do not receive formal legal protection, the use of the term does not necessarily ensure that the species will be proposed for listing as a threatened or endangered species.

Fish and Game Code

Fish and Game Code Sections 3503, 3503.5, 3511, and 3513 are applicable to natural resource management. For example, Section 3503 of the Code makes it unlawful to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Further, any birds in the orders Falconiformes or Strigiformes (Birds of Prey, such as hawks, eagles, and owls) are protected under Section 3503.5 of the Fish and Game Code which makes it unlawful to take, possess, or destroy their nest or eggs. A consultation with CDFW may be required prior to the removal of any bird of prey nest that may occur on a project site. Section 3511 of the Fish and Game Code lists fully protected bird species, where the CDFW is unable to authorize the issuance of permits or licenses to take these species. Pertinent species that are State fully protected by the State include golden eagle (*Aquila chrysaetos*) and white-tailed kite (*Elanus leucurus*). Section 3513 of the Fish and Game Code makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Native Plant Protection Act

Sections 1900–1913 of the Fish and Game Code were developed to preserve, protect, and enhance Rare and Endangered plants in the state of California. The act requires all state agencies to use their authority to carry out programs to conserve Endangered and Rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require notification of the CDFW at least ten days in advance of any change in land use which would adversely impact listed plants. This allows the CDFW to salvage listed plant species that would otherwise be destroyed.

California Native Plant Society Rare and Endangered Plant Species

Vascular plants listed as rare or endangered by the CNPS, but which have no designated status under FESA or CESA are defined as follows:

California Rare Plant Rank

1A- Plants Presumed Extirpated in California and either Rare or Extinct Elsewhere

1B- Plants Rare, Threatened, or Endangered in California and Elsewhere

2A- Plants Presumed Extirpated in California, But More Common Elsewhere

2B- Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

3- Plants about Which More Information is Needed - A Review List

4- Plants of Limited Distribution - A Watch List

Threat Ranks

.1- Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2- Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

.3- Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFG regulates activities under the Fish and Game Code Section 1600-1616, and the Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Federal Regulations

Section 404 of the Clean Water Act

Since 1972, the Corps and EPA have jointly regulated the filling of waters of the United States, including wetlands, pursuant to Section 404 of the CWA. The Corps has regulatory authority over the discharge of dredged or fill material into the waters of the United States under Section 404 of the CWA. The Corps and EPA define "fill material" to include any "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States." Examples include, but are not limited to, the placement of sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States."

In April of 2020, the Corps and the EPA provided a new definition for *waters of the United States* [Federal Register, Vol. 85, No. 77 (April 21, 2020)] which encompass:

- The territorial seas and traditional navigable waters;
- Perennial and intermittent tributaries that contribute surface water flow to such waters;
- Certain lakes, ponds, and impoundments of jurisdictional waters; and
- Wetlands adjacent to other jurisdictional waters.

Additionally, the new definition identifies 12 categories of those waters and features that are excluded from the definition of ''waters of the United State, such as features that only contain water in direct response to rainfall (e.g., ephemeral features), groundwater, many ditches, prior converted cropland, and waste treatment systems. The final rule excludes from the definition of ''waters of the United States'' all waters or features not mentioned above. In addition to this general exclusion, the final rule specifically clarifies that waters of the United States do not include the following:

- Groundwater, including groundwater drained through subsurface drainage systems;
- Ephemeral features that flow only indirect response to precipitation, including ephemeral streams, swales, gullies, rills, and pools;
- Diffuse stormwater runoff and directional sheet flow over upland;
- Ditches that are not traditional navigable waters, tributaries, or that are not constructed in adjacent wetlands, subject to certain limitations;
- Prior converted cropland;
- Artificially irrigated areas that would revert to upland if artificial irrigation ceases;
- Artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;

- Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non jurisdictional waters for the purpose of obtaining fill, sand, or gravel;
- Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater runoff;
- Groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters; and
- Waste treatment systems.

Section 401 of the Clean Water Act

Pursuant to Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity which may result in any discharge to waters of the United States must provide certification from the State or Indian tribe in which the discharge originates. This certification provides for the protection of the physical, chemical, and biological integrity of waters, addresses impacts to water quality that may result from issuance of federal permits, and helps insure that federal actions will not violate water quality standards of the State or Indian tribe. In California, there are nine Regional Water Quality Control Boards (Regional Board) that issue or deny certification for discharges to waters of the United States and waters of the State, including wetlands, within their geographical jurisdiction. The State Water Resources Control Board assumed this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

State Regulations

Fish and Game Code

Fish and Game Code Sections 1600 et. seq. establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that will do one or more of the following:

(1) substantially obstruct or divert the natural flow of a river, stream, or lake;
(2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or
(3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. CDFW's regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, the CDFW takes jurisdiction to the top of bank of the stream or to the outer limit of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks

that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. A Section 1602 Streambed Alteration Agreement would be required if impacts to identified CDFW jurisdictional areas occur.

Porter Cologne Act

The California *Porter-Cologne Water Quality Control Act* gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool in the post SWANCC and Rapanos regulatory environment, with respect to the state's authority over isolated and insignificant waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

Appendix C

Cultural Resources Constraints Analysis

February 26, 2021

Kevin Thomas
Kimley-Horn
3880 Lemon Street, Suite 420
Riverside, California 92501

Subject: Cultural Resources Constraints Analysis for the Undeveloped Portions of the Murrieta Water Master Plan EIR Project, Murrieta and Wildomar, Riverside County, California (BCR Consulting Project No. KIM2101)

Dear Kevin:

BCR Consulting, LLC. (BCR Consulting) was retained by Kimley-Horn to complete a cultural resources constraints analysis for undeveloped portions of the Murrieta Water Master Plan EIR Project (the subject alignments) located in the Cities of Murrieta and Wildomar, Riverside County, California. The purpose of this study was to form preliminary recommendations based on a cultural resources records search, sample field survey, Native American communications, and paleontological overview. The report is intended for use as a planning tool, not for regulatory compliance. The subject alignments are located in a non-sectioned area of Township 7 South, Range 3 West, and Township 7 South, Range 4 West and are depicted on the United States Geological Survey (USGS) 7.5-Minute *Murrieta, California* (1979) topographic quadrangle (Attachment A).

Cultural Resources Records Search

Eastern Information Center (EIC) staff completed the cultural resources records search using records housed at the University of California, Riverside. The records search included a review of all recorded historic and prehistoric archaeological sites, as well as recorded built environment resources within 0.5 miles of the subject alignments. The research also reviewed known cultural resource reports completed within the 0.5-mile radius. This research has revealed that 155 previous cultural resources studies have resulted in 106 cultural resources identified within 0.5-miles of the subject alignments. Of the resources identified, seven have been plotted within or adjacent to the subject alignments. Please note that records for resources listed as “unknown” in the bibliography and Table A can be acquired from the EIC upon request.

Historic aerial photos from the U.S. Department of Agriculture and historic topographic maps from the U.S. Geological Survey were also reviewed through in-house resources, www.historicaerials.com, and the online database of historic aerial photographs available from University of California, Santa Barbara. This review has indicated that most of the area was agricultural between 1938 and 1967. The records search results are summarized below in Tables A and B. Bibliographic information and a records search map are provided as Attachment B. Please note that archaeological resource locations are considered confidential and the figures in Attachment B are only intended for essential personnel.

Table A. Cultural Resources Within 0.5-miles of the Subject Alignments

USGS 7.5 Min Quad	Cultural Resources Within 0.5-miles of Subject Alignments
Murrieta, California (1979)	P-33-000718: Prehistoric bedrock milling feature P-33-001085: Prehistoric lithic scatter* P-33-001086: Prehistoric/historic habitation debris P-33-001279: Prehistoric unknown P-33-001299: Prehistoric unknown P-33-001301: Prehistoric lithic scatter and feature P-33-001305: Prehistoric/historic habitation debris P-33-001307: Prehistoric lithic scatter P-33-001312: Prehistoric Unknown P-33-003412: Prehistoric lithic scatter and bedrock milling feature* P-33-003701: Prehistoric bedrock milling feature P-33-003702: Prehistoric bedrock milling feature P-33-003709: Prehistoric lithic scatter and bedrock milling feature* P-33-004142: Prehistoric lithic scatter P-33-004143: Prehistoric lithic scatter P-33-004145: Prehistoric lithic scatter P-33-007427: Historic-period building P-33-007428: Historic-period unknown P-33-007431: Historic-period single-family property P-33-007434: Historic-period single-family property P-33-007435: Historic-period single-family property P-33-007436: Historic-period single-family property P-33-007437: Historic-period single-family property P-33-007438: Historic-period Unknown P-33-007439: Historic-period single-family property P-33-007440: Historic-period farm/ranch P-33-007441: Historic-period farm/ranch P-33-007444: Historic-period farm/ranch P-33-007445: Historic-period single-family property P-33-007457: Historic-period single-family property P-33-007458: Historic-period single-family property P-33-007459: Historic-period single-family property P-33-007460: Historic-period single-family property P-33-007461: Historic-period single-family property P-33-007462: Historic-period single-family property P-33-007463: Historic-period single-family property P-33-007464: Historic-period unknown P-33-007465: Historic-period single-family property P-33-007467: Historic-period single-family property P-33-007468: Historic-period single-family property P-33-007469: Historic-period single-family property P-33-007471: Historic-period single-family property P-33-007472: Historic-period structure P-33-007473: Historic-period single-family property P-33-007474: Historic-period single-family property P-33-007475: Historic-period single-family property P-33-007476: Historic-period single-family property P-33-007477: Historic-period single-family property P-33-007478: Historic-period building P-33-007479: Historic-period single-family property P-33-007480: Historic-period single-family property P-33-007816: Historic-period single-family property P-33-008756: Prehistoric unknown P-33-010986: Prehistoric lithic scatter P-33-012344: Prehistoric bedrock milling feature

USGS 7.5 Min Quad	Cultural Resources Within 0.5-miles of Subject Alignments
	P-33-012345: Prehistoric unknown P-33-012700: Prehistoric bedrock milling feature P-33-012701: Prehistoric unknown* P-33-013107: Prehistoric lithic scatter and bedrock milling feature P-33-013396: Historic-period Wells P-33-013505: Prehistoric lithic scatter P-33-013506: Prehistoric lithic scatter P-33-013507: Prehistoric lithic scatter P-33-013508: Prehistoric lithic scatter P-33-013509: Prehistoric unknown P-33-013510: Prehistoric lithic scatter P-33-013512: Prehistoric unknown P-33-013748: Prehistoric unknown P-33-014794: Prehistoric unknown P-33-014907: Prehistoric habitation debris* P-33-015206: Prehistoric lithic scatter* P-33-015207: Prehistoric unknown* P-33-015304: Prehistoric unknown P-33-015305: Prehistoric unknown P-33-015312: Historic-period building P-33-015789: Historic-period cemetery P-33-015881: Historic-period farm/ranch P-33-015882: Historic-period commercial building P-33-015883: Historic-period commercial building P-33-015884: Historic-period single-family property P-33-015885: Historic-period commercial building P-33-016000: Historic-period religious building P-33-016001: Historic-period single-family property P-33-016002: Historic-period single-family property P-33-016003: Historic-period single-family property P-33-016004: Historic-period single-family property P-33-016011: Historic-period multiple family property P-33-016014: Historic-period single-family property P-33-016015: Historic-period single-family property P-33-016710: Historic-period farm/ranch P-33-016988: Historic-period Unknown P-33-017013: Historic-period single-family property P-33-017048: Prehistoric bedrock milling feature P-33-017136: Historic-period single-family property P-33-017366: Prehistoric Unknown P-33-018623: Historic-period refuse scatter P-33-018624: Prehistoric hearth P-33-019856: Prehistoric unknown P-33-020991: Historic-period farm/ranch P-33-024819: Prehistoric lithic scatter P-33-024864: Historic-period farm/ranch P-33-026431: Historic-period single-family property P-33-028178: Prehistoric unknown P-33-028179: Historic-period refuse scatter P-33-028525: Prehistoric unknown P-33-028833: Historic-period single family property

***Within or adjacent to subject alignment.**

Table B. Previous Studies Conducted within 0.5-miles of the Subject Alignment

Study	Author/Date	Title	Within Alignment	Within 0.5-miles
RI-00340	M.A. Brown 1978	Joaquin Ranch: Archaeological Survey Addendum Report	x	
RI-00346	Jean A. Salpas 1984	Mitigation of Archaeological Sites on Tract 14836 and Tract 14889 Arco Development/Joaquin Ranch		x
RI-00349	Paul G. Chance 1978	An Archaeological Survey of the Joaquin Ranch (Tentative Tract # 10,459) in the County of Riverside		x
RI-00350	Christopher E. Drover 1989	Environmental Impact Evaluation: An Archaeological Assessment of Joaquin Ranch, Riverside County, California		x
RI-00354	Robert M. Beer and Nancy A. Whitney-Desaultels 1990	Letter Report: Archaeological Resource Assessment Bear Creek Project Tract No. 23879		x
RI-00355	Christopher E. Drover 1995	Cultural Resources Impact and Constraints Assessment, The Copper Canyon Project, Murrieta, California		x
RI-00509	Stan Wilmoth 1978	Environmental Impact Evaluation: Archaeological Assessment of Tentative Parcel Map 12198, Murrieta Area of Riverside County, California	x	
RI-00510	Stan Wilmoth 1978	Environmental Impact Evaluation: Archaeological Assessment of Tentative Parcel Map 12196, Murrieta Area of Riverside County, California		x
RI-00516	Stan Wilmoth 1978	Environmental Impact Evaluation: Archaeological Assessment of Tentative Parcel Map 11196, Murrieta Area of Riverside County, California	x	
RI-00662	Joan Oxendine 1979	A Report of an Archaeological Survey of Lots 201 and 202, Map Book 909-14 and 15, Riverside County	x	
RI-00663	Joan Oxendine 1979	A Report of an Archaeological Survey of 40 Acres at the intersection of Washington Avenue and Magnolia Street, Murrieta, California		x
RI-00829	Alan Davis 1980	Enivornmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 16945, Northwest of Murrieta in Riverside County, California	x	
RI-00866	Renee Giasanti 1980	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Tract 14756, Amended #1, Murrieta Area of Riverside County	x	
RI-01013	Stephen R. Hammond 1978	Cultural Resources Survey of Two Materials Sources, Murrieta Creek and the Joe Deleo, Jr. Property, Riverside County, California		x

Study	Author/Date	Title	Within Alignment	Within 0.5-miles
RI-01185	Roger J. Desautels 1981	Archaeological Assessment of the Murrieta Area		x
RI-01246	Alan Davis 1981	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 17625, Northwest of Murrieta in Riverside County, California	x	
RI-01656	J. R. Cook 1983	Archaeological Assessment of PM 19059		x
RI-01990	Daniel F. McCarthy 1985	An Archaeological Assessment of 0.93 Acres of Land in Murrieta, Riverside County, California		x
RI-02114	Jean Salpas Keller 1987	An Archaeological Assessment of TT Map 22346, Riverside County, California		x
RI-02115	Jean Salpas Keller 1987	An Archaeological Assessment of Parcel 22170, Riverside County, California		x
RI-02116	Jean Salpas Keller 1987	An Archaeological Assessment of TP Map 22246, Riverside County, California		x
RI-02121	Scientific Resources Surveys, Inc. 1987	Archaeological Assessment Form: TP22611		x
RI-02218	Jean Salpas Keller 1987	An Archaeological Assessment of Tentative Tract Map No. 22557, Riverside County, California		x
RI-02219	Jean Salpas Keller 1988	An Archaeological Assessment of Tentative Parcel Map No. 22776, Riverside County, California		x
RI-02220	Jean Salpas Keller 1987	An Archaeological Assessment of Tentative Parcel Map No. 22615, Riverside County, California		x
RI-02221	Jean Salpas Keller 1988	An Archaeological Assessment of Vesting Tentative Tract Map No. 23051, Riverside County, California		x
RI-02235	C.E. Drover 1987	An Archaeological Assessment of The Alson Ranch, Riverside County		x
RI-02279	C.E. Drover 1988	An Archaeological Assessment of the Olive Hill Project Vesting TTM 23442, Riverside County, California	x	
RI-02281	T.A. Freeman 1987	Cultural Resource Assessment of a Proposed Rancho California Water District Sewage Treatment Facility in Murrieta, Riverside County, California		x
RI-2317	Jean Salpas Keller 1988	An Archaeological Assessment of Vesting TTM #23187, Riverside County, California		x
RI-2318	Jean Salpas Keller 1987	An Archaeological Assessment of Los Cerritos Ranch, Riverside County		x

Study	Author/Date	Title	Within Alignment	Within 0.5-miles
RI-2319	Scientific Resource Surveys, Inc. 1987	Archaeological Assessment Form: TTM #22625		x
RI-2321	Keith D. Rhodes and N.A. Rhodes 1987	An Archaeological Assessment of El Rancho Murrieta Thoroughbred Ranch, Riverside County, California		x
RI-02322	Jean S. Keller 1988	An Archaeological Assessment of General Plan Amendment 121, Riverside County, California		x
RI-02426	Daniel McCarthy 1989	An Archaeological Assessment of Parcel Map 2547, Located in Murrieta Area of Riverside County, California		x
RI-02427	Daniel McCarthy 1989	An Archaeological Assessment of Parcel 2 of PM 4634 Located in the Murrieta Area of Riverside County		x
RI-02428	Christina Brewer 1989	An Archaeological Assessment of Assessor's Parcel Number 904-06-005, County of Riverside, California		x
RI-02436	C.E. Drover 1988	An Archaeological Assessment of The Santa Rosa Springs Project, Santa Rosa Plateau, Riverside County		x
RI-02502	Sue A. Wade and Susan M. Hector 1989	An Archival and Limited Field Archaeological Survey of the Temescal Wash and Rice Canyon Pipeline Alternatives for the Regional Water Reclamation Facility at Rancho California		x
RI-02508	Jean A. Keller 1989	An Archaeological Assessment of Tentative Parcel Map No. 24469, Riverside County, California		x
RI-02609	Victor De Munck 1989	An Archaeological Assessment of Tentative Tract 24859 in the Murrieta Area of Riverside County, California	x	
RI-02610	Jean S. Keller 1989	An Archaeological Assessment of Vesting Tentative Tract Map 25362, Riverside County, California		x
RI-02684	Scientific Resource Surveys 1989	Archaeological and Paleontological Assessment of a 3+ Acre Portion of TPM 25065 Adjacent to Inland Valley Regional Medical Center, Riverside County		x
RI-02908	Jeanette McKenna 1988	An Archaeological Survey of a Portion of Santa Rosa Springs, Riverside County	x	
RI-02934	Roger J. Desautels 1976	Archaeological Survey Report on 18.3 Acres of Land (Tentative PM 7902) Located in the Murrieta Area of Riverside County, California	x	
RI-03082	Jean A. Keller 1990	An Archaeological Assessment of Conditional Use Permit 3088 Riverside County, California		x

Study	Author/Date	Title	Within Alignment	Within 0.5-miles
RI-03129	Jean A. Keller 1990	An Archaeological Assessment of Tentative Parcel Map 26520, Riverside County, California	x	
RI-03171	Jean A. Keller 1990	An Archaeological Assessment of Tentative Parcel Map 26184, Riverside County, California		x
RI-03189	Peak and Associates and Brian F. Mooney Associates 1990	Cultural Resources Assessment of AT&T's Proposed San Bernardino to San Diego Fiber Optic Cable, San Bernardino, Riverside, and San Diego Counties		x
RI-03191	Jean A. Keller 1991	An Archaeological Assessment of Tentative Parcel Map 26643, Riverside County, California	x	
RI-03231	Jean A. Keller 1991	An Archaeological Assessment of Tentative Parcel Map 26594, Riverside County, California	x	
RI-03237	Jean A. Keller 1990	An Archaeological Assessment of Tentative Parcel Map 25984, Riverside County, California	x	
RI-03238	Jean A. Keller1989	An Archaeological Assessment of Tentative Parcel Map 24470, Riverside County, California	x	
RI-03376	Sue A. Wade and Susan M. Hector 1989	A Cultural Resource Survey of the Proposed Rancho-Temecula Effluent Pipeline from Temecula to Warm Springs in the Elsinore Valley with Additional Consideration of the Surface Water Discharge Into Temescal Wash		x
RI-03496	Jones & Stokes Associates, Inc. 1992	Archaeological Survey Report for Riverside County Murrieta Creek Flood Control Project	x	
RI-03498	Carol R. Demcak 1992	Cultural Resources Assessment of Rancho California Water District Date Street Pump Station, Reservoir and Pipeline, Murrieta, California		x
RI-03636	Robert S. White 1993	An Archaeological Assessment of the 2+ Mile Murrieta Lines "F" & "F-1" Flood Control Channel in Murrieta		x
RI-03699	Robert S. White 1993	An Archaeological Assessment of Murrieta Line G, A 1200 Foot Daylight Channel and Culvert Situated at the Intersection of Washington Avenue and Nutmeg in Murrieta, Riverside County	x	
RI-04065	Jean A. Keller 1997	A Phase I Cultural Resources Assessment of the Church of the Nazarene Site 11.23 Acres of Land Located in Murrieta, Riverside County, California USGS Murrieta, California Quadrangle, 7.5' Series		x

Study	Author/Date	Title	Within Alignment	Within 0.5-miles
RI-04070	Bruce Love and Bai "Tom" Tang 1998	Cultural Resources Report Water and Sewer Pipeline Rights-of-Way and Associated Facilities in Community Facilities District No. 97-1, Near Wildomar Elsinore Valley Municipal Water District Riverside County		x
RI-04257	Bruce Love, Bai "Tom" Tang, and Daniel Ballester 2000	Cultural Resources Report: Tentative Tract No. 29403, City of Murrieta, Riverside County, California	x	
RI-04272	Robert White and Laura S. White 2000	A Cultural Resources Assessment of the Proposed Murrieta Springs RV Resort (Cup 99-056), 5.0-Acres Located at 25485 Jefferson Avenue in the City of Murrieta, Riverside County		x
RI-04383	Robert White and Laura S. White 2000	A Cultural Resources Assessment of 75.45-Acres As Shown on Tentative Tract Map 29602, City of Murrieta, Riverside County	x	
RI-04448	David S. Matis 1996	Santa Rosa Plateau Ecological Reserve-Vegetation Management Program	x	
RI-04509	Jean A. Keller 2001	A Phase I Cultural Resources Assessment Of The Palomar Street Project, 5.0 Acres Of Land Near The City Of Murrieta, Riverside County	x	
RI-04510	Jean A. Keller 2001	A Phase I Cultural Resources Assessment of Tentative Tract No. 29836, GPA 549/CZ6559, 16.07 Acres of Land Near the City of Murrieta, Riverside County, California		x
RI-04641	Jean A. Keller 2001	A Phase I Cultural Resources Assessment of Change of Zone 6618, 29.10 Acres of Land Located Near the City of Murrieta, Riverside County		x
RI-04642	Jean A. Keller 2001	A Phase I Cultural Resources Assessment of Tentative Map 29970, 14.77 Acres of Land in the City of Murrieta, Riverside County, California		x
RI-04664	Bruce Love, Bai "Tom" Tang, Daniel Ballister, and Mellisa Hernandez 2001	Historical/Archaeological Resource Survey Report: Jefferson Avenue Business Corridor, City of Murrieta, Riverside County, California		x
RI-04698	Tetra Tech, Inc. 2003	A Phase I Archaeological Survey of Approx. 3.5-Acres for the Stonebridge Medical Office Building, Wildomar, Riverside County, California		x
RI-04877	Peak & Associates, Inc. 2003	Cultural Resources Assessment of the Proposed Temecula Valley Regional Water Reclamation Facility Effluent Pipeline, Riverside County, California		x

Study	Author/Date	Title	Within Alignment	Within 0.5-miles
RI-04888	Leslie Nay Irish, Anna M. Hoover, and Kristie R. Belvins 2004	A Phase I Archaeological Survey Report on Tract 30173, Wynfield, City of Murrieta, County of Riverside	x	
RI-04945	Leslie Nay Irish, Anna M. Hoover, Kristie R. Belvins, and Hugh M. Wagner 2004	A Phase I Archaeological and Paleontological Survey Report for the Palomar Office Plaza, APN 380-170-020, Wildomar, County of Riverside		x
RI-05028	McKenna Et AL. 2004	Historic Property Survey Report: Architectural Evaluation of the Sykes Ranch Residential Complex in Murrieta, Riverside County, California		x
RI-05142	Nina Harris and Dennis R. Gallegos 1998	Cultural Resources Survey Report for Murrieta Lines D and D-1 Riverside County Flood Control and Water Conservation District Riverside County	x	
RI-05211	Laurie White 2000	Records Search Results for Sprint PCS Facility RV54XC453A (Butler Ranch), City of Murrieta, Riverside County		x
RI-05369	Jean A. Keller 2004	A Phase I Cultural Resource Assessment of Tentative Tract Map 31896		x
RI-05370	Jean A. Keller 2004	A Phase I Cultural Resource Assessment of Tentative Tract Map 31895		x
RI-05372	Jean A. Keller 2006	A Phase I Cultural Resource Assessment of Tentative Tract Map 34255		x
RI-05415	Bruce Love, Bai “Tom” Tang, Daniel Ballester, and M. Hernandez 2001	Historical/Archaeological Resources Survey Report, Crowe Flory Property, City of Murrieta, Riverside County		x
RI-05499	Bruce Love, Harry Quinn, and Mariam Dahdul 2001	Archaeological Testing and Monitoring Report, Copper Canyon Development, Portions of Tract 28677, City of Murrieta, Riverside County		x
RI-05610	Robert White and Laura S. White 2003	A Cultural Resources Assessment of a 5 Acres Parcel as Shown on TPM 32442, Located at the Terminus of John Wayne Road, City of Murrieta, Riverside County		x
RI-05675	Richard S. Shepard 2003	Phase I Cultural Resources Assessment: Assessor Parcel No. 909-08-02, Murrieta, Riverside County		x
RI-05749	Mariam Dahdul 2003	Historical/Archaeological Resources Survey Report: Tentative Parcel No. 31018, City of Murrieta	x	
RI-05849	Bruce Love, Bai Tang, Daniel Ballester, and Victoria Avalos 2001	Historical/Archaeological Resources Survey Report, Murrieta Ranchos II Tentative Tracts 30273 and 30303, City of Murrieta, Riverside County		x

Study	Author/Date	Title	Within Alignment	Within 0.5-miles
RI-05969	Michael Hogan, Bai "Tom" Tang, and Mariam Dahdul 2003	Historical/Archaeological Resources Survey Report, Tentative Tract Map No. 31497, City of Murrieta		x
RI-05977	Michael Hoagn, Bai Tang, and John Eddy 2003	Archaeological Monitoring Report, Assessor's Parcel Number 909-080-002, 42180 Ivy Street, City of Murrieta, Riverside County		x
RI-06030	Jean A. Keller 2004	A Phase I Cultural Resources Assessment of Tentative Tract Map 31869 Amended No. 1, +/-4.88 Acres of Land in Wildomar, Riverside County		x
RI-06031	Jean A. Keller 2004	A Phase I Cultural Resources Assessment of the Clinton Keith Road Project (APN 380-110-025) +/- 4.35 Acres of Land in Wildomar		x
RI-06033	Jean A. Keller 2004	A Phase I Cultural Resources Assessment of Vesting Tentative Parcel Map 32166, +/- 20.20 Acres of Land in Wildomar, Riverside County		x
RI-06231	Bai Tang, Michael Hogan, Mariam Dahdal, and John J. Eddy 2004	Historical/Archaeological Resources Survey Report, Tentative Tract Map No. 325050, City of Murrieta		x
RI-06398	Bai Tang, Michael Hogan, Matthew Wetherbee, and Daniel Ballester 2005	Historical/ Archaeological Resources Survey Report: Grizzly Ridge Reservoir No. 2, Near the City of Murrieta	x	
RI-06405	Bai Tang 2005	Addendum to Historical/Archaeological Resources Surveys, Murrieta Valley Interceptor Trunk Sewer Project, City of Murrieta, Riverside County	x	
RI-06443	Bai Tang, Michael Hogan, Casey Tibbet, and Josh Smallwood 2004	Historical/Archaeological Resources Survey Report: Murrieta Valley Interceptor Trunk Sewer Project, in the City of Murrieta, Riverside County	x	
RI-06457	Michael Hogan, Bai Tang, Casey Tibbet, and Daniel Ballester 2004	Historical/Archaeological Resources Survey Report, Murrieta Wastewater Planning and Construction Project, in the City of Murrieta, Riverside County	x	
RI-06658	Bai "Tom" Tang 2006	Photo Recordation of Historic Building, the Cora Stollar House, 42036 D Street, City of Murrieta		x
RI-06730	Riordan L. Goodwin 2006	Archaeological Monitoring Program: Murrieta Valley Interceptor Trunk Sewer Project, Phase II, City of Murrieta, Riverside County, California	x	
RI-06732	Riordan L. Goodwin 2004	Cultural Resource Assessment, Murrieta Pacific Tract, City of Murrieta, Riverside County, California (APNs: 909-100-003, 909-100-004, 909-100-070, and 909-100-071, Tentative Tract Map No. 32043)		x

Study	Author/Date	Title	Within Alignment	Within 0.5-miles
RI-06827	Audry Williams 2006	Archaeological Survey Report for the Southern California Edison Company, Wildomar Service Center Project		x
RI-06877	Jill Onken, Kerry D. Cato, Anne Q. Stoll, and Michael K. Lerch 2006	Geoarchaeological Evaluation for the Murrieta Creek Flood Control and Ecosystem Restoration Project, Riverside County, California	x	
RI-07023	Jean A. Keller 2006	A Phase I Cultural Resources Assessment of Murrieta Commons, DP 004-51, +/- 12.22 Acres of Land in the City of Murrieta, Riverside County		x
RI-07033	Jean A. Keller 2006	A Phase I Cultural Resources Assessment of APN 380-120-012 & 013		x
RI-07044	Anna M. Hoover and Kristie R. Blevins 2006	A Phase I Archaeological Survey Report for APN 380-170-019, 3.5 Acres, Murrieta, County of Riverside		x
RI-07046	Anna M. Hoover, MS, RPA and Brian C. Dailey 2006	An Archaeological and Paleontological Mitigation-Monitoring Report on Wynfield, Tract 30173, Approx 80 Acres, City of Murrieta, Riverside County, California		x
RI-07050	Monica Strauss 2006	Historic Property Survey Report, for the Ivy Street Bridge Project, City of Murrieta, County of Riverside, California.		x
RI-07408	Jean A. Keller 2006	A Phase I Cultural Resources Assessment of PAR #788 Crossroads Apartments, +- 23.19 Acres of Land in Wildomar, Riverside County, California		x
RI-07478	Scott Crull, Anna M. Hoover, and William R. Gilean 2007	An Archaeological and Paleontological Mitigation-Monitoring Report on Wynfield II, Tract 30172, +-60 Acres, City of Murrieta, Riverside County, California		x
RI-07482	Scott M. Ludlow 2007	A Phase II Cultural Resource Evaluation: Lashlee House, 41908 Magnolia Avenue, City of Murrieta, California		x
RI-07525	Scott Crull 2008	A Archaeological Mitigation-Monitoring Report for PM 32159, with APNS: 380-170-019 & - 20- A +_ 13.11-Acre Parcel Located in the Murrieta Area		x
RI-07592	James Clifford and Brian F. Smith 2005	A Cultural Resources Survey for the Phase II Recycled Water Pipeline, Rancho California Water District Project	x	

Study	Author/Date	Title	Within Alignment	Within 0.5-miles
RI-07593	Tsunoda, Koji and Joshua D. Patterson 2008	Archaeological Survey Report for Southern California Edison Company O&M – Wildomar Service Center Fiber Optic Cables Project, on the Nutmeg 12 kV Circuit Riverside County		x
RI-07595	John J. Eddy 2008	Letter Report: Cultural Resources Records Search and Native American Contact Interim Fire Station #4 Facility, Murrieta, Riverside County, California, CRM Tech Contract No. 2177		x
RI-07596	Kenneth J. Lord 2006	Phase I Cultural Resources Assessment with Paleontological Records Review Ivy House Project, Murrieta		x
RI-07597	Brian F. Smith 2008	Letter Report: Addendum to the Bear Creek Plaza, Wildomar Square cultural resources report; CUP 03504R1-FTA 2007-28; APNs 380-110-023, -024, -027, -028, and 380-230-001.		x
RI-07598	Sara Clowery-Moreno and Brian F. Smith 2007	A Phase I Archaeological Assessment for the Wildomar Square Project, Riverside County, California, APN 380-230-001		x
RI-07602	Josh Smallwood and Clarence Bodmer 2008	Photo-Recordation of Historic Buildings 24629 Washington Avenue Murrieta		x
RI-07677	Koji Tsunoda 2008	Archaeological Survey Report for Southern California Edison Company O&M-Nexus Residential Project on the Nutmeg 12kV Circuit, Riverside County (WO#6277-6784, AI#K-6757)		x
RI-07678	Josh Smallwood and Terri Jacquemain 2008	Historic Building Evaluation 24570 Washington Avenue City of Murrieta, Riverside County, California		x
RI-07680	Seth A. Rosenberg and Brian F. Smith 2006	A Phase I Archaeological Assessment of Bear Creek Plaza Phase II Project, Riverside County, California		x
RI-07797	Koji Tsunoda 2008	Archaeological Survey Report for Southern California Edison Company O&M-Nexus Residential Project: Additional Survey for the Replacement of One Pole (#2228150E) on the Nutmeg 12 kV Circuit Riverside County, California		x
RI-07800	Jean A. Keller 2008	A Phase I Cultural Resources Assesment of General Plan Amendment 03-211 Zone Change 03-212 +/-67.64 Acres of Land in the City of Murrieta	x	
RI-07922	C. Celeste LeSuer and Edward J. Knell 2007	Cultural Resources Study for the Santa Rosa Water Reclamation Facility Expansion Project, Murrieta		x

Study	Author/Date	Title	Within Alignment	Within 0.5-miles
RI-07983	Sara Clowery-Moreno and Brian F. Smith 2008	A Phase I Archaeological Assessment for the Hayes Avenue Pipeline Project, Riverside County, California		x
RI-08056	Wayne Bonner 2008	Letter Report: Cultural Resource Records Search and Site Visit Results for Royal Street Communications California, LLC		x
RI-08120	Wayne Bonner and Marnie Aislin-Kay 2008	Letter Report: Cultural Resource Records Search and Site Visit Results for T-Mobile Telecommunications Candidate		x
RI-08162	Robert Reynolds 2002	Letter Report: Results of the Cultural and Paleontological Resource Assessment for the New Clay Street Parcel (P.M. 30299), Murrieta, Riverside County, California		x
RI-08521	James J. Schmidt 2010	Letter Report: Westbrook 12kV Deteriorated Pole Replacement Project (WO 6088-4800; AI# 14801), Murrieta Area, Riverside County, California		x
RI-08680	Jay K. Sander 2011	Archaeological Survey Report For Southern California Edison's Deteriorated Poles Project: Murrieta and Unicorporated Riverside County, California; WOs 6088-4800/1-4811 and 6088-4800/1-4824		x
RI-09065	Tracy A. Stropes and Brian F. Smith 2012	Phase I Cultural Resources, Assessment for the Washington Avenue Project, City of Murrieta, APN 909-080-043		x
RI-09066	Tracy A. Stropes and Brian F. Smith 2012	Phase I Cultural Resources Survey for the Wildomar 23 Project City of Wildomar, County of Riverside		x
RI-09089	Jennifer M. and M.A. Sanka 2011	Monitoring Report Ivy Street Bridge Project City of Murrieta		x
RI-09283	Jean A. Keller 2014	A Phase I Cultural Resources Assessment of APN 906-270-009 24325 Washington Avenue, Murrieta, California Township 7 South, Range 3 West, Sections 17 & 18, SBM USGS Murrieta Quadrangle		x
RI-09289	Jean A. Keller 2014	A Phase I Cultural Resources Assessment of APN 380-170-020 23151 Palomar Street, Wildomar		x
RI-09292	David Brunzell 2015	Cultural Resources Assessment 63 Jefferson Project Murrieta, Riverside County, California		x
RI-09295	David Brunzell 2014	Letter Report: Native American Consultation Correspondence for the Catt Cellular Communications New Tower Project, Wildomar		x

Study	Author/Date	Title	Within Alignment	Within 0.5-miles
RI-09427	Tracy A. Stropes and Brian F. Smith 2015	A Class III Archaeological Study for the Parkside Project for Section 106 Compliance, Riverside County		x
RI-09493	Ben Kerridge, Daniel Ballester, and Nina Gallardo 2015	Phase I Historical/ Archaeological Resource Survey Senga Doherty Pump Station Disinfection System Improvements Project		x
RI-09573	Johni Etheridge and MacKensie Cornelius 2015	Archaeological Survey Report Copperhead-So Cal/Ensite #26592 (182477) B Street, Unaddressed Parcel Murrieta, Riverside County, California, 92526 SE1/4, SE1/4, S13 T29S R24E EBI Project No. 6115004710	x	
RI-09596	Jeanette A. McKenna 2016	An Updated Cultural Resources Investigation for the Mighty Development, Inc., Project Area, 11.35 Acres of Land in the City of Murrieta		x
RI-09747	Robert Ramirez, Jennifer Peterson, and Kevin Hunt 2014	Eastern Municipal Water District Temecula Valley Recycled Water Pipeline Project Cultural Resources Study		x
RI-09798	Brian F. Smith and Jennifer R. Kraft 2016	Cultural Resources Monitoring Report for the Briarwood Project, TR 36497, Wildomar, California		x
RI-09811	David Brunzell 2017	Cultural Resources Assessment Muhlhauser Steel Project, Murrieta, Riverside County, California		x
RI-09914	Marnie Aislin-Kay 2004	Records Search Results for Cingular Telecommunications Facility Candidate SC-318-01 (Rancho California Water District), 42545 Vineyard Avenue, Murrieta, Riverside County, California	x	
RI-10139	David Brunzell 2016	Cultural Resources Assessment Pinnacle Senior Living Project Murrieta, Riverside County, California		x
RI-10318	Natalie J. Brodie 2017	Santa Rosa Water Reclamation Facility Rehabilitation Project, Murrieta, Riverside County, California: Cultural Resources Technical Memorandum		x
RI-10428	Gabriel Ocampo 2018	Archaeological Sensitivity Assessment RV90XS475E / 9CAB006293E		x
RI-10489	Kyle Garcia 2016	Camelia Residential Development Project Phase 1 Cultural Resources Assessment		x
RI-10605	Wayne H. Bonner, Arabesque Said, and Kathleen A. Crawford 2009	Cultural Resource Records Search and Site Visit Results for Verizon Wireless Candidate "Guava" 25800 Washington Avenue, Murrieta, Riverside County		x

Study	Author/Date	Title	Within Alignment	Within 0.5-miles
RI-10609	Wayne H. Bonner and Marnie Aislin-Kay 2005	Cultural Resource Records Search and Site Visit Results for T-Mobile Telecommunications Facility Candidate IE04710 (SC237 Murrieta Plaza Del Oro), 23811 Washington Avenue, Murrieta		x
RI-10611	Jean A. Keller 1996	A Phase I Cultural Resources Assessment of Murrieta Stud Ranch, 120 Acres in Murrieta, Riverside County	x	
RI-10612	Monica Strauss, Christopher L. Shaver, Kurt Heidelberg, and David Bricker 2006	Extended Phase I Archaeological Investigation Between CA-RIV-1085 and CARIV-1086 for the Ivy Street Bridge Project, City of Murrieta, County of Riverside, California. Ivy Street Bridge Project between New Clay Street and Hayes Avenue, Caltrans District 8		x
RI-10613	Monica Strauss, Kurt Heidelbert, and David Bricker 2006	Archaeological Survey Report for the Ivy Street Bridge Project, City of Murrieta, County of Riverside, California, Ivy Street Bridge Project between New Clay Street and Hayes Avenue, Caltrans District 8	x	
RI-10664	Kyle Garcia and PCR Margarita Jerabek 2017	Cultural Resources Assessment of the Proposed Murrieta Gateway Mixed-Use Project: City of Murrieta		x
RI-10678	Wayne H.Bonner, Sarah A. Williams, and Kathleen A. Crawford 2009	Cultural Resources Records Search and Site Visit Results for Verizon Wireless Candidate 'Copperhead', 24911 New Clay Street, Murrieta, Riverside County		x
RI-10688	Courtney Montgomery 2018	Phase I Archaeological Survey for Wilhelm-Sauls Investments, LLC Murrieta Properties		x

Native American Communications

A Sacred Lands File search with the Native American Heritage Commission (NAHC) has been initiated by BCR Consulting. The Sacred Lands file search revealed that Native American resource(s) are located in the area. The results did not indicate the nature or location of the resource(s) and recommended contacting the Pechanga Band of Luiseno Indians (Pechanga) for more information. The NAHC also provided a list of other potentially concerned tribes and individuals to be contacted regarding the current project. Although a project and California Environmental Quality Act (CEQA) document have not been proposed, the Western Municipal Water District (WMWD) initiated Assembly Bill 52 Native American Consultation to engage Tribes early in the planning process. To that end WMWD also hosted a conference call for the Murrieta Water Master Plan EIR Project on February 3, 2021 with representatives of Pechanga, Kimley-Horn, and BCR Consulting. During the conference call, WMWD and Kimley Horn representatives described the goals of the

proposed Master Plan. Pechanga representatives requested ongoing consultation and indicated that the area had high potential for cultural and traditional resources, with two or three Traditional Cultural Properties that contained human remains in the area. Pechanga representatives also indicated that proximity to local water sources heightened significance of the area, and they described potential for historic sites to contain prehistoric resources that have not been previously identified. They also expressed interest in developing a Memorandum of Understanding to help define appropriate cultural resource protocols for any proposed project. Finally, Pechanga representatives asked that they be allowed to contribute ethnographic information for any cultural resource documents.

Pedestrian Field Visit

BCR Consulting Archaeological Field Director Joseph Orozco, M.A., R.P.A., and BCR Consulting Staff Historian George Brentner, B.A., conducted a preliminary reconnaissance pedestrian inventory of a 90-percent sample of the project site at along and within 10 to 15 meters of the accessible subject alignments on January 15th, January 20th, and January 25th, 2021. Survey was focused in undeveloped areas or where native soil was exposed. No archaeological resources were identified within the subject alignments during the survey. Please note that the records search results were received after the field survey was complete. Therefore, if avoidance of areas containing cultural resources is not possible, additional fieldwork will be necessary to assess potential for impacts to cultural resources that have been identified within or adjacent to the subject alignments.

Summary and Preliminary Recommendations

The pedestrian field survey and the archaeological records search have indicated that there are at least seven archaeological sites within or adjacent to the subject alignments, and many more in the vicinity. The NAHC has identified positive results during the Sacred Lands File search. Pechanga representatives have emphasized sensitivity for prehistoric and historic resources and have identified Traditional Cultural Properties in the area. Therefore, when a project is proposed, a full cultural resource assessment, including review of the results presented in this report, a records search summary, intensive pedestrian inventory of portions of the subject alignments that have not been surveyed, archaeological testing in areas near known resources, continuing Native American Consultation (as required by the lead agency), and completion of a technical report will be necessary pursuant to CEQA and/or Section 106 of the National Historic Preservation Act (NHPA) as appropriate. The assessment should be performed under the supervision of a cultural resource professional that meets the Secretary of the Interior's Professional Qualification Standards for Archaeology.

If human remains are encountered during activities associated with a proposed project, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized

representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

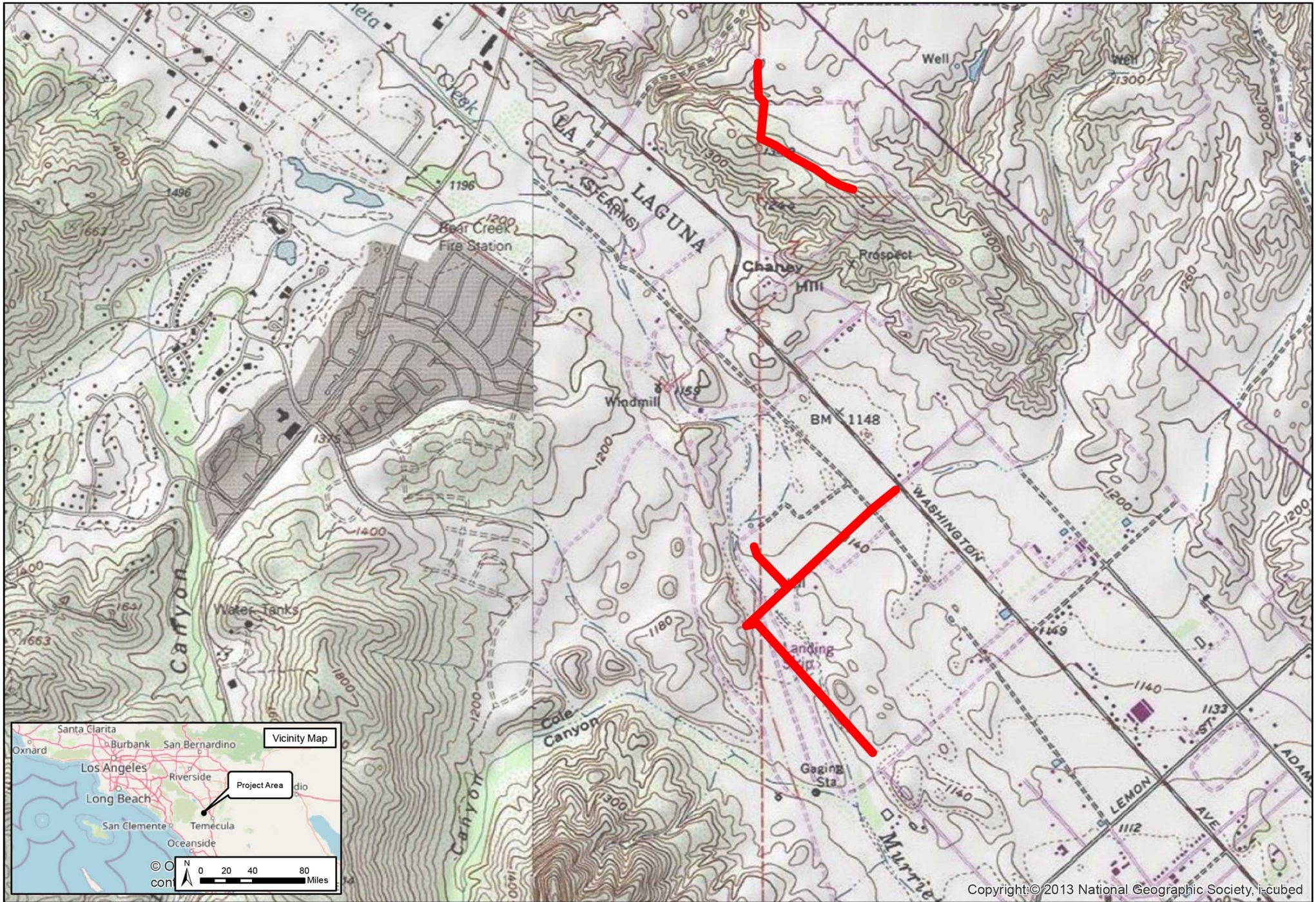
Please contact me by phone at 909/525-7078 or e-mail at david.brunzell@yahoo.com with any questions or comments.

Sincerely,

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist

Attachment A: Subject Alignment Location
Attachment B: Confidential Cultural Resources Records Search Results
Attachment C: Native American Heritage Commission Sacred Lands File Search
Attachment D: Photographs
Attachment E: Paleontological Resources Overview

ATTACHMENT A:
SUBJECT ALIGNMENT LOCATION



BCR CONSULTING LLC
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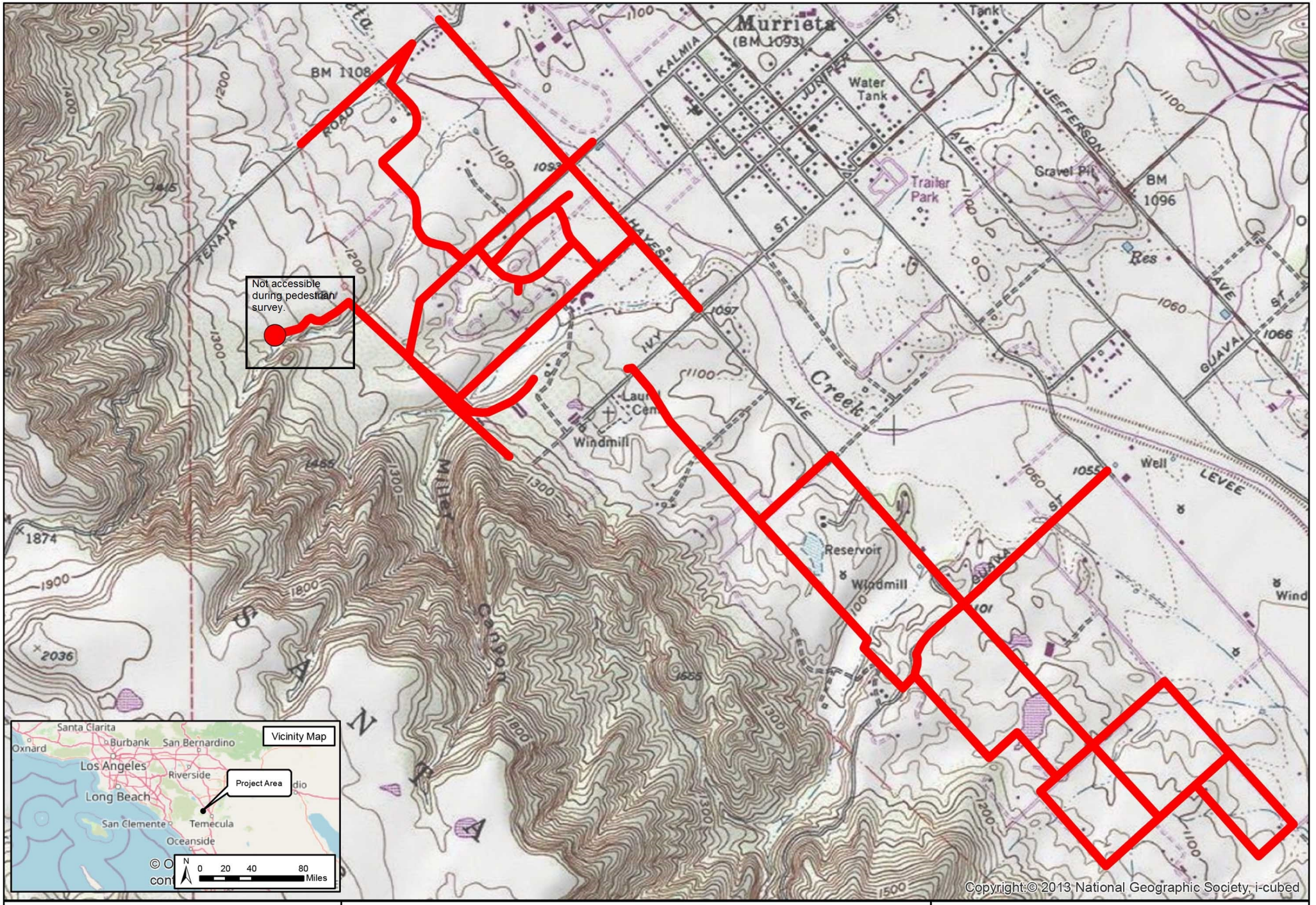
909-525-7078

Subject Alignments
Undeveloped Portions of the Murrieta Water Master Plan EIR

Fig 1

Reference: ESRI; USGS Quad: Murrieta (1979), California

Kimley-Horn



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Subject Alignments
Undeveloped Portions of the Murrieta Water Master Plan EIR

Fig 2

Reference: ESRI; USGS Quad: Murrieta (1979), California

Kimley-Horn

ATTACHMENT C:
NATIVE AMERICAN HERITAGE COMMISSION CORRESPONDENCE

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Julie Tumamait-Stenslie
Chumash

COMMISSIONER
[**Vacant**]

COMMISSIONER
[**Vacant**]

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[**Vacant**]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
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(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

January 22, 2021

Joseph Orozco
BCR Consulting LLC

Via Email to: josephorozco513@gmail.com

Re: Undeveloped Portions of the Murrieta Water Master Plan EIR Project, Riverside County

Dear Mr. Orozco:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were positive. Please contact the Pechanga Band of Luiseno Indians on the attached list for more information. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Riverside County
1/22/2021

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

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

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

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

Pala Band of Mission Indians
Shasta Gaughen, Tribal Historic Preservation Officer
PMB 50, 35008 Pala Temecula Rd. — Cupeno, Luiseno
Pala, CA, 92059
Phone: (760) 891 - 3515
Fax: (760) 742-3189
sgaughen@palatribe.com

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

Pechanga Band of Luiseno Indians
Mark Macarro, Chairperson
P.O. Box 1477 — Luiseno
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Kw'ts'an Cultural Committee
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This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Undeveloped Portions of the Murrieta Water Master Plan EIR Project, Riverside County.

Native American Heritage Commission
Native American Contact List
Riverside County
1/22/2021

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ATTACHMENT D:
PHOTOGRAPHS

Photo 1: Channelized creek along Calle de Oso Oro (view S)

Photo 2: Channelized creek at Calle de Oso Oro and Washington Ave (view N)

Photo 3: Project overview east of Calle de Oso Oro (view S)

Photo 4: Project overview southeast of Calle de Oso Oro (view SE)

Photo 5: Project overview (view E)

Photo 6: Project overview on Jenny Lane (view E)

Photo 7: Project overview (view N)

Photo 8: Project overview along Calle Estancia (view SE)

Photo 9: Project overview south of Wyman Road (view NW)

Photo 10: Project overview on Guava Street (view S)

Photo 11: Project overview on Douglass Ave (view W)

Photo 12: Project overview east of Kalmia Street (view S)

Photo 13: Project overview south of Vineyard Parkway (view S)

Photo 14: Project overview southeast of Hayes Ave (view NE)

ATTACHMENT E:
PALEONTOLOGICAL RESOURCES OVERVIEW

WESTERN SCIENCE CENTER

January 27, 2021

BCR Consulting
Joseph Orozco
505 West 8th Street
Claremont , CA 91711

Dear Mr. Orozco,

This letter presents the results of a record search conducted for the Underdeveloped Portions of the Murrieta Water Master Plan EIR Project in the city of Murrieta, Riverside County, California. The project site is located along multiple streets west of Washington Avenue, south of Calle del Oso Oro, and north of Winchester Road in a non-sectioned part of Township 7 South, Range 3 and 4 West on the Murrieta, CA USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped primarily as alluvial or sandstone deposits dating from the Pliocene to Pleistocene epoch and are considered to be highly paleontologically sensitive (Morton & Miller, 2006). The majority of the project area falls in sediment that is mapped as both the fanglomerate and sandstone members of the Pauba Formation dating from the Pliocene to the Pleistocene. The Pauba Formation is a well known fossil assemblage containing abundant paleontological resources. The Western Science Center does not have localities within the project area, but does have numerous projects within, or just outside, a 1 mile radius including those associated with the Principe Collection, the Gafcon Project, the Village Walk Project, and the Rancho California Water District Project.

The Principe Collection is a salvage collection with limited data, but fossil localities from this collection span across Murrieta and Temecula, California. There are numerous Principe Collection localities within a one mile radius of the proposed project area. Specimen from the collection have been identified as Pacific Mastodon (*Mammut pacificus*), Columbian Mammoth (*Mammuthus columbi*), and ancient horse (*Equus sp*.). The Rancho California Water District project less than one mile south of the project area contained fossils identified as mammoth (*Mammuthus columbi*), as well as plant and invertebrate fossils. The Gafcon Project is also less than one mile south of the project area and contained one fossil locality identified to giant ground sloth (*Paramylodon sp*.). The Village Walk Project is located just over 1 mile east of the project area and contained Pleistocene fossils identified as mastodon (*Mammut americanum* now thought to be *Mammut pacficus*), horse (*Equus sp*.) bison (*Bison sp*.), giant ground sloth (*Paramylodon sp*.), wolf (*Canis sp.),* and a tentatively identified *Camelops* specimen. All of the fossil localities nearby are indicative of the types of fossils associated with the Pauba Formation and Pleistocene Southern California, and are a good indication of possible finds at the proposed project area.

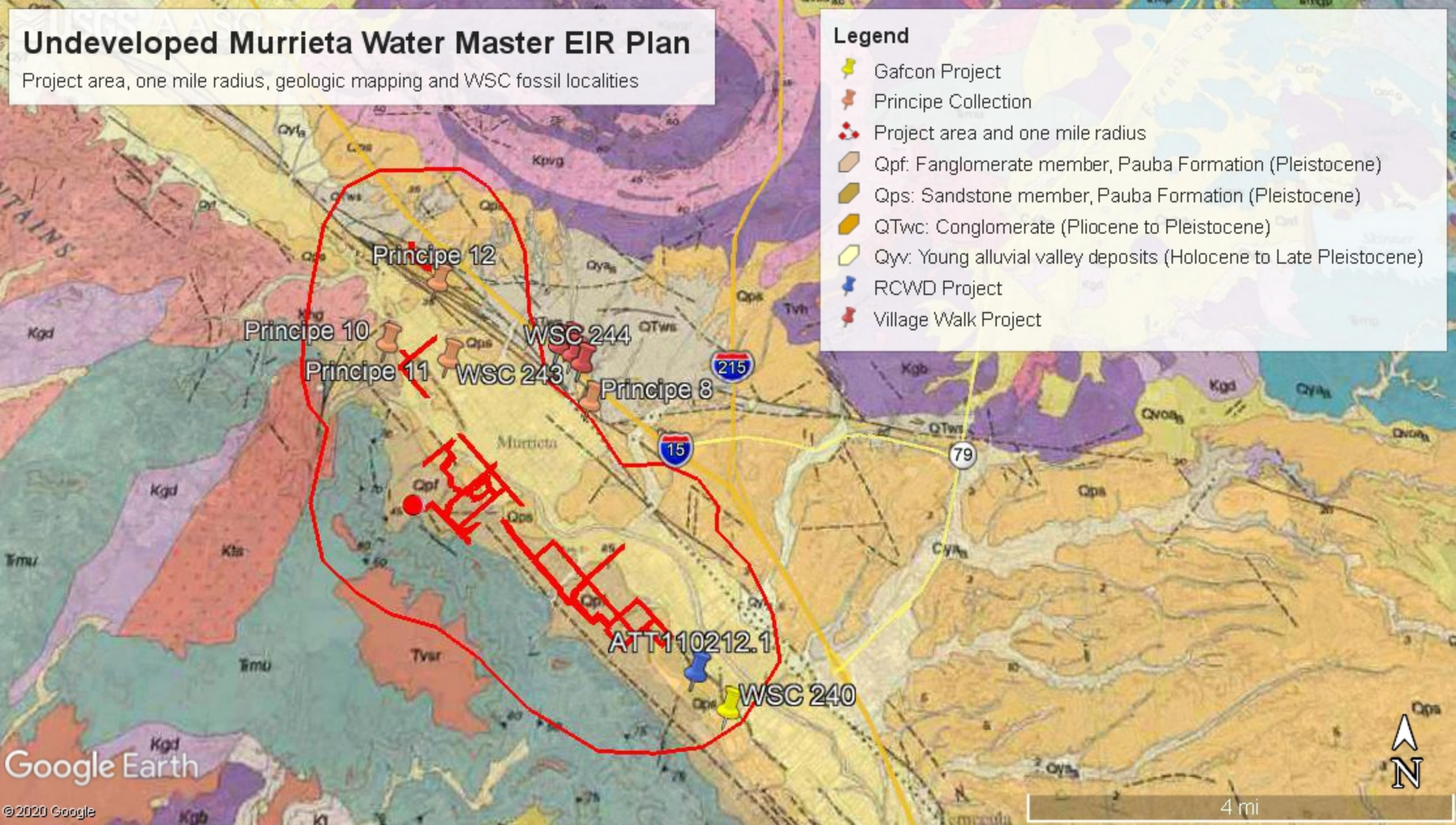
WESTERN SCIENCE CENTER

Any fossils recovered from the Underdeveloped Portions of the Murrieta Water Master Plan EIR Project would be scientifically significant. Excavation activity associated with development of the project area would impact the paleontologically sensitive Pliocene and Pleistocene units and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the current study area.

If you have any questions, or would like further information about the Principe Collection, Rancho California Water District Project, Gafcon Project, or Village Walk Project, please feel free to contact me at dradford@westerncentermuseum.org

Sincerely,

Darla Radford
Collections Manager


Undeveloped Murrieta Water Master EIR Plan
Project area, one mile radius, geologic mapping and WSC fossil localities
Legend
Gafcon Project
Principe Collection
Project area and one mile radius
Qpf: Fanglomerate member, Pauba Formation (Pleistocene)
Qps: Sandstone member, Pauba Formation (Pleistocene)
QTwc: Conglomerate (Pliocene to Pleistocene)
Qyv: Young alluvial valley deposits (Holocene to Late Pleistocene)
RCWD Project
Village Walk Project
Principe 12
Principe 10
Principe 11
WSC 244
WSC 243
Principe 8
ATT110212.1
WSC 240
Murrieta
215
15
79
Google Earth
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