Initial Study/Mitigated Negative Declaration

Metro G Line Stormwater Infiltration and Quality Project

Prepared for:

Los Angeles County Metropolitan Transportation Authority
1 Gateway Plaza, MS: 99-16-9
Los Angeles, CA 90012
Contact: Melissa Levitt
213.265.0774

Prepared by:

ICF
555 W. 5th Street, Suite 3100
Los Angeles, CA 90013
Contact: Sarah Baker
818.720.2131

June 2022

ICF. 2022. *Metro G Line Stormwater Infiltration and Quality Project. Initial Study/Mitigated Negative Declaration*. June. (ICF 103784.0.011.) Los Angeles, CA. Prepared for Los Angeles County Metropolitan Transportation Authority, Environmental Services Department, Los Angeles, CA.

Project Information

1. **Project Title:** Metro G Line Stormwater Infiltration and Quality Project

2. **Lead Agency Name and Address:** Los Angeles County Metropolitan Transportation Authority
1 Gateway Plaza, MS: 99-16-9
Los Angeles, CA 90012

3. **Contact Person and Phone Number:** Melissa Levitt, 213-265-0774

4. **Project Location:** Los Angeles, CA

5. **Project Sponsor's Name and Address:** N/A

6. **General Plan Designation:** Public Facility

7. **Zoning:** Public Facility

8. **Description of Project:**

   The Metro G Line Stormwater Infiltration and Quality Project (proposed Project) aims to divert stormwater runoff from existing regional storm drains and surface flows to a network of underground pretreatment and infiltration facilities across approximately seven stormwater best management practices (BMP) clusters within Los Angeles County Metropolitan Transportation Authority (Metro)-owned parking lots and rights-of-way (ROW) adjacent to the active busway along the Metro G Line (MGL). The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed BMP clusters have the potential to include active diversion structures (pump stations) or gravity-driven diversion structures. Currently six of the BMP clusters (MGL-1, MGL-2, MGL-3, MGL-4, MGL-5, and MGL-7) propose pump stations where stormwater runoff is diverted and pumped from the storm drain to the infiltration BMPs. To match the maximum capacity of each infiltration BMP cluster, the maximum diversion rates range between 10 and 32 cubic feet per second. When the maximum capacity of each infiltration BMP cluster is reached, the pump station would turn off, allowing stormwater to continue flowing in the storm drain. If a hazardous material spill were to occur upstream, the pump station would be shut down to prevent diverting the spill into the infiltration BMPs.

   As the proposed Project progresses to the final design stages, gravity-driven diversions may be used, rather than pump stations, pending further hydraulic-gradient analysis. The maximum diversion rate and average inflow of the diversion structure would remain unchanged, and an equivalent shutoff feature would also be included to prevent potential spills from entering the infiltration BMPs. MGL-6 includes a gravity-based diversion of stormwater runoff from surface street gutters along Woodman Ave. Additionally, efficiencies may be discovered during final design, reducing the number of BMP clusters needed, with the resulting stormwater capture remaining unchanged.

9. **Surrounding Land Uses and Setting:**

   Urban and dedicated transportation ROW

10. **Other Public Agencies Whose Approval is Required:**

    Los Angeles County Flood Control District

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, has consultation begun?

A Sacred Lands File search was conducted by the Native American Heritage Commission (NAHC) on January 27, 2022; the results indicated that Native American cultural resources are within the general project vicinity. Metro sent out Assembly Bill (AB) 52 notification letters on February 1, 2022, to 10 California Native American tribal representatives identified by the NAHC as being traditionally or culturally affiliated with the area.

To date, two California Native American tribes, the Fernandeño Tataviam Band of Mission Indians (FTBMI) and the Chairman of the Gabrieleño Band of Mission Indians – Kizh Nation (Kizh Nation), have responded to the AB 52 consultation letters. Both tribal groups indicated that the project area is sensitive to tribal cultural resources. See Section 2.18, *Tribal Cultural Resources*, for more details, AB 52 consultation has been concluded.

Contents

List of Appendices

Tables

Figures

Acronyms and Abbreviations

2016 AQMP	*2016 Air Quality Management Plan*
2016 RTP/SCS	*2016 Regional Transportation Plan/Sustainable Communities Strategy*
2019 CAAP	*Metro Climate Action and Adaption Plan 2019*
AB	Assembly Bill
ATCM	Air Toxic Control Measure
Basin	South Coast Basin
bgs	below ground surface
BMP	best management practices
Board	Metro Board of Directors
BRT	Bus Rapid Transit
BSA	biological study area
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CBC	California Building Code
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CGS	California Geological Survey
CNDDB	California Natural Diversity Database
dBA	A-weighted decibels
EMFAC2021	Emission FACtors model
EOP	emergency operations plan
EPA	U.S. Environmental Protection Agency
Farmland	Prime Farmlands, Unique Farmland, or Farmland of Statewide Importance
FEMA	Federal Emergency Management Agency
FTA	Federal Transit Administration
FTBMI	Fernandeño Tataviam Band of Mission Indians
General Plan	*City of Los Angeles General Plan*
GHG	greenhouse gas
I-405	Interstate 405
in/s	inches per second
Kizh Nation	Gabrieleño Band of Mission Indians – Kizh Nation
kWH/year	kilowatt hours per year
LADWP	Los Angeles Department of Water and Power
LAFD	Los Angeles Fire Department
LAMC	Los Angeles Municipal Code
L_{eq}	equivalent continuous sound level
LRA	Local Responsibility Areas
LST	Localized Significance Threshold

LUST	leaking underground storage tank
Lv	vibration velocity level
MBS	*Moving Beyond Sustainability Plan 2020*
Metro	Los Angeles County Metropolitan Transportation Authority
MGL	Metro G Line
MLD	Most Likely Descendent
$MTCO_2e$	metric tons of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
PCE	perchloroethene
PM_{10}	particulate matter measuring 10 microns in diameter or less
$PM_{2.5}$	particulate matter measuring 2.5 microns in diameter or less
PPV	peak particle velocity
PRC	Public Resources Code
proposed Project	Stormwater Infiltration and Quality Project
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCW Program	Safe, Clean Water Program
SR	State Route
SRA	Source Receptor Area
SWPPP	Stormwater Pollution Prevention Plan
TCE	trichloroethene
UDP	Unanticipated Discovery Plan
ULAR	Upper Los Angeles River
US-101	U.S. Highway 101
USFS	U.S. Forest Service
USFWS	Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	vibration decibels
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
VOC	volatile organic compounds
WEAP	Worker Environmental Awareness Program
ZIMAS	Zone Information and Map Access System

Chapter 1 Proposed Project

1.1 Introduction

The Los Angeles County Metropolitan Transportation Authority (Metro) proposes to develop the Metro G Line (MGL; formerly the Metro Orange Line) Stormwater Infiltration and Quality Project (proposed Project) in Los Angeles County, California. The proposed Project has an objective of using a progressive design-build process to construct a network of infiltration drywells, or equivalent infiltration/recharge best management practices (BMP), across seven locations within Metro properties along the MGL, with pretreatment facilities to capture, treat, and infiltrate stormwater runoff from more than 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet per year into the San Fernando Groundwater Basin. The proposed project locations are within Metro-owned parcels and right-of-way (ROW), and the remaining proposed project footprint is within public right-of-way. The proposed Project is within the Upper Los Angeles River (ULAR) Watershed and traverses the City of Los Angeles (Figure 1-1 and Figure 1-2).

This Initial Study (IS)/Mitigated Negative Declaration (MND) is an informational document intended for use by Metro and members of the public as a preliminary analysis to determine if there is potential for the proposed Project to have significant effects on the environment. If the proposed Project is found to potentially have a significant effect on the environment, with mitigation, a project-specific Environmental Impact Report (EIR) should be prepared; otherwise, Metro, as the lead agency pursuant to CEQA §21067 and CEQA Guidelines Article 4 and §15367, may adopt a Negative Declaration or MND.

1.1.1 Project Background

In 2020 the Metro Board of Directors approved Metro’s 10-Year Sustainability Strategic Plan, *Moving Beyond Sustainability* (MBS; Metro 2020). The plan includes agency-wide goals for water conservation and quality, including the goal of increasing runoff infiltration and capture capacity for stormwater by 15 percent from 2020 baseline levels. Because Metro is a major landowner in Los Angeles County, the stormwater management practices implemented on their properties have a significant impact on regional water quality and supply. Metro’s extensive land holdings and fortuitous siting within the highest-value groundwater-recharge areas in the region create opportunities for large-scale infiltration and aquifer recharge. Additionally, Metro’s extensive capital program provides cost-effective opportunities to install green infrastructure and stormwater BMPs as part of current and planned projects. Properly maintained, such installations improve the handling of stormwater and reduce pollution runoff from Metro-owned facilities and ROWs.

In March 2020, the Metro Environmental Services Department initiated a feasibility evaluation of Metro properties to assess the significant groundwater infiltration and stormwater quality capture potential in the San Fernando Valley. As a result of this evaluation, Metro identified several locations along the MGL as strong candidates for a Safe, Clean Water Program (SCW Program) grant. Los Angeles voters approved Measure W in November 2018, establishing the SCW Program and its funding source via a special parcel tax. The SCW Program provides local, dedicated funding to increase Los Angeles County's local water supply, improve water quality, and enhance communities. Metro engaged several key interested parties in the development of the proposed Project. This included targeted discussions with agencies such as the Los Angeles Department of Water and Power (LADWP), LA Sanitation & Environment, and the Bureau of Street Services (StreetsLA) and community organizations such as Climate Resolve, Council for Watershed Health, and the Natural Resources Defense Council.

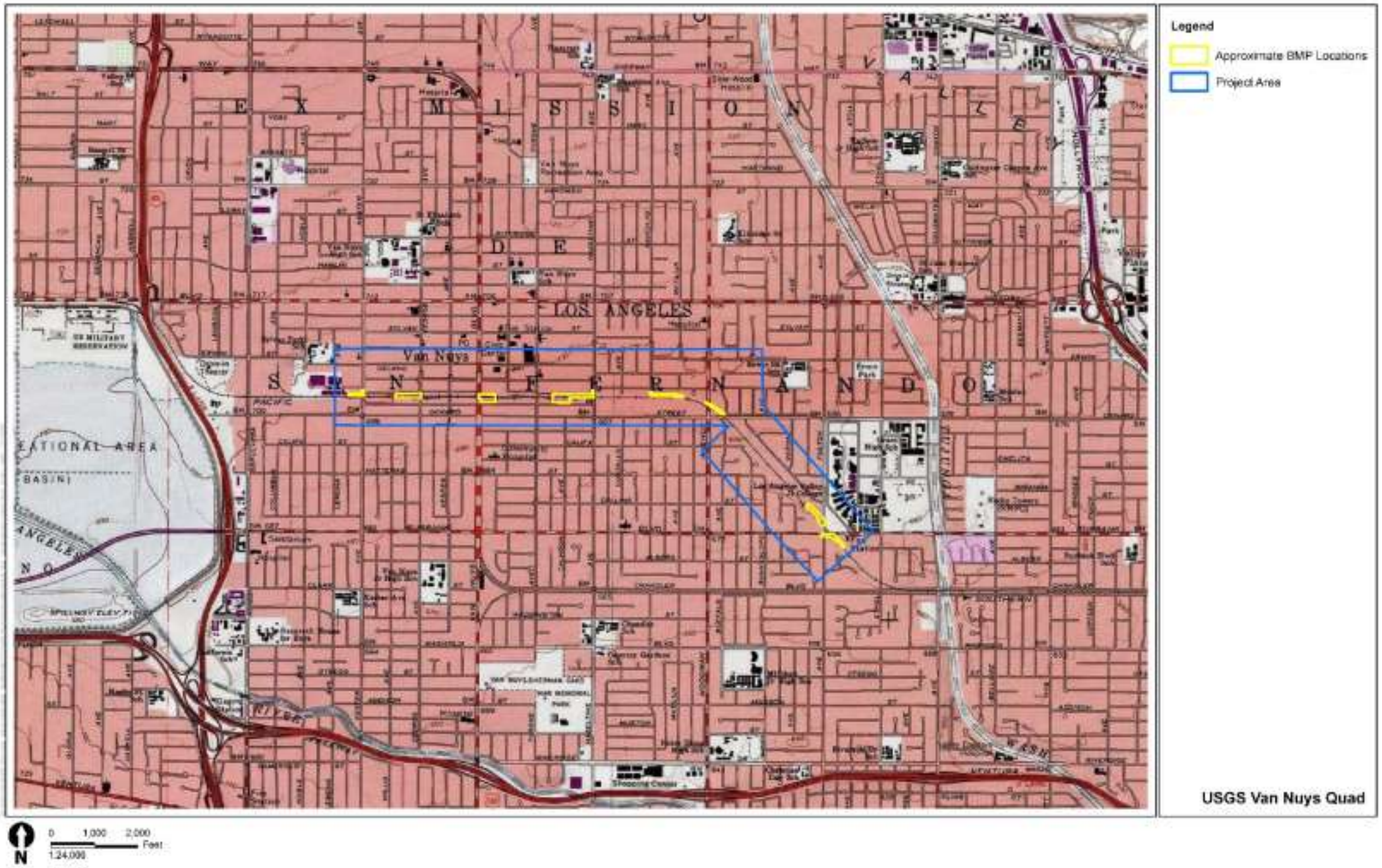
On September 15, 2021, the Los Angeles County Board of Supervisors approved funding for the proposed Project as one of the recipients of the SCW Program's Regional Program funding. Recognizing the groundwater supply and water quality improvements that would result from the proposed Project, the LADWP has agreed to enter a cost-sharing agreement with Metro. As a result of securing SCW Program and LADWP funding, Metro is currently moving forward with a progressive design-build process for the proposed Project. To save construction cost and expedite project implementation, the proposed improvements would be constructed in conjunction with the G Line Bus Rapid Transit (BRT) Improvements Project, described below.

In January 2016, the Metro Board of Directors (Board) authorized a technical study to assess various improvements to the G Line. In 2017, the Board authorized the G Line BRT Improvements Project, with the objectives of improving operating speeds, increasing ridership, supporting the transition to an all-electric bus service, and improving safety. The scope includes construction of two aerial, grade-separated structures that elevate the busway and associated BRT stations at Van Nuys Blvd. and Sepulveda Blvd., a third aerial structure at Vesper Ave., four-quadrant safety gates at at-grade intersections between the North Hollywood and Chatsworth Stations, and other improvements. The G Line BRT Improvements Project is expected to be completed by 2026.

1.1.2 Project Location

The proposed Project is within the ULAR Watershed, in Los Angeles County. The proposed Project traverses the MGL through the City of Los Angeles, as shown in the project area and vicinity figures below (Figure 1-1 and Figure 1-2).

Figure 1-1. Project Vicinity



This page was intentionally left blank.

Figure 1-2. Project Area

This page was intentionally left blank.

1.1.3 Project Objectives

The objective of the proposed Project is to divert stormwater runoff from existing regional storm drains and the surface to a network of nested infiltration drywells, or equivalent infiltration/ recharge BMPs, across approximately seven locations within Metro properties along the MGL. These locations have pretreatment facilities to capture, treat, and infiltrate stormwater runoff from more than 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet per year into the San Fernando Groundwater Basin. Metro's extensive land holdings and fortuitous siting within the highest-value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro's total potable water consumption was 772 and 673 acre-feet, respectively. The proposed Project has the potential to capture enough stormwater to make Metro Net Water Positive, allowing Metro to contribute more water to regional groundwater recharge than it uses to support all of its operations.

The primary objective of the proposed Project is to recharge stormwater into the San Fernando Groundwater Basin. Secondary objectives include improving surface water quality at the downstream receiving water (Los Angeles River) and reducing the risk of localized flooding by mitigating peak flow rates.

1.1.4 Project Description

The proposed Project aims to divert stormwater runoff from existing regional storm drains and surface flows to a network of underground pretreatment and infiltration facilities across approximately seven stormwater BMP clusters within Metro-owned parking lots and ROW adjacent to the active busway along the MGL. Please refer to Figures 1-5a through 1-5f, below, for proposed project renderings. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed BMP clusters have the potential to include active diversion structures (pump stations) or gravity-driven diversion structures. Currently six of the BMP clusters (MGL-1, MGL-2, MGL-3, MGL-4, MGL-5, and MGL-7) propose pump stations where stormwater runoff is diverted and pumped from the storm drain to the infiltration BMPs. To match the maximum capacity of each infiltration BMP cluster, the maximum diversion rates range between 10 and 32 cubic feet per second. When the maximum capacity of each infiltration BMP cluster is reached, the pump station would turn off, allowing stormwater to continue flowing in the storm drain. If a hazardous material spill were to occur upstream, the pump station would be shut down to prevent diverting the spill into the infiltration BMPs. Please refer to Figures 1-5a through 1-5f, below, for proposed project renderings. Figures 1-5a – 1-5c (MGL-3, Van Nuys Blvd) provides an illustrative example of a proposed Project site requiring pumping for stormwater diversion and a proposed Project site in a Metro-owned parking lot. Figures 1-5d – 1-5f (MGL-7, Woodman Ave) provides an illustrative example of a proposed Project site utilizing a gravity-based diversion and a proposed Project site within Metro ROW.

As the proposed Project progresses to the final design stages, gravity-driven diversions may be used, rather than pump stations, pending further hydraulic gradient analysis. The maximum diversion rate and average inflow of the diversion structure would remain unchanged, and an equivalent shutoff feature would also be included to prevent potential spills from entering the infiltration BMPs. MGL-6 includes a gravity-based diversion of stormwater runoff from surface street gutters along Woodman Ave. Additionally, efficiencies may be discovered during final design, reducing the number of BMP clusters needed, with the resulting stormwater capture remaining unchanged. The proposed Project includes excavation and drilling planned to extend to a maximum allowed depth of 70 feet below surface. The planned drywell depths should not extend beyond a maximum depth of 45 feet below surface, but these depths would be finalized when the project design is complete.

A detailed description of each of the seven proposed project locations is provided below.

1.2 Proposed Project Sites

1.2.1 MGL-1 – Kester Ave.

Project site MGL-1 consists of a diversion facility, pretreatment facility, and underground stormwater-infiltration facility. The diversion facility could be either a gravity-based diversion structure or a pump station. Potentially suitable pretreatment facilities at MGL-1 may include hydrodynamic separators, trash nets, underground sedimentation basins, and proprietary filtration devices. The underground stormwater-infiltration facility may be designed as either an array of nested drywells or a single infiltration gallery with equivalent infiltration capacity. The specific diversion, pretreatment, and infiltration facilities would be determined during the final project design. The majority of the proposed project elements would be constructed underneath the MGL ROW, extending to approximately 500 feet west of Kester Ave. A small proportion of the conveyance pipes would be underneath the public ROW. The proposed project site would connect to and divert stormwater and dry-weather runoff from the existing storm drain parallel to Kester Ave. (Storm Drain ID: BI0108). The approximate drainage area to MGL-1 is 308 acres.

1.2.2 MGL-2 – Cedros Ave.

Project site MGL-2 consists of a diversion facility, pretreatment facility, and underground stormwater-infiltration facility. The diversion facility could be either a gravity-based diversion structure or a pump station. Potentially suitable pretreatment facilities at MGL-2 include hydrodynamic separators, trash nets, underground sedimentation basins, and proprietary filtration devices. The underground stormwater-infiltration facility may be designed as either an array of nested drywells or an infiltration gallery with equivalent infiltration capacity. The specific diversion, pretreatment, and infiltration facilities would be determined during the progressive design-build stage. The majority of the proposed project elements would be within the MGL ROW, extending to approximately 800 feet west of Cedros Ave. A small proportion of the conveyance pipes would be underneath the public ROW. The proposed project site would connect to and divert stormwater and dry-weather runoff from the existing storm drain parallel to

Cedros Ave. (Storm Drain ID: Cedros Ave. Drain). The approximate drainage area to MGL-2 is 683 acres.

1.2.3 MGL-3 – Van Nuys Blvd.

Project site MGL-3 consists of a diversion facility, pretreatment facility, and underground stormwater-infiltration facility. The diversion facility could be either a gravity-based diversion structure or a pump station. Potentially suitable pretreatment facilities at MGL-3 include hydrodynamic separators, trash nets, underground sedimentation basins, and proprietary filtration devices. The underground stormwater-infiltration facility may be designed as either an array of nested drywells or an infiltration gallery with equivalent infiltration capacity. The specific diversion, pretreatment, and infiltration facilities would be determined during the progressive design-build stage. The majority of the proposed project elements would be underneath the existing Metro-owned parking lot east of Van Nuys Blvd. A small proportion of the conveyance pipes would be underneath the public ROW. The proposed project site would connect to and divert stormwater and dry-weather runoff from the existing storm drain parallel to Van Nuys Blvd. (Storm Drain ID: BI0056). The approximate drainage area to MGL-3 is 197 acres.

1.2.4 MGL-4 – Hazeltine Ave.

Project site MGL-4 consists of a diversion facility, pretreatment facility, and underground stormwater-infiltration facility. The diversion facility could be either a gravity-based diversion structure or a pump station. Potentially suitable pretreatment facilities at MGL-4 include hydrodynamic separators, trash nets, underground sedimentation basins, and proprietary filtration devices. The underground stormwater-infiltration facility may be designed as either an array of nested drywells or an infiltration gallery with equivalent infiltration capacity. The specific diversion, pretreatment, and infiltration facilities would be determined during the progressive design-build stage. The majority of the proposed project elements would be underneath the existing Metro-owned parking lot west of Hazeltine Ave. A small proportion of the conveyance pipes would be underneath the public ROW. The proposed project site would connect to and divert stormwater and dry-weather runoff from the existing storm drain parallel to Hazeltine Ave. (Storm Drain ID: BI9203). The approximate drainage area to MGL-4 is 579 acres.

1.2.5 MGL-5 – Ranchito Ave.

Project site MGL-5 consists of a diversion facility, pretreatment facility, and underground stormwater-infiltration facility. The diversion facility could be either a gravity-based diversion structure or a pump station. Potentially suitable pretreatment facilities at MGL-5 include hydrodynamic separators, trash nets, underground sedimentation basins, and proprietary filtration devices. The underground stormwater-infiltration facility may be designed as either an array of nested drywells or an infiltration gallery with equivalent infiltration capacity. The specific diversion, pretreatment, and infiltration facilities would be determined during the progressive design-build stage. The majority of the proposed project elements would be within the MGL ROW, extending to approximately 300 feet east of Ranchito Ave. A small proportion of the conveyance pipes would be underneath the public ROW. The proposed project site would connect to and divert stormwater and dry-weather runoff from the existing storm drain parallel to Ranchito Ave. (Storm Drain ID: BI0466). The approximate drainage area to MGL-5 is 193 acres.

1.2.6 MGL-6 – Woodman Ave.

Project site MGL-6 consists of an underground stormwater-infiltration facility and pretreatment facility. Potentially suitable pretreatment facilities at MGL-6 include hydrodynamic separators, trash nets, underground sedimentation basins, and proprietary filtration devices. The underground stormwater-infiltration facility may be designed as either an array of nested drywells or an infiltration gallery with equivalent infiltration capacity. The specific pretreatment and infiltration facilities would be determined during the progressive design-build stage. All proposed project elements would be within the MGL ROW, extending to approximately 200 feet east of Woodman Ave. The proposed project site would connect to the existing catch basins along both the eastern and western sides of the Woodman Ave./G Line Busway intersection. The proposed project site would intercept and capture surface stormwater and dry-weather runoff from approximately 67 acres of drainage area.

1.2.7 MGL-7 – Fulton Ave.

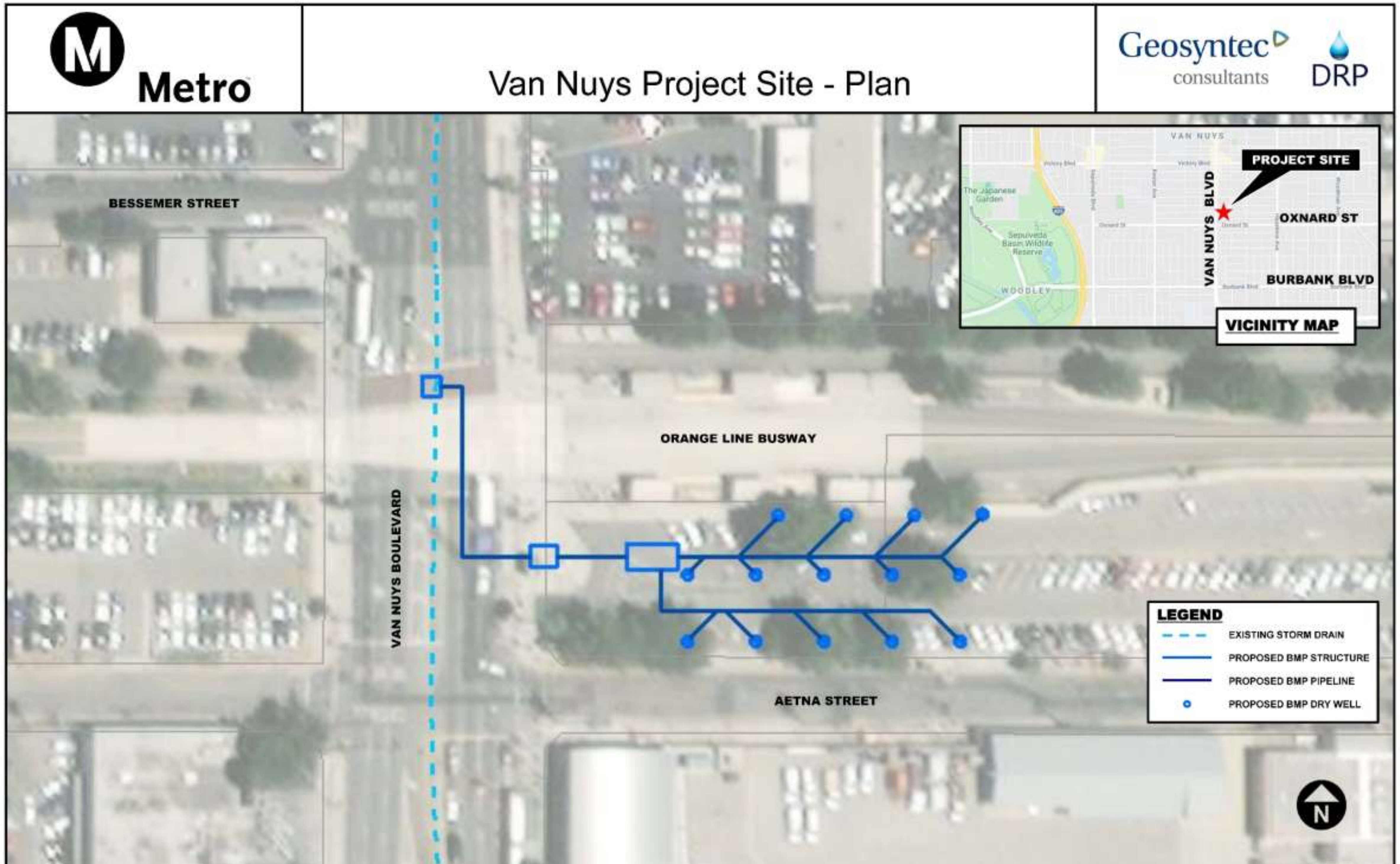
Project site MGL-7 consists of a diversion facility, pretreatment facility, and underground stormwater-infiltration facility. The diversion facility could be either a gravity-based diversion structure or a pump station. Potentially suitable pretreatment facilities at MGL-7 include hydrodynamic separators, trash nets, underground sedimentation basins, and proprietary filtration devices. The underground stormwater-infiltration facility may be designed as either an array of nested drywells or an infiltration gallery with equivalent infiltration capacity. The specific diversion, pretreatment, and infiltration facilities would be determined during the progressive design-build stage. The majority of the proposed project elements would be within the MGL ROW, extending to approximately 400 feet southeast and northwest of the Fulton Ave./G Line Busway intersection. A small proportion of the conveyance pipes would be underneath the public ROW. The proposed project site would connect to and divert stormwater and dry-weather runoff from the existing storm drain parallel to Fulton Ave. (Storm Drain ID: BI9204). The approximate drainage area to MGL-7 is 292 acres.

1.2.8 Project Construction

The proposed Project is anticipated to take approximately 3 years to construct, beginning in summer 2024. The proposed Project would utilize standard work shifts of 8 hours per day, typically 7:00 a.m. to 3:30 p.m., following all local ordinances pertaining to construction operation hours. The proposed Project would require site preparation in the form of clearing and grubbing of existing vegetation, as well as excavation for the installation of the proposed stormwater systems and associated hauling of excavated materials. Table 1-2, to follow, lists the total amount of excavated materials in cubic yards proposed for project construction, totaling 21,698.5 cubic yards. Staging and storage of materials would be determined by the contractor once final design is completed; however, staging and storage would be within Metro-owned ROW, within the construction area. Soil excavated from the project site would be used to regrade affected areas and provide as fill materials for the proposed Project, with excess being transported offsite via truck to the nearest fill site. In areas where infiltration is in the bikeway footprint, the bikeway would be shut down and detoured, with public noticing provided.

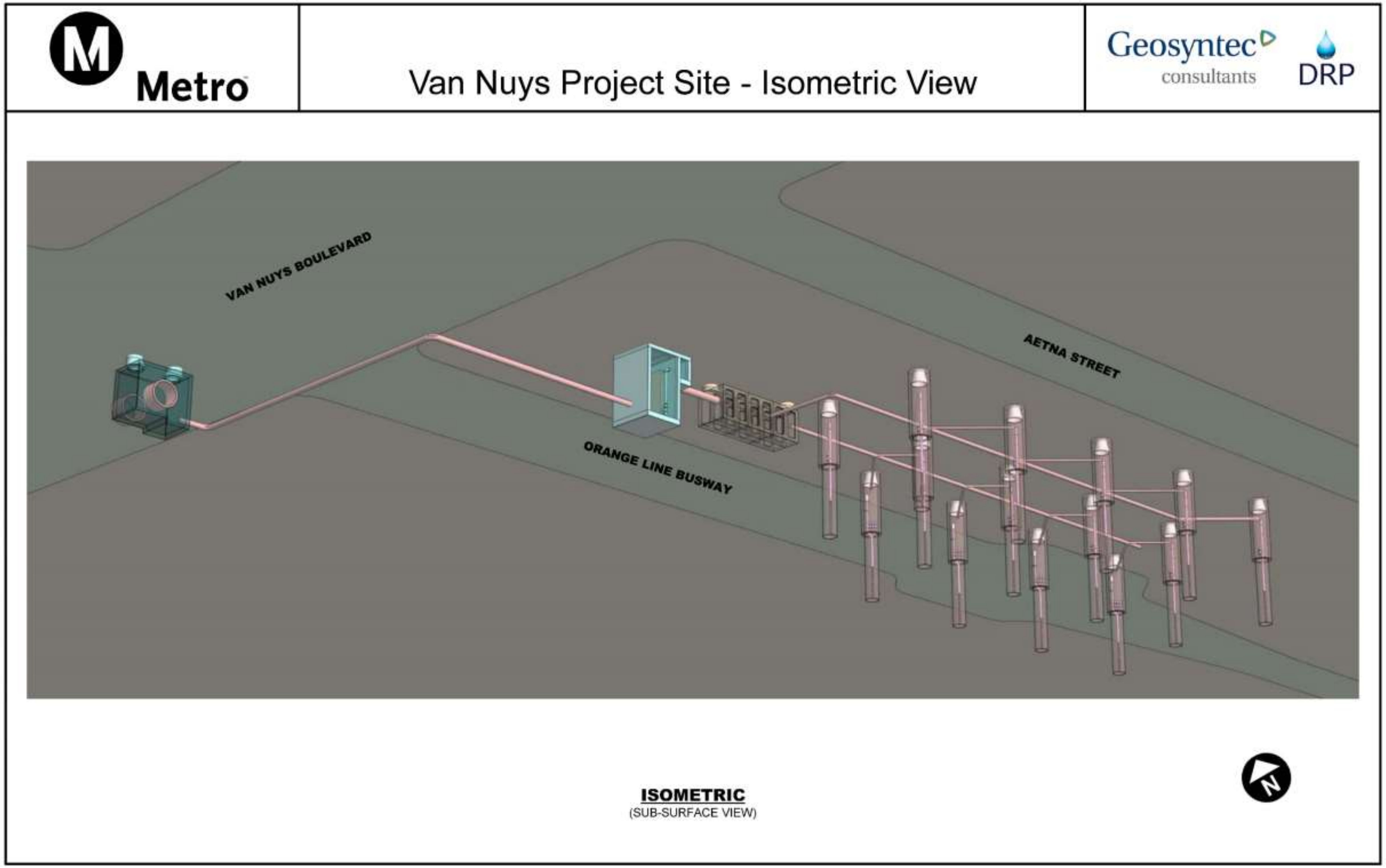
This page was intentionally left blank.

Figure 1-5a. Van Nuys Project Site – Plan



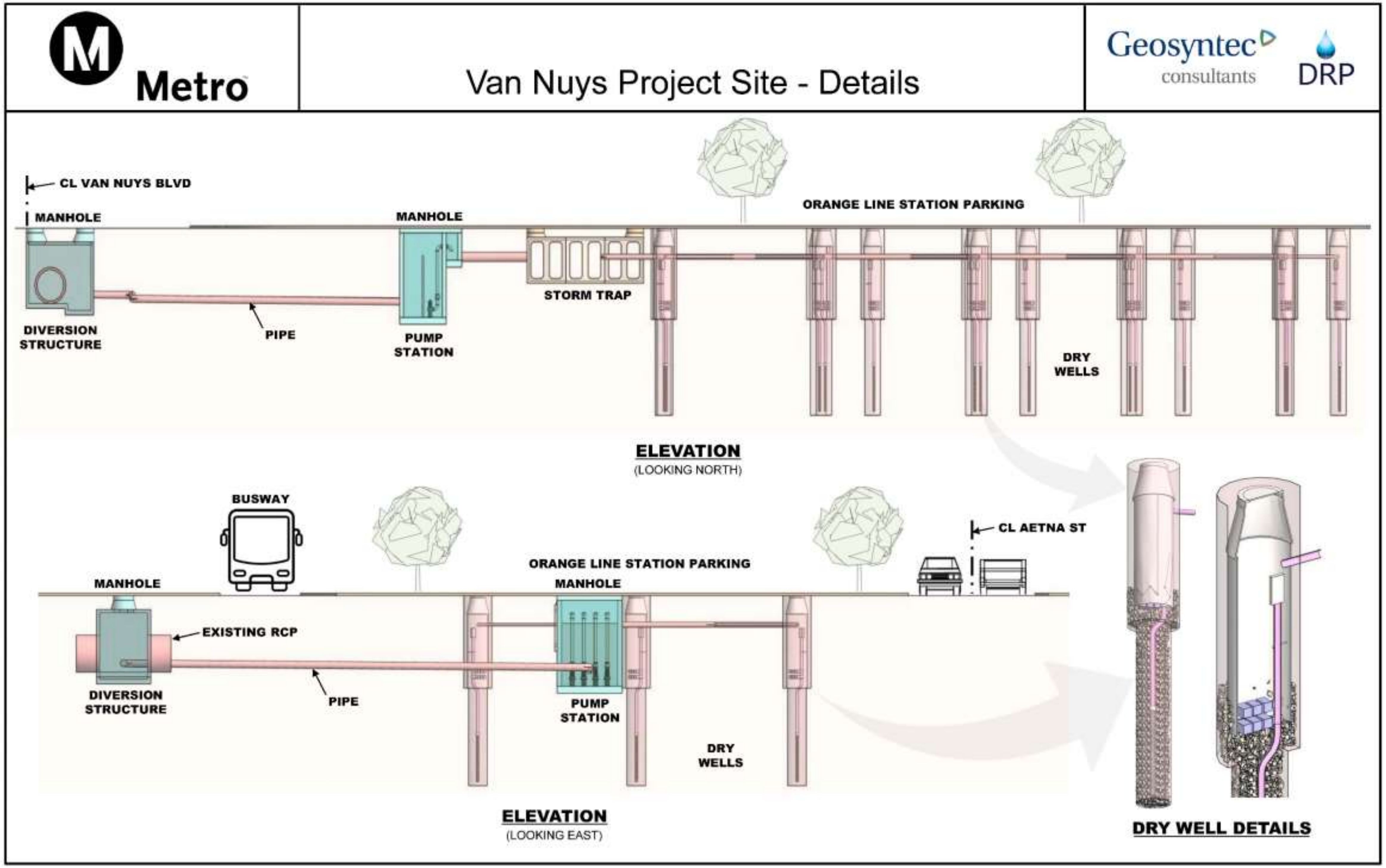
This page was intentionally left blank.

Figure 1-5b. Van Nuys Project Site – Isometric View



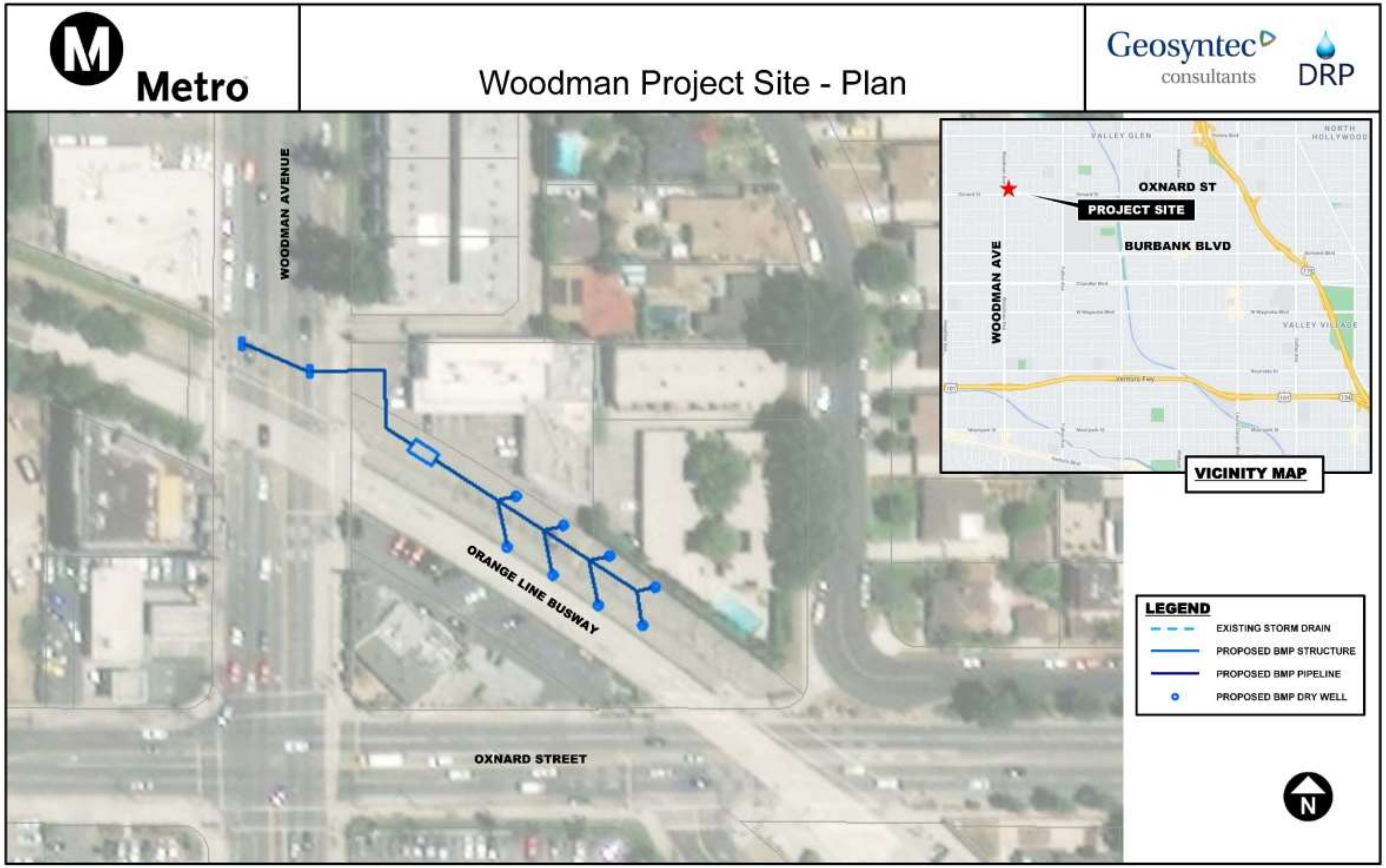
This page was intentionally left blank.

Figure 1-5c. Van Nuys Project Site – Details



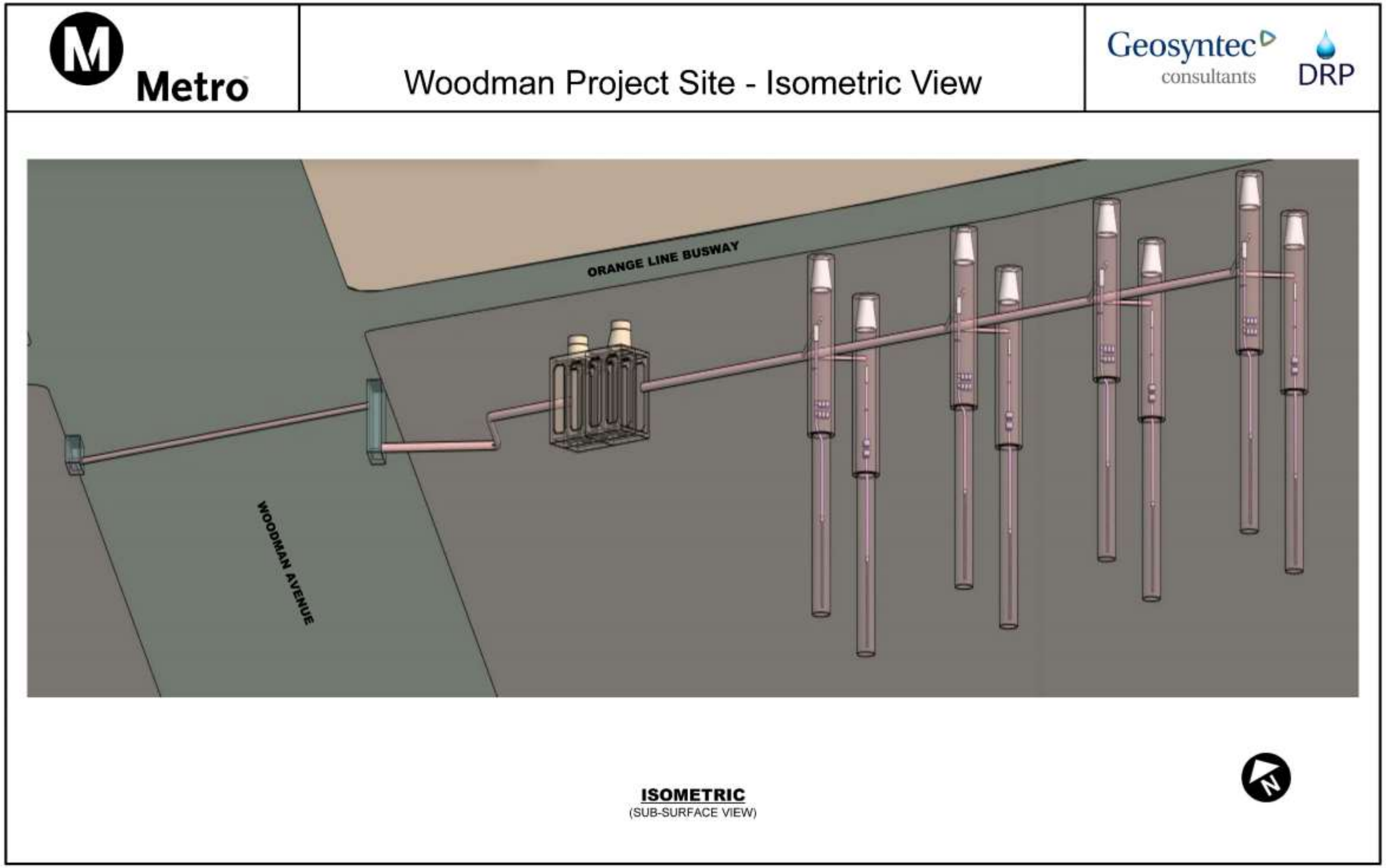
This page was intentionally left blank.

Figure 1-5d. Woodman Project Site – Plan



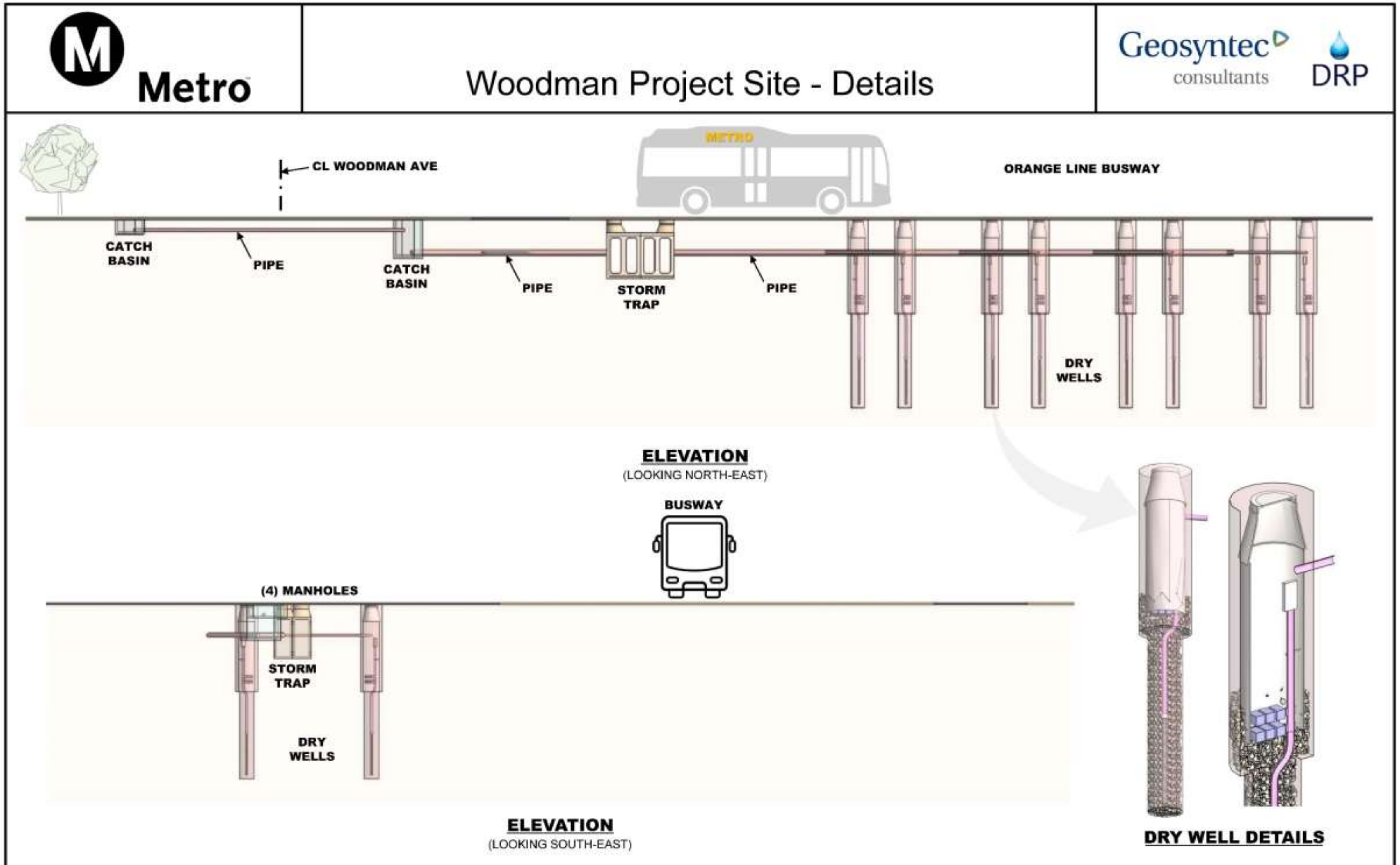
This page was intentionally left blank.

Figure1-5e. Woodman Project Site – Isometric View



This page was intentionally left blank.

Figure 1-5f. Woodman Project Site – Details



This page was intentionally left blank.

1.2.9 System Installation

The typical Capture–Treat–Infiltrate site being proposed as part of the Project consists of four primary elements: the diversion structure, the pump station, the pretreatment vault, and the drywells. The construction of each of these individual elements can be largely independent of one another. Once all four elements are constructed, tested, and proven as fit-for-purpose, they would be connected with pipes and stormwater would be diverted into this system and infiltrated into the groundwater table. Please refer to Table 1-1, to follow, for a detailed breakdown of each construction activity described below.

Diversion Structure

The water used for infiltration and recharge would be diverted from runoff to inlets and/or stormwater trunk lines. These trunk lines typically run under city streets and range from 11 to 26 feet below street grade. On busy streets that cannot close lanes long term to traffic, these lines would be accessed via shored pits. For streets where affected lanes must remain active, the excavated pit would have a traffic rated steel plate lid on it to maintain traffic during peak hours and allow construction during off-peak hours. On streets with traffic lanes that can be closed long term, the diversion structure construction would be accessed via open top shored pits. Once excavated, it is contemplated that a cast-in-place vault would be constructed around the trunk line. Until the entire system is operational, the trunk line would be kept intact through this vault to avoid flooding the new construction. The vault would then be backfilled, and the shoring removed. The vault would have access manholes that extend to street grade to allow for access to the box.

Pump Station

After being diverted from the main trunk line, the stormwater must gravity flow to a pump station, where it would be lifted and pumped into the pretreatment vault. The pretreatment vault is just below existing grade (0–10 feet). The bottom of the pump station would typically be 5–10 feet lower than the trunk line from which it is receiving water. This structure can be either precast or cast in place. Given that this structure would likely be out of the city street footprint and within Metro-owned ROW, it can be installed in an open-top shored pit. The pump station would require electrical service and station controls, allowing for control of the pump switches. Once the vault is installed and backfilled, the mechanical equipment, electrical service, and system controls would then be installed and tested.

Pre-Treatment Vault

The pump station would lift the water close to surface elevation and discharge into the pretreatment vault. This vault would likely be installed in an open excavation (being that it is relatively shallow) within the Metro-owned ROW. This vault would likely be pre-cast with a traffic rated steel lid. Once installed and backfilled, internal treatment BMP's would be installed and tested.

Infiltration Drywells

Once treated, the water is routed, by gravity flow, to an infiltration system. As currently contemplated, these are individual drywells extending down 45 feet from the surface, containing permeable rock, a manhole structure, and slotted pipe. The upper portion of the well is 6 feet in diameter and would need to be shored. This would be accomplished utilizing a drill rig with a 6 feet diameter drill tooling and an oscillator to install a slightly oversized temporary casing to use as shoring. Once drilled, the lower 27 feet would have the slotted pipe installed and backfilled with a highly permeable rock or gravel. Once shored, the upper 18 feet would have the manhole structure installed and backfilled with a highly permeable gravel for the lower portion and impermeable cement slurry for the upper. These individual wells would then undergo Quality Control for proof of infiltration capacity.

System Tie-in and Startup

Once each element has been constructed, tested, deemed ready for service, and is interconnected by piping as shown on the plans, the system would go live. When the diversion structure is initially built, it would be built around the stormwater trunk line. However, that line would not be removed or breached, thus keeping the system isolated from any and all stormwater and non-stormwater flows during construction and testing. When the system goes live, the trunkline would be plugged upstream of the diversion structure and all non-stormwater flows would be pumped around (i.e., bypass) the diversion structure and put back in the trunkline downstream. This would render the line dry at the diversion structure, allowing the line inside the structure to be demolished and removed. This procedure must occur during a period of no storm activity so that the known non-stormwater flows can be safely handled in the bypass system. Once removed, the plug and bypass would be removed, returning flow to the diversion structure. The diversion structure would now route this flow to the infiltration system, as designed.

Table 1-1 lists the proposed construction activities, as described above, their associated equipment, and the approximate number of working days the proposed equipment would be in operation. The construction fleet and phasing would be determined by the contractor once the project design is final. Construction activities and their phasing have the potential to occur simultaneously at multiple locations throughout construction of the proposed Project. The list of activities, duration, and equipment types in Table 1-1 are based on the current preliminary project design information and assumptions.

Table 1-1. Proposed Activity, Associated Equipment Type, and Approximate Duration

Activity	Approximate Number of Working Days	Equipment Type
Mobilize contractor(s)	10	Flatbed/lowbed on-road trucks
Excavate for pretreatment vault	32	345 CAT excavator
Excavate for pretreatment vault	32	CAT 950 loader
Construct Cast-In Place Concrete Structure (FRPS) pretreatment vault complete	120	75-ton rough-terrain crane
Complete FRPS pretreatment vault complete	120	12,000-pound forklift
Table 1-2 FRPS pretreatment vault	120	32-meter concrete pump truck
Install drywells	495	Large-diameter subsurface-foundation drill rig with oscillator (6–8-foot diameter)
Install drywells	495	CAT 950 loader
Install drywells	495	Skidsteer
Test infiltration rate of drywells	80	5-kilowatt generator; >10-horsepower sump pump
Dig, lay, and backfill pretreatment to drywell pipes	90	345 CAT excavator
Dig, lay, and backfill pretreatment to drywell pipes	90	CAT 950 Loader
Restore surfacing	24	8-foot-wide asphalt paver
Restore surfacing	24	CAT double drum roller
Excavate for diversion structure	120	345 CAT excavator
Excavate for diversion structure	120	CAT 950 loader
Complete FRPS diversion structure	120	75-ton rough-terrain crane
Complete FRPS diversion structure	120	12,000-pound forklift
Complete FRPS diversion structure	16	32-meter concrete-pump truck
Dig, shore, lay, and backfill 20-inch pipe: diversion to pump station (gravity, deep)	165	345 CAT excavator
Dig, shore, lay, and backfill 20-inch pipe: diversion to pump station (gravity, deep)	165	CAT 950 loader
Shore and excavate pump station	110	345 CAT excavator
Shore and excavate pump station	110	CAT 950 loader
Set and backfill precast pump station	40	75-ton rough-terrain crane
Set and backfill precast pump station	40	CAT 950 loader
Dig, lay, and backfill 20-inch pump station to pretreat	44	345 CAT excavator
Dig, lay, and backfill 20-inch pump station to pretreat	44	CAT 950 loader
Install pump station mechanical	80	12,000-pound forklift
Install pump station electrical	80	12,000-pound forklift

Activity	Approximate Number of Working Days	Equipment Type
Bypass and demo trunk line in diversion structure	24	30-kilovolt generator, sump pumps
Bypass and demo trunk line in diversion structure	24	Air compressors, pneumatic breaker

CAT = Caterpillar; FRPS = Form, Rebar, Pour, Strip

Table 1-2. Proposed Export Quantities in Cubic Yards

Activity Name	MGL-1	MGL-2	MGL-3	MGL-4	MGL-5	MGL-6	MGL-7	TOTAL
Excavate for pretreatment vault	388.9	486.1	291.7	500.0	208.3	208.3	500.0	2,583.3
Drill out drywells (50 cubic yards each)	1,200.0	2,100.0	700.0	1,900.0	650.0	400.0	1,400.0	8,350.0
Excavate for diversion struct (cut and cover).	324.0	616.0	414.0	360.0	485.3	50.0	1,152.0	3,401.3
Shore/excavate for pump station.	228.0	528.0	240.2	320.0	292.4	50.0	668.4	2,327.1
Dig/lay/backfill 18–36-inch diversion to pump deep: 1,120 linear feet.	–	–	–	–	–	–	–	2,074.1
Dig/lay/backfill 20-inch pump station to pretreat: 1,330 linear feet	–	–	–	–	–	–	–	591.1
Dig 20-inch pipe to drywell: 1,520 linear feet	–	–	–	–	–	–	–	788.1
Dig 6-inch pipe to drywell	–	–	–	–	–	–	–	1,583.4

1.3 Project Operation and Maintenance

Pump stations would move the stormwater from diversion and collection to the infiltration distribution systems. Stormwater would be conveyed from the diversion structures and any catch basins or other collection systems to the pump-station wet well, which would act as a buffer for instantaneous flow changes and be sized to minimize pump starts and stops (which can decrease the life of the pumps). The wet well also would prevent any trash and large solids from entering the infiltration system.

From the wet well, the stormwater would be lifted (i.e., pumped) to a connected discharge well. By merely “lifting” the stormwater, the friction loss and footprint of the pump station would be minimized, increasing the overall efficiency of the system. From the discharge well, the stormwater would flow by gravity to the treatment and infiltration elements.

Other than the pump stations, the project components would be gravity-fed and located underground, leading to minimal to no impacts on the aboveground facilities while in operation. Post-construction monitoring is anticipated to occur for 2 years once project construction is complete. Once operational, the pretreatment facilities and the diversion structures would be inspected four times per year, with maintenance performed twice per year, utilizing vacuum trucks. The infiltration facilities would be inspected twice per year and maintained once every 5 years. A proposed maintenance schedule can be found below in Table 1-3; however, additional maintenance maybe needed based on field observations and site conditions, as well as after significant rain events. Details of the proposed maintenance activities also are described in Table 1-3.

Table 1-3. Proposed Maintenance Schedule

BMP	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec
Underground Pretreatment Galleries (Inspection)	Once	Once	Once	Once
Underground Pretreatment Galleries (Cleaning)	Once	Not required	Once	Not required
Drywells (Inspection)	Not required	Not required	Once	Once
Drywells (Cleaning)	Once every 5 years	Once every 5 years	Once every 5 years	Once every 5 years
Pump Station (Inspection)	Once	Once	Once	Once
Pump Station (Cleaning)	Once	Not required	Once	Not required

BMP = best management practice

Standard maintenance activities for each of the underground pretreatment galleries and drywells are described below.

1.3.1 Underground Pretreatment Galleries

Typical maintenance activities for underground pretreatment galleries consist of the following.

- Inspecting for and removing inlet and outlet obstructions that may impede flows through the system. This can be accomplished through water jetting or the use of a hook with a long arm
- Removing trash, debris, and sediment that may prevent infiltration in the galleries when they fill 10 percent or more of the unit’s volume, as measured using a calibrated pole
- Using a truck-mounted hydro-vactor in tandem with sewer jetting equipment to flush sediment toward a vacuum hose for removal, suctioning the materials through a piping system into the vactor truck for offsite disposal (most often, this work is performed by a specialized contractor), and documenting all maintenance performed on the field forms

1.3.2 Drywells

Typical maintenance activities for drywells consist of the following.

- Removing and disposing of trash and debris from inside the drywell chambers
- Vacuuming sediment from inside the drywell chambers when more than 15 percent of the primary settling chambers' capacity is filled
- Checking inlet, intake, connector, and drainage pipes for obstructions
- Removing the debris shield cover and clearing the debris shield, if clogged
- Replacing absorbent petrochemical sponge, if necessary
- Documenting all maintenance performed on the field forms

1.3.3 Pump Station

Typical maintenance activities for the pump stations consist of the following.

- Removing accumulated sediment and debris from wet wells
- Testing the Programmable Logic Controller system
- Inspecting, replacing, and maintaining pumps based on the manufacturer's pump-maintenance documentation
- Inspecting the submersible pressure transducer and control cable to ensure proper operation; recalibrating and repairing the system based on manufacturer recommendations
- Inspecting all pressurized pipe, bends, connections, reducers, and flanges for leakage and repair, if necessary
- Inspecting areas with underground pressurized pipes and pressure sensor conduits to ensure that all pipe and conduits are buried and protected
- Inspecting pressurized pipe outlets for debris/sediment build-up and blockages and pipe stanchions for damage, including cracks, bending, irregularities, fractures, and corrosion, and repairing or replacing (as necessary)

Chapter 2 Environmental Checklist

CEQA Checklist

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

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

Determination: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

☒ I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to 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 an impact on the environment that is "potentially significant" or "potentially significant unless mitigated," but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis, as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

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

Alvin Kusumoto for Tom Kefalas — June 21, 2022

Signature — Date

Alvin Kusumoto for Tom Kefalas

Printed Name — For

This page was intentionally left blank.

2.1 Aesthetics

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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 along a 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 that would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

2.1.1 Discussion

a) Have a substantial adverse effect on a scenic vista?

Less-than-Significant Impact.

Several scenic vistas are located throughout the City of Los Angeles, including the San Gabriel, Verdugo, and Santa Susana Mountains to the north, the Santa Monica Mountains that extend across the middle of the City of Los Angeles, the Palos Verdes Hills and Pacific Ocean to the south and west, and the Los Angeles River. Part of the Transverse Ranges Geomorphic Province, the Santa Monica Mountains are the most visible feature from many parts of the City of Los Angeles; the mountain range is 60 miles long from west to east and stretches from Griffith Park in Los Angeles County to the Santa Monica National Recreation Area in Ventura County. The Los Angeles River and its associated tributaries and flood plains also are prominent topographic features (City of Los Angeles 2001). The closest scenic vistas to the proposed project area are the Santa Monica Mountains, which are approximately 1.5 miles south of the proposed project area's most southerly point, MGL-7 on Fulton Ave. Construction activities could temporarily cause disruptions to local views of the Santa Monica Mountains due to the presence of construction equipment. However, construction activities would be temporary. Construction impacts would be considered less than significant.

Once constructed, the proposed Project would be located either within MGL ROW or underground. The constructed facilities would not block any public views, and operation of the proposed Project would not result in a substantial adverse effect of on a scenic vista. Therefore, impacts on scenic vistas would be considered less than significant.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?

Less-than-Significant Impact.

There are only two officially designated scenic highways in Los Angeles County: Malibu Canyon–Los Virgenes Highway (N1) from State Route (SR) 1 to Lost Hills Road, Mulholland Highway–SR 1 to Kanan Dume Road, and West Cornell Road to Los Virgenes Road (Caltrans 2020a). The proposed Project would be approximately 14 miles east from these designated scenic highways (at MGL-1 Kester) and would not be visible from these highways due to distance and existing topography. Highway 210 approximately 10 miles east of the proposed Program area, is designated as an eligible scenic highway (Caltrans 2020b). However, views of the proposed project area from the eligible portion of Highway 210 are mostly obstructed by the Verdugo Mountains. The proposed Project would not include substantial damage to scenic resources, including trees, rock outcropping, or historic structures, and impacts would be considered less than significant.

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?

Less-than-Significant Impact.

The proposed project sites are in urbanized areas. Construction activities would require the use of heavy equipment and storage of materials on site. During construction, excavated areas, stockpiled soils, and other materials at the construction site and staging areas would be visible. However, these visual obstructions would be temporary and only occur during the construction phase. Once construction is completed, the created facilities (MGL-1, MGL-2, MGL-3, MGL-4, and MGL-5) would be mostly within MGL ROW, with a small proportion underneath the City of Los Angeles ROW, and proposed project sites would be returned to preconstruction conditions. MGL-6 would be entirely within the MGL ROW. All of the project sites have land use designations of Public Facilities, as designated in the *City of Los Angeles General Plan* (General Plan; City of Los Angeles 2001)and Zone Information and Map Access System (ZIMAS) Maps (City of Los Angeles 2020). Implementation of the proposed Project would not involve rezoning any of the project sites or surrounding parcels of land.

d) Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Less-than-Significant Impact.

The proposed project sites are in highly urbanized areas, which contain cars and streetlights that emit light and glare during the day and night. Construction is mainly anticipated to occur during the day; however, nighttime construction may occur, if necessary. Nighttime construction would be temporary and limited to the area immediately surrounding the active construction site. All lighting would be shielded and pointed toward the construction activity, away from surrounding sensitive land uses. Therefore, impacts would be less than significant.

Once constructed, the majority of the proposed project footprint is within Metro-owned ROW, with the remaining footprint underneath City of Los Angeles ROW. The built facilities would not create large expanses of reflective material that could cause glare. No additional lighting construction is proposed. Therefore, impacts related to light and glare would be less than significant.

2.1.2 References Cited

California Department of Transportation (Caltrans). 2020a. Officially Designated County Scenic Highways. Available: dot.ca.gov/-/media/dot-media/programs/design/documents/od-county-scenic-hwys-2015-a11y.pdf. Accessed: December 21, 2021.

California Department of Transportation (Caltrans). 2020b. List of Eligible and Officially Designated State Scenic Highways. Available: dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed: December 21, 2021.

City of Los Angeles. 2001. *City of Los Angeles General Plan: Conservation Element.* Adopted September 2001.

City of Los Angeles. 2020. Zone Information and Map Access System (ZIMAS). Available: zimas.lacity.org/. Accessed: December 16, 2020.

This page was intentionally left blank.

2.2 Agricultural and Forestry Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
II. AGRICULTURAL AND FORESTRY RESOURCES – In determining whether impacts on 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 on 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 the 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 conflict with 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 that, 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?	☐	☐	☐	☒

2.2.1 Discussion

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

No Impact.

There are no designated Prime Farmlands, 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 (California Department of Conservation 2022), within the proposed project area. The proposed Project is within Metro-owned ROW.

f) Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?

No Impact.

The proposed Project is not within an area zoned for agriculture, and no Williamson Act properties exist within the proposed project area. The proposed Project is within Metro-owned ROW.

g) Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact.

There are no lands zoned as forest land within the proposed project area, it is within Metro-owned ROW.

h) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact.

The proposed Project would not result in the loss of forest lands or the conversion of forest land to non-forest use.

i) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact.

Due to the urbanized location of the proposed Project, it would not result in the conversion of Farmland to non-agricultural use or forest land to non-forest use.

2.2.2 References Cited

California Department of Conservation. 2022. Farmland Mapping and Monitoring Program. January. Available: www.conservation.ca.gov/dlrp/fmmp/Pages/LosAngeles.aspx. Accessed: March 2022.

2.3 Air Quality

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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 a nonattainment area for 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?	☐	☐	☒	☐

2.3.1 Discussion

This section summarizes potential air quality emissions associated with construction and operational activities of the proposed Project.

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact.

The *2016 Air Quality Management Plan* (2016 AQMP) was adopted by the South Coast Air Quality Management District (SCAQMD) as a program to lead the South Coast Basin (Basin) into compliance with criteria pollutant standards and other federal requirements for which the Basin is not in compliance. The 2016 AQMP relies on emissions forecasts based on the demographic and economic growth projections provided by the Southern California Association of Governments (SCAG) *2016 Regional Transportation Plan/Sustainable Communities Strategy* (2016 RTP/SCS) (SCAG 2016).,[1] SCAG is charged by California law to prepare and approve "the portions of each AQMP relating to demographic projections and integrated regional land use, housing, employment, and transportation programs, measures and strategies" (SCAQMD 2017). A project is considered to be consistent with the AQMP and not obstruct its implementation if, in part, it is consistent with the demographic and economic growth projections used in the formulation of the AQMP.

[1] It should be noted that although SCAG has released a newer RTP/SCS, the 2020 RTP/SCS, the most current SCAQMD air quality management plan is the 2016 AQMP, which is based off the SCAG 2016 RTP/SCS.

The SCAQMD recommends that, when determining whether a project is consistent with the current AQMP, a lead agency must assess:

a. Whether the project would directly obstruct implementation of the plan through an increase in the frequency or severity of existing air quality violations, or cause or contribute to, new violations, or delay timely attainment of air quality standards (Criterion No.1), and

b. Whether it is consistent with the demographic and economic assumptions (typically land use related, such as resultant employment or residential units) upon which the plan is based (Criterion No. 2) (SCAQMD 1993).

Criterion No. 1

As discussed below, under Air Quality Impact b and c, the project would not obstruct implementation of the 2016 AQMP because emissions resulting from its construction and operation would not exceed SCAQMD's regional mass emissions thresholds and Localized Significance Thresholds (LSTs); refer to Table 2-2 and Table 2-3. Therefore, the project's emissions would not increase concentrations of criteria pollutants or their precursors in a manner that could obstruct SCAQMD's efforts to achieve timely attainment of ambient air quality standards for any criteria pollutant for which it is currently not in attainment or jeopardize the current attainment status of the Basin for other criteria pollutants.

Criterion No. 2

The following sections provide a discussion of the project's incorporation of emission-control measures and the project's consistency with demographic and economic assumptions used in development of the AQMP.

Emission-Control Measures

During the construction period, the project would require contractors to adhere to the California Air Resources Board (CARB) on-road vehicle and off-road equipment requirements, which would limit the level of construction emissions caused by the project. In addition, the project would be required pursuant to state law to use contractors that are in compliance with the CARB Air Toxic Control Measure (ATCM), which limits heavy duty–diesel motor-vehicle idling to no more than 5 minutes at any given location.[2] The project contractor(s) would also be required by state regulations to comply with the fleet on-road heavy-duty vehicle emissions standards consistent with Measure MOB-08[3] from the 2016 AQMP (SCAQMD 2017).

---

[2] The Air Toxic Control Measure (13 California Code of Regulations § 2485) specifies measures to reduce public exposure to diesel particulate matter and other air contaminants by establishing idling restrictions, emission standards, and other requirements for heavy-duty diesel engines and alternative idle-reduction technologies to limit the idling of diesel-fueled commercial motor vehicles.

[3] MOB-08: Accelerated Retirement of Older On-Road Heavy-Duty Vehicles [NO_X, particulate matter]

These control strategies are intended to reduce emissions from on-road and off-road heavy-duty vehicles and equipment and are implemented by accelerating the replacement of older engines that produce higher-pollutant emissions with newer engines that produce lower-pollutant emission. The project would comply with regulatory requirements to minimize short-term emissions from on-road and off-road diesel vehicles and equipment and SCAQMD's rules for controlling fugitive dust, as identified in SCAQMD Rule 403.

Furthermore, as discussed in Impact 2.3.b, the proposed Project would be consistent with Metro's Green Construction policy, which requires the use of Tier 4 Final construction engines (Metro 2011). The Tier 4 Final equipment would reduce diesel particulate matter emissions at the nearby sensitive receptors. Additionally, Tier 4 Final equipment would greatly reduce the project's reactive organic gases, nitrogen oxides (NO_X), and exhaust particulate matter emissions measuring 2.5 microns in diameter or less ($PM_{2.5}$) and 10 microns in diameter or less (PM_{10}) during the construction period. Compliance with these measures and requirements is consistent with AQMP requirements for control strategies intended to reduce emissions from construction equipment and activities.

Land Use and Demographic and Economic Projections

The proposed Project would be consistent with the existing General Plan and Zoning designations (City of Los Angeles 2001). Furthermore, the project would not include any land uses that would promote growth within the project area. Thus, the proposed Project would be consistent with the land use assumptions used in development of the AQMP and the growth forecast from the 2016 AQMP and the active RTP/SCS at the time, the 2016–2040 RTP/SCS.

Conclusion

As discussed above, the proposed Project would be consistent with Criterion No.1 and Criterion No. 2 of the 2016 AQMP. Therefore, the project would not conflict with, or obstruct implementation of, the 2016 AQMP and the project would result in a less-than-significant impact.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard?

Less-than-Significant Impact.

SCAQMD has established air quality significance thresholds that are applicable to both construction and operational emissions generated by projects within its jurisdiction. These significance thresholds were derived using regional emissions modeling to determine maximum allowable mass quantities of pollutant emissions that could be generated by individual projects without adversely affecting air quality or creating public health concerns based on existing pollution levels. These regional pollutant emission thresholds are shown in Table 2-1.

Table 2-1. SCAQMD Regional Air Quality Significance Thresholds

Pollutant	Mass Daily Thresholds (lbs./day)	
	Construction	Operation
Nitrogen Oxides (NO_X)	100	55
Volatile Organic Compounds (VOC) [a]	75	55
Suspended Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Sulfur Oxides (SO_X)	150	150
Carbon Monoxide (CO)	550	550
Lead (Pb) [b]	3	3

Source: SCAQMD 2019.
[a] The terms VOC and ROG are used interchangeably. SCAQMD uses VOC, and CalEEMod uses ROG.
[b] The project would result in no lead emissions sources during the construction period or operations. As such, lead emissions are not evaluated herein.
CalEEMod = California Emissions Estimator Model; ROG = reactive organic gases; SCAQMD = South Coast Air Quality Management District.

Short-term Construction Emissions

Construction associated with the project would generate criteria pollutant emissions from excavation, trenching, drilling, and paving, as well as mobile emissions from construction worker trips, vendor trips, and haul-truck trips. These construction activities have the potential to temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants. The amount of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring simultaneously. The total construction footprint is approximately 3.05 acres spread across the seven MGL locations.

Construction of the project would result in approximately 21,698 cubic yards of soil export during the excavation, trenching, and drilling phase. The removal of this debris is estimated to require a maximum of 12 haul-truck trips per day during the excavation phase, with other phases experiencing lower daily haul-truck trips. Aside from haul-truck trips, daily work, vendor, and/or delivery truck trips would also occur during each of the construction phases for the proposed Project.

The proposed Project's short-term construction emissions were estimated using a combination of emission factors and methodologies from the California Emissions Estimator Model (CalEEMod), version 2020.4.0 (CAPCOA 2021), CARB's most recent Emission FACtors model (EMFAC2021) (CARB 2021), and the U.S. Environmental Protection Agency's (EPA's) AP-42 Compilation of Air Pollutant Emission Factors (EPA N.D.). The modeling was conducted based on project-specific construction data (e.g., schedule, equipment, truck volumes) provided by the Project Applicant. Where project-specific information was not available, reasonable assumptions based on similar projects and default model settings were used to estimate criteria air pollutant and ozone precursor emissions.

This analysis assumed a worst-case scenario with construction starting in June 2024 and ending in May 2026 with all construction phases overlapping to capture the highest maximum daily air emissions. It is likely that construction at the seven MGL locations would occur at different times with gaps during the construction period where phases would not be overlapping (e.g., paving would be done at each seven MGL locations over the course of two years, but would only result in a total of 24 days of construction).

The proposed Project would implement the required SCAQMD Rule 403 during construction to minimize construction-related fugitive PM_{10} and $PM_{2.5}$ dust emissions. SCAQMD Rule 403 requires watering exposed ground three times a day, cleaning trucks, track-outs, and covering/watering haul truck loads (SCAQMD 2005) Additionally, the proposed Project would comply with Metro's Green Construction Policy which requires with limited exceptions the use of EPA Tier 4 Final equipment for equipment larger than 50 horsepower.

The modeled peak daily emissions of criteria air pollutants and ozone precursors associated with construction of the proposed Project with SCAQMD Rule 403 and the Metro's Green Construction Policy incorporated are presented in Table 2-2. Because SCAQMD Rule 403 and the Metro's Green Construction Policy are regulatory requirement that every project within the SCAQMD and Metro's jurisdiction must follow, it is not considered mitigation.

Table 2-2. Unmitigated Regional Criteria Pollutant Construction Emissions

	Total Regional Pollutant Emissions (pounds per day)					
Construction Year	**ROG**	**NO_X**	**CO**	**SO_X**	**Total PM_{10}**	**Total $PM_{2.5}$**
2024	2.29	15.89	88.49	0.19	7.35	1.74
2025	1.30	10.30	48.54	0.11	3.71	0.94
2026	0.55	5.49	17.63	0.05	1.79	0.43
Maximum Daily Regional Emissions During Project Construction	**2.29**	**15.89**	**88.49**	**0.19**	**7.35**	**1.74**
Regional Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Emissions modeling by ICF using CalEEMod methodology (Appendix B).
Note: Totals may not add exactly due to rounding.
CO = carbon monoxide; NO_X = nitrous oxides; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter; ROG = reactive organic gases; SO_X = sulfuric oxides.

As shown therein, the maximum level of daily unmitigated construction emissions generated by the proposed Project would not exceed SCAQMD's daily significance thresholds for any criteria pollutants during any of the construction phases. CalEEMod modeling inputs and results can be found within Appendix B, *Air Quality CalEEMod Modeling Calculations*. Construction impacts would be less than significant.

Long-term Operational Emissions

Implementation of the proposed Project would result in long-term regional emissions of criteria air pollutants and ozone precursors associated with occasional maintenance trips. As discussed above, once operational, the pretreatment facilities and the diversion structures would be inspected four times per year, with maintenance performed twice per year, utilizing vacuum trucks. The infiltration facilities would be inspected twice per year and maintained once every 5 years. The proposed Project does not propose any other land uses that would have long-term operational air emissions besides mobile sources.[4]

Table 2-3 presents the daily operational emissions from the proposed Project. As shown, the proposed Project would result in long-term regional emissions of criteria air pollutants and ozone precursors that would be below SCAQMD's applicable thresholds and operational impacts would be less than significant.

Table 2-3. Proposed Project Criteria Pollutant Operational Emissions

	Total Regional Pollutant Emissions (pounds per day)					
Proposed Project	**ROG**	**NO_X**	**CO**	**SO_X**	**Total PM_{10}**	**Total $PM_{2.5}$**
Mobile Sources	0.03	0.03	0.46	<0.01	0.14	0.04
Total Emissions	**0.03**	**0.03**	**0.46**	**<0.01**	**0.14**	**0.04**
Regional Significance Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Emissions modeling by ICF using CalEEMod version 2020.4.0 (Appendix B).
Note: Totals may not add exactly due to rounding.
CO = carbon monoxide; NO_X = nitrous oxides; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter; ROG = reactive organic gases; SO_X = sulfuric oxides.

Cumulative Impacts

SCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Because the proposed Project's construction and operational pollutant emissions (refer to Table 2-2 and Table 2-3) would not exceed the applicable SCAQMD's regional significance thresholds, the proposed Project's emissions would not be cumulatively considerable.

Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), which, in turn, define the maximum amount of an air pollutant that can be present in ambient air without harming public health, the proposed Project's

[4] The project's electrical demand would not result in direct onsite operational air emissions.

contribution of pollutant emissions is not expected to result in measurable human health impacts on a regional scale.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact.

The term *sensitive receptors* refers to uses associated with people who are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirmed are more susceptible to respiratory distress and other air quality-related health problems on average than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system. The nearest sensitive receptors to the proposed seven MGL project site locations would vary from 20 feet to 650 feet.

Localized Pollutant Emissions

In addition to regional air quality impacts, projects in the Basin are required to analyze local air quality impacts. SCAQMD has developed LSTs that represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards, and thus would not cause or contribute to localized air quality impacts. LSTs were developed based on the ambient concentrations of that pollutant for each of the 38 source receptor areas in the Basin. The proposed Project is in Source Receptor Area (SRA) 7, East San Fernando Valley.

The localized thresholds, which are found in the mass rate look-up tables in SCAQMD's Final LST Methodology document (2008), were developed for the analysis of projects that are less than or equal to 5 acres in size and applicable only to the following criteria pollutants: NO_X, CO, PM_{10}, and $PM_{2.5}$. The analysis of localized air quality impacts focuses only on the onsite activities of a project. The mass-rate look-up tables developed by SCAQMD present LST values in the form of allowable emissions (in pounds per day) as a function of receptor distance from a project's site boundary. These LST values were developed by SCAQMD for 1-acre, 2-acre, and 5-acre sites. The LSTs established for each of the aforementioned site acreages represent the level of pollutant emissions that would not exceed the most stringent applicable federal or state ambient air quality standards.

Construction

To assess the potential localized air quality impacts resulting from the proposed Project on nearby sensitive receptors during construction, the daily onsite construction emissions generated at the project site were evaluated against SCAQMD's applicable construction LSTs for a 1-acre site. Although the total project footprint is 3 acres, construction would occur across the seven MGL clusters with varying sensitive receptor distances. As such, the most conservative size of 1 acre was elected. Although sensitive receptor distances would vary from 20 to 650, to be conservative, the closest receptor distance of 20 feet was selected for all construction activity.

Because SCAQMD's mass-rate look-up tables provide only LSTs at receptor distances of 82, 164, 328, 656, and 1,640 feet, the LSTs for a receptor distance of 82 feet were used to evaluate the potential localized air quality impacts associated with the proposed Project's peak-day construction emissions.[5] This distance most closely corresponds to the distance from the project site to nearby sensitive receptors in the SCAQMD LST lookup tables.

As discussed previously, the proposed Project would implement required SCAQMD Rule 403 during construction to minimize construction-related fugitive dust emissions ($PM_{2.5}$ and PM_{10}), as well as Metro's Green Construction Policy of Tier 4 Final equipment. The localized onsite emissions that are estimated to occur during peak construction days for each year of the proposed Project's construction schedule with SCAQMD Rule 403 and Metro's Green Construction Policy implemented are presented in Table 2-4. As shown in Table 2-4, daily emissions generated on site by construction of the proposed Project would not exceed any of the applicable SCAQMD LSTs for a 1-acre site in SRA 18 over the course of the entire construction schedule.

Table 2-4. Localized Criteria Pollutant Construction Emissions

Construction Year	Estimated Maximum Daily Onsite Emissions (pounds per day)[b]			
	NO_X	**CO**	**PM_{10}**	**$PM_{2.5}$**
2024	10.54	84.26	2.75	0.55
2025	6.76	46.04	1.01	0.23
2026	3.53	16.68	0.57	0.11
Applicable LSTs [a]	*80*	*498*	*4*	*3*
Threshold Exceeded?	**No**	**No**	**No**	**No**

Source: Emissions modeling by ICF using CalEEMod version 2020.4.0 (Appendix B).
[a] The LSTs for a 1- acre site in SRA 7 were taken from the corresponding LSTs for a 1-, 2-, and 5-acre site in SRA 7 (obtained from Appendix C [Localized Significance Threshold Screening Tables] of SCAQMD's *Final Localized Significance Threshold Methodology* document). The nearest sensitive receptor is 20 feet away so the LST thresholds for the closest receptor of 82 feet (25 meters) were selected.
CO = carbon monoxide; LST = localized significance thresholds; NO_X = nitrous oxides; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter; SCAQMD = South Coast Air Quality Management District; SRA = Source Receptor Area.

Operations

According to the LST methodology, operational LSTs would apply to the proposed Project's stationary sources and onsite mobile trips. Projects that attract mobile sources that spend long periods queuing and idling at the site, for example transfer facilities or warehouse buildings,

[5] According to SCAQMD's LST methodology, it is recommended that projects with boundaries closer than 82 feet (25 meters) from the nearest receptor use the LSTs for receptors located at 82 feet.

would possibly exceed the operational LSTs. The proposed Project does not attract these types of mobile sources. Thus, because the proposed Project would not have any stationary sources and have less than 12 trips per year, it would not be a source of operational air emissions that have the likelihood of causing an LST impact at the nearest sensitive receptors. Impacts would be less than significant.

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

Less-than-Significant Impact.

According to the SCAQMD 1993 *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater-treatment facilities, food-processing plants, chemical plants, composting areas, refineries, landfills, dairies, and fiberglass-molding facilities. The proposed Project, which includes stormwater runoff infiltration wells and pretreatment facilities, would not include any of the typical uses with odor complaints.

As discussed in Section 1.1.4, *Project Description*, the Project proposes to divert stormwater runoff from existing regional storm drains and surface flows to a network of underground pretreatment and infiltration facilities across seven stormwater BMP clusters within Metro-owned properties. The stormwater runoff and the proposed Project's pretreatment and infiltration facilities are not anticipated to be a source of odors that would cause odor complaints.

During construction of the proposed Project, exhaust from equipment, activities associated with the application of architectural coatings and other interior and exterior finishes, and paving activities may produce discernible odors typical of most construction sites. Such odors would be, at worst, a temporary source of nuisance to the nearest sensitive receptors, if at all, and would not affect a substantial number of people. The proposed Project would use architectural coatings compliant with SCAQMD Rule 1113, which would limit the odors associated with off-gassing from those coatings. Odors associated with asphalt paving would only occur for a limited time period for the proposed Project and the locations of paving activities would be distributed at the project site. Material deliveries and heavy-duty haul-truck trips could occasionally produce odors from diesel exhaust. However, project equipment would be required to comply with the California Code of Regulation (CCR), 13 CCR Section 2485, which limits diesel-fueled commercial vehicle idling to no more than five minutes (CARB 2016). Compliance with this CCR would further reduce diesel exhaust odors. These odors would not affect a substantial number of people because construction would be temporary, and construction-generated emissions dissipate rapidly with increasing distance from the source. Overall, odors associated with project construction would be temporary and intermittent in nature and would not create a significant level of objectionable odors affecting a substantial number of people.

2.3.2 References Cited

California Air Pollution Control Officers Association (CAPCOA). 2021. *California Emissions Estimator Model User's Guide Version 2020.4.0*. May. Available: www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/01_user-39-s-guide2020-4-0.pdf?sfvrsn=6. Accessed: March 2022.

California Air Resources Board (CARB). 2016. *13 California Code of Regulations Section 2485. Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling*. September. Available: ww2.arb.ca.gov/sites/default/files/classic/msprog/truck-idling/13ccr2485_09022016.pdf?_ga=2.225057370.1533646854.1647276934-1743311471.1608329917. Accessed: March 2022.

California Air Resources Board (CARB). 2021. *Emission FACtor Model 2021*. April. Available: arb.ca.gov/emfac/. Accessed: March 2022.

Los Angeles County Metropolitan Transportation Authority (Metro). 2011. *Green Construction Policy*. July. Available: media.metro.net/projects_studies/sustainability/images/Green_Construction_Policy.pdf. Accessed: January 2022.

Southern California Association of Governments (SCAG). 2016. *The 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy*, *Demographics and Growth Forecast Appendix*. April. Available: scag.ca.gov/sites/main/files/file-attachments/f2016rtpscs_demographicsgrowthforecast.pdf?1606073557. Accessed: January 2022.

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

South Coast Air Quality Management District (SCAQMD). 2005. *Rule 403 – Fugitive Dust*. June. Available: www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf. Accessed: December 2021.

South Coast Air Quality Management District (SCAQMD). 2008. *South Coast AQMD Air Quality Significance Thresholds.* www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. Accessed: March 2022

South Coast Air Quality Management District (SCAQMD). 2017. *Final 2016 Air Quality Management Plan*. March. Available: www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15. Accessed: January 2022.

U.S. Environmental Protection Agency (EPA). N.D. *AP-42: Compilation of Air Emissions Factors*. Available: www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors. Accessed: March 2022.

2.4 Biological Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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 Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

2.4.1 Discussion

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

A significant impact would occur if the proposed Project directly resulted in take or removed or modified habitat for any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS).

Sensitive biological resources potentially occurring within the biological study area (BSA, i.e., project footprint plus a 500-foot buffer) were investigated through desktop analysis; field surveys were not performed for the proposed Project due to the site's highly developed nature and a lack of biological resources within the area.

The proposed Project site includes the seven proposed drywall cluster sites, which are comprised of the MGL, and surrounding development facilities. Land use within the BSA is highly developed, consisting of transportation infrastructure (e.g., roads, busways, bus stops), and ornamental landscaping. Surrounding land use consists primarily of densely developed urban areas, with Interstate 405 (I-405) to the west, SR 170 to the east, and U.S. Highway 101 (US-101) to the south. Open space within the project region includes the Santa Monica Mountains, approximately 2.5 miles to the south, and the Sepulveda Basin Wildlife Reserve and Recreation Area and Woodley Park, approximately 0.7 mile to the west. However, these open areas, which contain native habitats and could support special-status species, are isolated from the BSA by dense, extensive development and major highways (i.e., I-405, US-101).

No native habitat is present within the BSA. The urban, developed condition of the project site is generally not suitable to support special-status plant or wildlife species, although trees and shrubs could support nesting birds (discussed under Impact d) below).

Special-Status Plant Species

No Impact.

A literature review of the California Natural Diversity Database (CNDDB; CDFW 2022a), California Native Plant Society Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2022), and USFWS Information, Planning, and Conservation System Proposed, Threatened, and Endangered Species, and Critical Habitats Resource List (USFWS 2022a) determined that eight special-status plant species potentially may occur within the BSA. Two of these species are listed as federally and/or state-threatened and/or endangered: San Fernando Valley spineflower (*Chorizanthe parryi* var. *ernandina*) and slender-horned spineflower (*Dodecahema leptoceras*). The BSA does not contain suitable habitat to support any of the eight special-status plant species identified in the literature review, and all were determined to be absent because of the lack of suitable habitat and/or soils and range constraints. In addition, there are no extant records of occurrence reported for any special-status plant species within the BSA (Calflora 2022; CDFW 2022a). Therefore, no impacts on any special-status plants species, including federally and/or state-threatened and/or endangered plants, are anticipated as a result of the proposed Project, and no avoidance and minimization or compensatory mitigation measures would be required.

Special-Status Wildlife Species

No Impact.

A literature review of the CNDDB (CDFW 2022) and USFWS Information, Planning, and Conservation System Proposed, Threatened, and Endangered Species, and Critical Habitats Resource List (USFWS 2022a) determined that 10 special-status wildlife species potentially may occur within the BSA. Five of these species are federally and/or state-listed endangered or threatened or candidate species: monarch butterfly (*Danaus plexippus*), Swainson's hawk (*Buteo swainsoni*), California condor (*Gymnogyps californianus*), coastal California gnatcatcher (*Polioptila californica californica*), and least Bell's vireo (*Vireo bellii pusillus*). The BSA does not contain suitable habitat to support any of the 10 special-status wildlife species identified in the literature review, and all were determined to be absent because of the lack of suitable habitat and/or soils and range constraints. In addition, there are no extant records of occurrence reported for any special-status wildlife species within the BSA (CDFW 2022a; eBird 2022). Therefore, no impacts on any special-status wildlife species, including federally and/or state-threatened and/or endangered wildlife, are anticipated as a result of the proposed Project, and no avoidance and minimization or compensatory mitigation measures would be required.

No suitable roosting habitat for pallid bat (*Antrozous pallidus*) is present within the BSA; consequently, no impacts on special-status roosting bats would occur. Although there is potential for pallid bat to forage within the BSA, project construction activities would be performed during daylight hours, when bats are not active; as such, no impacts on any foraging bats are anticipated as a result of the proposed Project, and no further action is needed.

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

A significant impact would occur if the proposed Project substantially removed or modified any riparian habitat or other sensitive natural communities as defined by CDFW, USFWS, or local or regional plans, policies, or regulations.

No Impact.

Based on a desktop analysis using Google Earth Pro aerial imagery (Google Earth 2022) and U.S. Forest Service (USFS) CalVeg mapped vegetation community layers (USFS 2017), the project site entirely comprises urban development land-cover types. No riparian habitat or other sensitive natural communities are within the BSA. Therefore, there would be no impact on any sensitive natural communities, and no mitigation is required.

No USFWS-designated critical habitat occurs within the BSA (USFWS 2021b). Therefore, no impacts on critical habitat would occur, and no further action is required.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

A significant impact would occur if federally protected wetlands or non-wetland Waters of the United States, as defined by Clean Water Act Sections 404 and 401 and/or the Porter–Cologne Water Quality Control Act, or vegetated or unvegetated Waters of the State, as defined by

California Fish and Game Code (CFGC) Section 1602 *et seq.*, were removed or substantially modified.

No Impact.

Based on the desktop analysis using U.S. Geological Survey (USGS) National Hydrography Dataset (USFS 2017) and USFWS National Wetlands Inventory mapping data, no state or federally protected wetlands appear to be present within the BSA. In addition, no blueline features are depicted on the USGS 7.5-minute Van Nuys topographic quadrangle map (USGS 1966), nor did a review of Google Earth Pro aerial imagery (Google Earth 2022) identify any potentially jurisdictional aquatic resource features within the BSA. Therefore, there would be no impact on any federally or state-protected wetlands, and no mitigation is required.

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?

A significant impact would occur if the proposed Project interfered with the movement of any native wildlife or fish species through a migratory wildlife corridor or impeded the use of a native wildlife nursery site.

Less-than-Significant Impact with Mitigation Incorporated.

No wildlife movement corridors or linkages are on or adjacent to the BSA, including missing linkages, essential habitat connectivity areas, landscape blocks, or essential fish habitat (CDFW 2022b; NMFS 2022). No drainages or other topographic or structural features (e.g., concrete channels) are present that would facilitate the movement of wildlife within the project site or region. Thus, implementation of the proposed Project would not adversely affect the regional movements of fish or other wildlife.

However, the BSA contains suitable nesting habitat (e.g., mature trees, shrubs, grasses) for a variety of avian species protected by the Migratory Bird Treaty Act or relevant CFGC sections. The proposed Project has the potential to affect active native resident and/or migratory bird nests if, and to the extent that, those trees and shrubs are trimmed or removed, or ground cover is removed, during the avian nesting season, and they contain nests. Construction could also occur adjacent to active nests causing nest failures or abandonment. **Mitigation Measure BIO-1** would avoid or minimize any potential impacts on nesting birds. Thus, the impact would be less than significant with mitigation incorporated. No compensatory mitigation would be required.

Mitigation Measure

BIO-1. Conduct Nesting Bird Surveys.

For construction activities that occur during the nesting season (February 1 to September 30, and January 1 to September 30 for raptors), a Nesting Bird Survey will be conducted no more than 7 days, and preferably within 72 hours, prior to construction that will remove or disturb suitable nesting habitat or occur in areas where nesting may occur (e.g., vegetation, structures). The surveys will be performed by an Approved Biologist. If an active nest is located, construction within 200 feet of the nest (500 feet for raptor nests), or up to a structure acting as a buffer, will be postponed until an Approved Biologist establishes an appropriate exclusion buffer and determines that the nest has been vacated and juveniles have fledged. Buffer size will be determined by the approved biologist based on the following criteria: 1) distance of nest from work area; 2) direct line of site from the nest to the impact area (i.e., structures and/or elevational differences); 3) severity of work/type of impact (i.e., size of work area, equipment noise, vibration, dust, or other disturbance, and/or duration of work); and 4) tolerance of species to disturbance.

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

A significant impact would occur if the proposed Project conflicted with any local policies or ordinances protecting biological resources.

The City of Los Angeles Protected Tree Code Amendment Ordinance 177404, as well as other city ordinances, pertain to the BSA under the protection of protected trees and street trees, as described in Table 2-5, below.

Table 2-5. City of Los Angeles Tree Ordinances

Ordinance or Law	Protected Trees	Guidelines
Protected Tree Code Amendment Ordinance 177404	Oaks (other than scrub oak), Southern California black walnut, western sycamore, California bay	**Preservation of Protected Trees.** Protection of four native trees. Individual plants must also measure 4 inches or more in cumulative diameter at 4.5 feet above the ground level at the base of the tree. No protected tree may be relocated or removed except as provided in Article 7 of Chapter 1 or Article 6 of Chapter 4 of the City of Los Angeles Municipal Code. The term “removed” or “removal” includes any act that will cause a protected tree to die, including, but not limited to, acts that inflict damage upon the root system or other part of the tree by fire, application of toxic substances, operation of equipment or machinery, or by changing the natural grade of land by excavation or filling the drip line area around the trunk.

Ordinance or Law	Protected Trees	Guidelines
Administrative Code Division 6, Chapter 6, Article 2	Street trees	**Street Tree Improvements.** All existing protected trees and relocation and replacement trees specified by the advisory agency in accordance with Sections 17.02, 17.05, 17.06, 17.51, and 17.52 of this code shall be indicated on a plot plan attached to the building permit issued pursuant to this code. In addition, the trees shall be identified and described by map and documentation as required by the advisory agency. The Department of Building and Safety may issue a Certificate of Occupancy, provided that the owner of the property or authorized person representing the owner of the property (licensed contractor) obtains from the advisory agency, in consultation with the city's chief forester, a written or electronic document certifying that all the conditions set forth by the advisory agency relative to protected trees have been met prior to the final inspection for the construction.
Municipal Code Chapter 4, Article 1, Section 41.14i	All trees in any public ROWs or on public lands	**Injury to Public Property**. Prohibits any person from cutting, breaking, destroying, removing, defacing, tampering with, marring, injuring, disfiguring, interfering with, damaging, tearing, or altering any tree, shrub, tree stake, or guard in any public street, or affix or attach in any manner any other thing whatsoever, including any guy wire or rope, to any tree, shrub, tree stake, or guard except for the purpose of protecting it.
Municipal Code Chapter 6, Article 2, Sections 62.161–62.171	All trees in any public ROWs or on public lands	**Street Trees (abbreviated).** See Sections 62.161–62.171 for details, including permits, protection, and prohibitions. Permit Required to Plant in Streets. No person shall plant, remove, destroy, cut, prune or deface or in any manner injure any tree, shrub or plant in any street in the City, without first obtaining a permit to do so from the Board. Conditional Permit to Remove or Destroy Trees. The Board may require, as a condition to any permit to remove or destroy a tree, that the permittee plant another tree of the type and size specified in the permit, within forty (40) days from the date of the issuance of the permit, in place of the tree to be destroyed or removed pursuant to the permit. It shall be a misdemeanor for a permittee to fail, refuse to comply with, or to willfully violate any condition or requirement imposed in such a permit.

ROW = right of way.

Less-than-Significant Impact.

The proposed Project could conflict with City of Los Angeles local tree ordinances and/or municipal codes if any protected trees be present within the proposed project work area. Project construction may require pruning or removal of trees during vegetation clearing and grading and other construction activities. The proposed Project would be in compliance with the City of Los

Angeles Protected Tree Code Amendment Ordinance 177404, as well as any General Plan regulations or Municipal Codes that pertain to biological resources; thus, the impact would be less than significant, and no avoidance and minimization or compensatory mitigation measures would be required.

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 significant impact would occur if the proposed Project were inconsistent with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

No Impact.

No habitat conservation plans, natural community conservation plans, or other approved local, regional, or state habitat conservation plans are located within the BSA (CDFW 2022c). As such, the proposed Project would not be in conflict with any conservation plans, and, therefore, there would be no impact.

2.4.2 References Cited

Calflora. 2022. Information on Wild California Plants. Available: www.calflora.org. Accessed: January 2022.

California Department of Fish and Wildlife (CDFW). 2022a. California Natural Diversity Database. Sacramento, CA: California Department of Fish and Wildlife, Biogeographic Data Branch. Element report for the Van Nuys USGS 7.5-minute quadrangle map. Data date: January 2022.

———. 2022b. California Essential Habitat Connectivity Viewer. CDFW Biogeographic Information and Observation System (BIOS). Available: apps.wildlife.ca.gov/bios/?bookmark=648. Accessed: January 2022.

———. 2022c. NCCP Plan Summaries. Available: wildlife.ca.gov/Conservation/Planning/NCCP/Plans. Accessed: January 2022.

California Native Plant Society (CNPS). 2022. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). Sacramento, CA. Available: www.cnps.org/inventory. Accessed: January 2022.

eBird. 2022. eBird: An Online Database of Bird Distribution and Abundance. Available: www.ebird.org. Accessed: January 2022.

Google Earth. 2022. Google Earth Pro, V 7.1.1.1580. 34°10’51.00”N, 118°26’24.81”W. Imagery: March 8, 2020. Accessed: January 2022.

National Marine Fisheries Service (NMFS). 2022. Essential Fish Habitat Mapper. Available: www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper. Accessed: January 2022.

U.S. Fish and Wildlife Service (USFWS). 2022a. USFWS Unofficial Species Resource List. Carlsbad, CA. Available: ecos.fws.gov/ipac/gettingStarted/map. Accessed: January 2022.

———. 2022b. Critical Habitat GIS Data. Carlsbad, CA. Available: ecos.fws.gov/ecp/report/table/critical-habitat.html. Accessed: January 2022.

———. 2022c. National Wetlands Inventory Wetlands Mapper. Available: www.fws.gov/wetlands/data/Mapper.html. Accessed: January 2022.

U.S. Forest Service (USFS). 2017. CalVeg Vegetation Classification and Mapping, Existing Vegetation: Region 5 – South Coast (Feature Layer). December 2017. Available: data-usfs.hub.arcgis.com/. Accessed: January 2022.

United States Geological Survey (USGS). 1966. 7.5-Minute Van Nuys. Topographic Quadrangle Map. Photo revised 1972.

———. 2022. National Hydrography Dataset. U.S. Geological Survey in cooperation with the U.S. Environmental Protection Agency, U.S. Department of Agriculture Forest Service, and other federal, state, and local partners. Available: ftp://nhdftp.usgs.gov/DataSets/Staged/States/. Accessed: January 2022.

2.5 Cultural Resources

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

2.5.1 Discussion

a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

No Impact.

A cultural resources technical memorandum (Appendix A) was prepared for the proposed Project and includes the results of the background research and records search conducted for the proposed Project. The results of the records search indicated that 32 previous surveys were conducted within the 0.50-mile project radius and that 10 built environment resources were previously recorded within 0.50 mile of the project study area. One of the previously recorded resources is considered CRHP-eligible and is a historical resource under the California Environmental Quality Act (CEQA). The LADWP Substation Building (P-190191858) is immediately adjacent to the project study area, but is more than 500 feet away from any proposed project activities and would not be affected either directly or indirectly by the proposed Project. No mitigation is required.

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

Less-than-Significant Impact with Mitigation Incorporated.

The cultural resources technical memorandum (Appendix A) prepared for the proposed Project did not identify any archaeological resources in or within a 0.50-mile radius of the project study area. The cultural resources technical memorandum (Appendix A) report included a records search conducted at the South Central Coastal Information Center of the California Historical Resources Inventory System, at California State University, Fullerton. The records search included a review of all available cultural resources surveys reports, as well as site records within a 0.50-mile radius of the study area. The National Register of Historic Places, California Register of Historic Resources, California Inventory of Historic Resources, California Historical

Landmarks, California Points of Historical Interest, and State Historic Resources Commission were also consulted as part of the background research.

The record search results indicated that seven previous studies have taken place within a 0.50-mile radius. No prehistoric or historic-era archaeological sites or isolates have been previously recorded within the study area or within a 0.50-mile radius of the study area. Because of the developed conditions present in the study area and the lack of ground surface visibility, a pedestrian survey was not considered to be an effective method for identifying archaeological resources in the study area. Alternately, an archaeological sensitivity analysis was performed for the project vicinity to assist with determining the potential for general and buried archaeological sensitivity in the study area. The results of the archaeological sensitivity analysis indicted that the entire study contains Holocene-era aged sediments with the potential for containing buried deposits. The general archaeological sensitivity results indicated that a limited area on the eastern of the project study area has increased potential for surface exposed deposits.

The proposed Project includes subsurface disturbance up to a maximum allowed depth of 70 feet across the project footprint areas. The proposed depth for the drywells is approximately 45 feet below surface, but final well depths would be determined when the project design is complete. Even though the cultural resource study did not identify any archaeological resources in the study area, the archaeological sensitivity analysis results identified an increased potential for buried deposits, which could contain intact, buried archaeological resources that qualify as historical resources deposits, if present, in the study area. Should archaeological resources qualifying as historical resources be encountered during construction, then the proposed Project could cause a substantial adverse change in the significance of a historical resource. Implementation of **Mitigation Measures CR-1** through **CR-3** would reduce potential impacts on unknown archaeological resources qualifying as historical resources to less than significant.

Mitigation Measure

CR-1: Retain a Qualified Archaeologist.

Prior to the start of ground-disturbing activities, Metro will retain a qualified archaeologist meeting the Secretary of the Interior’s Professional Qualifications Standards for archaeology (36 Code of Federal Regulations, Part 61) to carry out the following cultural resources mitigation measures.

CR-2: Develop Worker Environmental Awareness Program (WEAP) Training and Deliver to Construction Crews.

Prior to the start of ground-disturbing activities, the qualified archaeologist would prepare a cultural resources sensitivity training module to be used as part of the construction operations Worker Environmental Awareness Program (WEAP) training. As part of the WEAP training development, Metro would retain a tribe-approved representative from each Consulting Tribe to develop tribal cultural resources sensitivity information pertinent to each Tribe and present this information during the WEAP trainings. All construction personnel would receive sensitivity training prior to beginning work onsite. Construction personnel would be informed about the types of archaeological resources and tribal cultural resources that may be encountered and the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources, tribal archaeological resources, or human remains. Metro and the lead construction firm would ensure that construction personnel are made available for and attend the training and would retain documentation demonstrating attendance.

CR-3: Prepare a Detailed Unanticipated Discovery Plan (UDP).

Prior to the start of any project-related ground-disturbing activities, the qualified archaeologist will prepare a detailed Unanticipated Discovery Plan (UDP) for the proposed Project, the drafts of which will be provided to the Consulting Tribes for review and comments. The UDP will outline the appropriate measures to be followed in the event of unanticipated discovery of cultural resources during project implementation, including that all ground disturbance within 50 to 100 feet, or an appropriately sized buffer area depending on site conditions, of an unanticipated discovery will cease until a qualified archaeologist evaluates it. Project construction within the buffer area surrounding the unanticipated discovery, will not continue until the qualified archaeologist has coordinated with Metro, who will coordinate with Consulting Tribes and retain a Native American monitor from the Consulting Tribes to respond to discoveries for the proposed Project if Native American resources or tribal cultural resources are identified (e.g., prehistoric site, ethnographic sites, Native American resources).

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less-than-Significant Impact with Mitigation Incorporated.

No prehistoric sites or cemeteries have been identified in the study area or within a 0.50-mile radius of the study area. Based on the results of the cultural resource records search, background research, and Native American consultation process, there is no evidence of any human remains, including those interred outside of dedicated cemeteries, within the study area that would be affected by the proposed Project. However, because the proposed Project would involve ground-disturbing activities, it is possible that such activities could unearth, expose, or disturb previously unknown human remains. Implementation of **Mitigation Measure CR-4** would reduce potential impact to unknown human remains to less than significant.

Mitigation Measures

CR-4: Implement Procedures for Discovery of Human Remains and Associated or Unassociated Funerary Objects.

If human remains are encountered, then all work will halt in the vicinity (i.e., within 50 to 100 feet) of the find, and the Los Angeles County Coroner will be contacted in accordance with Public Resources Code (PRC) Section 5097.98 and Health and Safety Code Section 7050.5. If the County Coroner determines that the remains are Native

American, then the Native American Heritage Commission (NAHC) will be notified in accordance with Health and Safety Code Section 7050.5(c), and PRC Section 5097.98 (as amended by Assembly Bill [AB] 2641). The NAHC will designate a Most Likely Descendent (MLD) for the remains per PRC Section 5097.98. Metro will consult with the MLD regarding the final disposition of any human remains that are determined to be Native American in origin. The treatment of any human remains determined to be Native American in origin and all subsequent actions to be taken will be described in the UDP.

2.6 Energy

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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?	☐	☐	☒	☐

2.6.1 Discussion

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

Less-than-Significant Impact.

The short-term construction and long-term operation of the proposed Project would require the consumption of energy resources in several forms at the project site and within the project area. Construction and operational energy consumption are evaluated in detail below.

Electricity

Construction

Temporary electric power for potential as-necessary lighting and electronic equipment, such as computers inside temporary construction trailers, would be provided by LADWP or other providers within Los Angeles County. The electricity used for such activities would be temporary and have a negligible contribution to the proposed Project's overall energy consumption.

Operations

Project operation would require electricity for the stormwater pump system as well as the occasional maintenance trips. The estimation of operational electricidal demand for this system was provided by the Applicant and would be as high as 118,700 kilowatt hours per year (kWH/year). Although this system would have the 118,7000 kWh/year of energy usage, actual usage is anticipated to be far less than the required energy to import water to the City of Los Angeles.[6] The comparison of the operational electrical use to Los Angeles County's

[6] The primary objective of the Project is to help cultivate local sources of water supply, which will help limit the need of energy-intensive import of water into the region.

nonresidential electrical use can be found within Appendix C, *Energy Impact Analysis Calculations*.

For comparison, nonresidential electricity demand for Los Angeles County in 2020 was 42,736.77 gigawatt-hours/year (CEC 2022). The proposed Project's operational energy use of 0.12 gigawatt-hours/year would result in a minimal increase in electricity consumption compared to the total demand in Los Angeles County (0.0003 percent). Thus, impacts related to operational electricity use would be less than significant, and no mitigation is required.

Natural Gas

Construction and Operations

Natural gas is not anticipated to be required during construction of the proposed Project. Fuels used for construction primarily would consist of diesel and gasoline, which are discussed below under the *Petroleum Fuel* subsection. Thus, impacts related to construction and operational natural gas use would be less than significant.

Petroleum Fuel

Construction

The proposed Project would require the use of nonrenewable energy resources in the form of fossil fuels used to operate equipment and fuel vehicle trips during construction and operation. Diesel and gasoline fuels would be consumed during the proposed Project's construction activities. Energy expenditures during construction would be temporary, lasting for approximately 23 months. Construction would not result in wasteful or inefficient use of energy. Table 2-6 shows energy fuel consumption during construction. Construction fuel consumption represents total fuel use over the 23-month construction period.

Table 2-6. Project Construction – Annual Petroleum Consumption

Source	Diesel (gallons)	Gasoline (gallons)
Off-road Equipment	151,455	–
Haul Trucks	9,169	–
Vendor Trucks	37,333	–
Workers	–	7,718
Total Fuel Consumption	197,957	7,718

Source: Energy calculations are provided in Appendix C.

During the proposed Project's construction period, diesel and gasoline would be used to fuel the onsite construction equipment, offsite hauling vehicles, and working automobiles. Construction of the proposed Project would consume an estimated 197,957 gallons of diesel and 7,718 gallons of gasoline (see Appendix C). In Los Angeles County, approximately 623,000,000 gallons of diesel and approximately 2,770,000,000 gallons of gasoline are consumed annually (CEC 2020).

The proposed Project's diesel consumption would represent less than 0.0164 percent of Los Angeles County use, and gasoline consumption would represent 0.0001 percent of Los Angeles County use. Therefore, energy consumed during project construction would be minimal, and impacts would be less than significant.

Operations

Fuel consumption resulting from the proposed Project's operational phase would be attributable to the occasional maintenance trips. In total, the proposed Project would have approximately six maintenance related trips per year. Petroleum fuel consumption associated with motor vehicles traveling to and from the project site during operation is a function of vehicle miles traveled (VMT) and the vehicle fleet mix. The proposed Project's total VMT and fuel usage was calculated using EMFAC2021 for the SCAQMD region (CARB 2021), as well as the CalEEMod default Commercial-Work trip lengths (CAPCOA 2021). Based on the EMFAC2021 fleet mix for the SCAQMD region, the fleet mix associated with project operations would comprise approximately 84 percent gasoline-powered and 16 percent diesel-powered vehicles. Using the annual maintenance operations and CalEEMod trip lengths, the proposed Project's total yearly VMT would be 200 miles. The estimated fuel use from vehicles traveling to and from the project site during operation is shown in Table 2-7.

Table 2-7. Project Operations – Annual Petroleum Consumption

Fuel	Gallons
Gasoline	7
Diesel	1

Source: Energy calculations provided in Appendix C.

As such, during project operations, the proposed Project would consume an estimated 1 gallon of diesel and 7 gallons of gasoline (see Appendix C). In Los Angeles County, approximately 623,000,000 gallons of diesel and approximately 2,770,000,000 gallons of gasoline are consumed annually (CEC 2020). The proposed Project's diesel consumption would represent less than 0.0000002 percent of Los Angeles County use, and gasoline consumption would represent 0.0000003 percent of Los Angeles County use. Therefore, energy consumed during project operations would be minimal, and impacts would be less than significant.

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

Less-than-Significant Impact.

The most current and applicable local plan for renewable energy or energy efficiency for the proposed Project is Metro's MBS (Metro 2020). The MBS was approved by Metro in 2020 and builds on more than a decade of forward-thinking Metro sustainability policies dating back to 2008. Among the many MBS goals is the goal to manage wastewater and stormwater by increasing runoff infiltration and capture capacity for stormwater by 15 percent from 2020 levels.

The proposed Project's consistency with the applicable goals, targets, and strategies from the MBS is shown in Table 2-8.

Table 2-8. Consistency of Project with Metro's *Moving Beyond Sustainability Plan 2020*

Goals	Targets	Strategies	Project Consistency Assessment
Optimize and manage Metro's water use.	Reduce potable water use by 22 percent from the 2030 Business as Usual scenario.	W1: Identify and implement operational water conservation and efficiency projects.	**Consistent.** The proposed Project would construct and operate stormwater runoff infiltration systems along the G Line that would help Metro achieve this strategy.
		W4: Integrate water conservation and efficiency best practices into policies, SOPs, and specifications.	**Consistent.** The proposed Project would comply with all required best practices, SOPs. and specifications during construction.
Manage wastewater and Stormwater constructively.	Increase runoff infiltration and capture capacity for stormwater by 15 percent from 2020 levels.	W7: Implement best management practices to minimize stormwater runoff and keep stormwater clean.	**Consistent.** Proposed project construction would implement BMPs to minimize stormwater runoff.
		W8: Prioritize the infiltration, capture and/or use of stormwater.	**Consistent.** The proposed Project would construct and operate stormwater runoff infiltration systems along the G Line that would help Metro achieve this strategy.
Demonstrate sustainable design and construction practices through all phases of capital improvement projects.	Design and build 100 percent of capital projects to CALGreen Tier 2 standards.	M1: Continually improve sustainability standards and requirements for project design and construction.	**Consistent.** The proposed Project would implement the required SOPs, as well as Metro's Green Construction Policy, to help improve sustainability.
		M2: Pursue green certification standards for building and infrastructure construction.	**Consistent.** The proposed Project would pursue green certification standards, where applicable, during construction.

Goals	Targets	Strategies	Project Consistency Assessment
Reduce regional greenhouse gas emissions (GHG)	Reduce total GHG emissions by 79 percent from 2017 baseline.	EP1: Transition Metro's fleet to zero-emission technology.	**Not Applicable.** The proposed Project would involve operational maintenance trips. Employees conducting these maintenance trips would potentially use the non-revenue BEV Metro vehicles. Additionally, it is possible that the employees who would be conducting these maintenance trips may use BEV vanpool vehicles to get to work.
		EP2: Decarbonize Metro's energy and fuel supply.	**Consistent.** As discussed above, the proposed Project would comply with the required SOPs and Metro's Green Construction Policy. Furthermore, employees conducting the maintenance trips may use BEVs. Lastly, the proposed Project's would use 100-percent renewable electricity by 2035, consistent with Metro goals.

Source: Metro 2020.
BEV = battery electric vehicle; SOP = Standard Operating Procedures.

As discussed in Table 2-8, the proposed Project would be consistent with the applicable MBS goals and strategies. Thus, the proposed Project would not conflict with a local plan for renewable energy or energy efficient, and impacts would be less than significant.

2.6.2 References Cited

California Air Pollution Control Offices Association (CAPCOA). 2021.*Appendix A – Calculation Details for CalEEMod*. May. Available: http://www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/appendix-a2020-4-0.pdf?sfvrsn=6. Accessed: March 2022.

California Air Resources Board (CARB). 2021. *Emission FACtor Model 2021*. Available: https://arb.ca.gov/emfac/emissions-inventory. Accessed: March 2022.

California Energy Commission (CEC). 2020. *2020 California Annual Retail Fuel Outlet Report Results (CEC-A15)*. Available: www.energy.ca.gov/media/3874. Accessed: March 2022.

California Energy Commission (CEC). 2022. *Electricity Consumption by County*. Available: www.ecdms.energy.ca.gov/elecbycounty.aspx. Accessed: March 2022.

Los Angeles County Metropolitan Transportation Authority (Metro). 2020. *Moving Beyond Sustainability Strategic Plan 2020.* Available: www.dropbox.com/s/wdlpmph9x2gbm2h/Moving-Beyond-Sustainability-Strategic-Plan-2020.pdf?dl=0. Accessed: March 2022.

2.7 Geology, Soils, and Paleontological Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VII. GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES – Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
a.1 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.	☐	☐	☐	☒
a.2 Strong seismic ground shaking?	☐	☐	☒	☐
a.3 Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
a.4 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 an onsite or offsite 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 in areas 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?	☐	☒	☐	☐

2.7.1 Discussion

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

a.1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No Impact.

Alquist–Priolo earthquake fault zones are regulatory zones surrounding the surface traces of active faults in California. Wherever an active fault exists, if it has the potential for surface rupture, structures for human occupancy cannot be placed within 50 feet (typically) of these features. According to the California Geological Survey's (CGS) *Earthquake Zones of Required Investigation* (2022), there are no fault zones within the proposed Project's footprint or its vicinity. The closest fault zone is the Hollywood Fault Zone, approximately 5.8 miles south of cluster MGL-7 (at its closest point). The next-closest fault zone is the Sierra Madre Fault Zone, approximately 7 miles north of cluster MGL-1 (its closest point). As such, the proposed Project would not directly or indirectly cause potential substantial adverse effects involving fault rupture.

a.2. Strong seismic ground shaking?

Less than Significant.

The project site is in Southern California, an area known for seismic activity. Specifically, the project area lies in Los Angeles County, between the Hollywood Fault Zone (approximately 5.8 miles away) and the Sierra Madre Fault Zone (approximately 7.0 miles away); therefore, potential hazards exist due to seismic activity associated with these and other active regional faults. The proposed Project would consist of a network of underground pretreatment and infiltration facilities across seven stormwater BMP clusters, thus, no structures intended for permanent human occupation would be built as part of the proposed Project; therefore, the potential risk to personnel working within the project area would be low. Additionally, implementation of the proposed facilities would be performed in accordance with the California Department of Public Health (CDPH) and the Regional Water Quality Control Board (RWQCB), who regulate groundwater recharge activities in California (Sanitation Districts of Los Angeles County 2011), and the current (2019) California Building Code (CBC). Furthermore, project design and construction would occur following the completion of site-specific infiltration testing and a site-specific geotechnical investigation study. The geotechnical investigation would include construction recommendations that take into consideration the site’s subsurface characteristics and the area’s potential for seismic hazards. Impacts would be less than significant.

As part of operations, the proposed Project would divert stormwater runoff from existing storm drains (and from the surface) to a network of infiltration drywells along the MGL. These facilities are intended to capture, treat, and infiltrate stormwater runoff for groundwater recharge into the San Fernando Groundwater Basin. Thus, long-term uses associated with the proposed Project would not contain features that would directly or indirectly cause or intensify effects of seismic ground shaking. Therefore, impacts related to seismic ground shaking would be less than significant.

a.3. Seismic-related ground failure, including liquefaction?

Less than Significant.

Liquefaction occurs when saturated, low-density, loose materials (e.g., sand or silty sand) are weakened and transformed from a solid to a near-liquid state as a result of increased pore-water pressure. The increase in pressure is caused by strong ground motion from an earthquake. Liquefaction most often occurs in areas underlain by silts and fine sands and where shallow groundwater exists. The project site is identified as an area that is susceptible to liquefaction, per the CGS's *Earthquake Zones of Required Investigation* (CGS 2022). In addition, the *October 2020 Feasibility Study Report* (Geosyntec Consultants 2020) for the proposed Project confirmed that a portion of the proposed infiltration BMPs are within a mapped Liquefaction Zone. Furthermore, the proposed Project would involve a network of infiltration drywells that would capture, treat, and infiltrate stormwater runoff for groundwater recharge. Groundwater recharge in the area has the potential to exacerbate liquefaction conditions.

The *October 2020 Feasibility Study Report* states that reported historical high-groundwater elevations in the project area have been between approximately 15 and 20 feet below ground surface (bgs), however, more recent data indicates that groundwater elevation is typically more than 77 feet bgs. Because drywells would be 45-feet deep, an approximate 32-foot separation between the bottom of the well and the top of the groundwater table would be typically present. As such, it is expected that water infiltrated through the proposed drywells would not significantly raise the groundwater elevation in a way that would make the potential for liquefaction more likely. Moreover, as previously mentioned, implementation of the proposed facilities would be performed in accordance with CDPH, RWQCB, and CBC requirements, and project design and construction would occur following the completion of site-specific infiltration testing and a site-specific geotechnical investigation. The geotechnical investigation would include recommendations that take into consideration the site's subsurface characteristics and the area's potential for seismic hazards, including liquefaction. Impacts would be less than significant.

a.4. Landslides?

No Impact.

According to the USGS *Preliminary Geologic Map of the Van Nuys 7.5' Quadrangle, Southern California* (USGS 1996), the proposed Project is in an area of Los Angeles that is flat, with no substantial natural or graded slopes. Furthermore, the project site is not in a CGS Earthquake Zone of Required Investigation for landslides. No impacts related to landslides would occur.

b) Result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact.

Construction as part of the proposed Project would result in pavement and soil disturbance and exposure, thereby potentially accelerating soil-erosion conditions. However, BMPs would be employed during construction (such as sediment and erosion control measures) to prevent pollutants from leaving the site, as required by a project-specific Stormwater Pollution Prevention Plan (SWPPP) to be prepared under a Construction General Permit (Order 2009-0009-DWQ) required for the proposed Project. Moreover, substantial soil erosion is not expected to occur because the project site is flat, and project features do not include substantial lateral, surficial earthwork or the creation of new slopes that could increase soil-erosion rates. Once construction is complete, the proposed Project would consist of a network of infiltration drywells; thus, none of the activities associated with long-term project implementation are expected to contribute to or accelerate erosional processes. Impacts would be less than significant.

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 an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact.

Liquefaction and landslide potential in the project area are described above under thresholds a.3. and a.4. Land subsidence is a gradual settling or sudden sinking of the Earth's surface due to subsurface movement of earth materials, including groundwater, gas, or petroleum. The main cause of subsidence in California is groundwater pumping. According to the USGS's *Areas of Land Subsidence in California* (2022), the project site is not in an area of recorded (historical or current) subsidence. Furthermore, implementation of the proposed facilities would be performed in accordance with CDPH, RWQCB, and CBC requirements, and project design and construction would occur following the completion of site-specific infiltration testing and a site-specific geotechnical investigation. As previously mentioned, the geotechnical investigation would include recommendations that take into consideration the site's subsurface characteristics, including the potential for unstable geologic units or soils. Impacts would be less than significant.

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?

Less-than-Significant Impact.

Expansive soils are fine-grained soils (generally high-plasticity clays) that can undergo a substantial increase in volume with an increase in water content, as well as a substantial decrease in volume with a decrease in water content. Changes in the water content of highly expansive soils can result in severe distress for structures constructed on or against the soils. According to the Natural Resources Conservation Service's *Web Soil Survey* (NRCS 2019), subsurface soils in the project area consist of Urban land–Grommet–Ballona complex and Urban land–Palmview–Tujunga complex. According to the *Web Soil Survey*, a typical soil profile for the Urban land–Grommet–Ballona complex consists of loam, clay loam, and clay within the top 6.5 feet. The Urban land–Palmview–Tujunga complex is characterized with a fine sandy loam, sandy loam, and loamy sand soil profile. As such, surficial soils (specifically, areas with clay components) that currently exist along the project footprint could have expansive characteristics. However, implementation of the proposed facilities would be performed in accordance with CDPH, RWQCB, and CBC requirements, and project design and construction would occur following the completion of site-specific infiltration testing and a site-specific geotechnical investigation. The geotechnical investigation would include recommendations that take into consideration the site's subsurface characteristics, including the potential for soil expansion. Impacts would be less than significant.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

No Impact.

The proposed Project consists of a network of infiltration drywells across seven locations along the MGL. Septic tanks or alternative wastewater disposal systems are not a project feature and, therefore, no impacts would occur.

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

Less-than-Significant Impact with Mitigation Incorporated.

Geologic mapping indicates that Holocene to late Pleistocene–aged alluvial fan deposits (100,000 years ago to present) (Qyf) are mapped at the surface within the project study area (Bedrossian et al. 2012; Yerkes et al. 2006). Holocene-age sediments younger than 5,000 years before present are typically too young to contain fossils considered to be significant paleontological resources; however, older Holocene age sediments and Pleistocene-age sediments are of appropriate age to contain paleontological resources.

A paleontological records search was conducted for the project study area through the Los Angeles County Natural History Museum on December 24, 2021 (Bell 2021). The records search did not identify any previously recorded fossil localities in the project study area, but did show recorded fossil localities nearby that were identified in the same sedimentary deposits that occur in the current project study area (Bell 2021).

The six previously identified fossil localities include Pleistocene-aged fauna, including bison, horse, ground sloth, camel, fish, frog, and rodent. The depths of the fossil-bearing deposits in the project vicinity range from 11 to 170 feet bgs (Bell 2021).

The proposed Project includes excavation and drilling planned to extend to a maximum allowed depth of 70 feet bgs. The planned drywell depths should not extend beyond a maximum depth of 45 feet bgs, but these depths would be finalized when project design is complete. The planned project excavations have the potential to intrude into paleontologically sensitive alluvial and alluvial fan deposits. The project study area includes mainly the Metro-owned ROW and some public ROW that contains imported artificial fill deposits at the surface to an average depth of 3.5 feet bgs across the project study area. The paleontologically sensitive deposits would be under any overlying artificial fill deposits. Project implementation could directly or indirectly destroy a paleontological resource or unique geologic feature. Implementation of **Mitigation Measures GEO-1** through **GEO-4** would reduce potential impacts on a paleontological resource or unique geologic feature to less than significant.

Mitigation Measures

GEO-1: Retain a Qualified Paleontologist.

Prior to the implementation of construction activities, Metro will retain a Qualified Paleontologist that meets the standards of the Society of Vertebrate Paleontology (2010) to carry out all mitigation measures related to paleontological resources.

GEO-2: Conduct WEAP Training.

Prior to beginning any ground-disturbing activities, the Qualified Paleontologist will contribute to any construction-worker cultural resources–sensitivity WEAP training materials outlined in **Mitigation Measure CR-2**, either in person or via a training section provided to the Qualified Paleontologist. This training will include information about the types of paleontological resources that could be encountered during excavations, the process and steps to implement if an unanticipated discovery is made by a worker, and specific laws protecting paleontological resources. All construction personnel will be informed of the possibility of encountering fossils and instructed to inform the construction foreman or supervisor immediately if any fossils are unexpectedly unearthed in an area where a paleontological monitor is not present. Metro will ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

GEO-3: Conduct Paleontological Monitoring.

The Qualified Paleontologist will supervise a paleontological monitor meeting the Society for Vertebrate Paleontology standards (2010), who will be present during all excavations that extend below imported fill deposits. Monitoring will consist of visually inspecting fresh exposures of rock for larger fossil remains and, where appropriate, collecting wet- or dry-screened sediment samples of promising horizons for smaller fossil remains. The project activities identified for paleontological monitoring include the diversion structure, pre-treatment chambers, the pump station, and the drywells. Monitoring can be reduced to part-time inspections or discontinued entirely, if it is determined that any of the identified construction activities would have low potential to affect paleontological resources and if determined adequate by the Qualified Paleontologist in consultation with Metro. Monitoring can be reduced or discontinued if the depths of open excavations are entirely within fill or non-fossiliferous younger sediments or discontinued entirely if drilling methods do not allow for the inspection of fossiliferous deposits. The contact depth for fossiliferous deposits in the study area is not static and is anticipated to vary slightly along the alignment. Monitoring activities will be documented in a Paleontological Resources Monitoring Report, to be prepared by the Qualified Paleontologist at the completion of construction, and will be provided to Metro and filed with the Natural History Museum of Los Angeles County.

GEO-4: Halt Work if Fossil Remains Are Discovered.

If a unique geologic feature or paleontological resource is discovered during construction, then the paleontological monitor, under the supervision of the Qualified Paleontologist, will recover them and temporarily direct, divert, or halt grading or excavation to allow for the recovery of any fossil remains. The Qualified Paleontologist will be responsible for the cleaning, repairing, sorting, and cataloguing of fossil remains collected during the monitoring and salvage portion of the mitigation program. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will be deposited (as a donation) at a scientific institution with permanent paleontological collections, such as the Los Angeles County Natural History Museum. After the completion of excavation and ground-disturbing activities, the Qualified Paleontologist will prepare and submit, to the implementing agency, a paleontological resource recovery report that documents the results of the mitigation program. This report will include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils.

2.7.2 References Cited

California Geological Survey (CGS). 2022. *Earthquake Zones of Required Investigation*. Available: maps.conservation.ca.gov/cgs/eqzapp/app/. Accessed: February 4, 2022.

Geosyntec Consultants. 2020. *Feasibility Study Report.* Final. Los Angeles, CA. Prepared for Los Angeles County Metropolitan Transportation Authority, Los Angeles, CA.

Natural Resources Conservation Service (NRCS). 2019. Web Soil Survey. Available: websoilsurvey.sc.egov.usda.gov/App/HomePage.htm?TARGET_APP=Web_Soil_Survey_application_ky2zo0jiurawpaa5rosfdy3g#. Accessed: February 4, 2022.

Sanitation Districts of Los Angeles County. 2011. Facts & Information About Groundwater Recharge of Recycled Water. Available: www.lacsd.org/home/showpublisheddocument/2414/637643163174670000#:~:text=Groundwater%20recharge%20is%20regulated%20by,Quality%20Control%20Board%20(RWQCB). Accessed: February 4, 2022.

U.S. Geological Survey (USGS). 1996. Preliminary Geologic Map of the Van Nuys 7.5-minute Quadrangle, Southern California. Available: pubs.usgs.gov/of/1996/of96-86/of96-86map.pdf. Accessed: February 4, 2022.

U.S. Geological Survey (USGS). 2022. Areas of Land Subsidence in California. Available: ca.water.usgs.gov/ land_subsidence/california-subsidence-areas.html. Accessed: February 4, 2022.

This page was intentionally left blank.

2.8 Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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?	☐	☐	☒	☐

2.8.1 Discussion

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

Less-than-Significant Impact.

This section summarizes potential greenhouse gas (GHG) emissions associated with construction and operational activities related to the proposed Project.

South Coast Air Quality Management District

SCAQMD has primary responsibility for development and implementation of rules and regulations for attaining the NAAQS and CAAQS, as well as permitting new or modified sources, developing air quality management plans, and adopting and enforcing air pollution regulations within the Basin. CARB's Scoping Plans do not provide an explicit role for local air districts with respect to implementing the reduction goals of Senate Bill (SB) 32 and AB 32, but CARB states that they will work actively with air districts in coordinating emissions reporting, encouraging and coordinating GHG reductions, and providing technical assistance in quantifying reductions. The ability of air districts to control emissions (both criteria pollutants and GHGs) is provided primarily through permitting, but also through their role as a CEQA lead or commenting agency, the establishment of CEQA thresholds, and the development of analytical requirements for CEQA documents.

On December 5, 2008, SCAQMD Governing Board considered draft GHG guidance, and adopted a staff proposal for an interim GHG significance threshold of 10,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year for industrial permitting projects where SCAQMD is the lead agency. The board letter, resolution, interim GHG significance threshold, draft guidance document, and attachments can be found under Board Agenda Item 31 of the December 5, 2008, Governing Board Meeting Agenda (SCAQMD 2008). In its draft guidance document, SCAQMD included evidence and rationale for developing thresholds, specifically citing CEQA Guidelines Section 15064.7(a) ("each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects") and subsection (b) ("Thresholds of significance to be adopted for general use as part of the lead agency's environmental review process must be adopted by ordinance, resolution, rule or regulation, and developed through a public review process and be supported by substantial evidence"). SCAQMD developed thresholds for both stationary sources and for land use development projects. SCAQMD's recommended GHG significance threshold underwent a public review process as part of interested party working group meetings that were open to the public. The draft guidance document provides the supporting analysis and methodology for developing the GHG significance thresholds for both stationary sources and for land use development projects. After completion of the public process, the proposed interim thresholds for land use development projects were brought to the SCAQMD's Governing Board, but were not formally adopted, whereas the threshold involving industrial permitting projects where SCAQMD is lead agency was adopted.

For industrial process, the SCAQMD has formally adopted a 10,000 $MTCO_2e$ threshold for industrial (permitted) facilities where SCAQMD is the lead agency. This industrial source threshold is not appropriate for use on residential, commercial, or mixed-use projects, such as the proposed Project, because it is not associated with industrial processes.

SCAQMD noted that the proposed interim GHG significance thresholds for evaluation of land use development projects was only a recommendation for lead agencies and not a mandatory requirement. The GHG significance threshold may be used at the discretion of the local lead agency. The draft GHG guidance identified a tiered approach for determining the significance of GHG emissions, one of which included the use of numerical screening thresholds. With respect to numerical GHG significance thresholds, SCAQMD proposed two different approaches to be taken by lead agencies when analyzing GHG emissions:

- Option #1 includes using separate numerical thresholds for residential projects (3,500 $MTCO_2e$/year), commercial projects (1,400 $MTCO_2e$/year), and mixed-use projects (3,000 $MTCO_2e$/year).
- Option #2 is using single numerical threshold for all non-industrial projects of 3,000 $MTCO_2e$/year. SCAQMD's most recent recommendation per its September 2010 meeting minutes is to use Option #2 (SCAQMD 2010).

However, these numerical thresholds have not been adopted by SCAQMD. In the absence of any adopted quantitative threshold, and in accordance with case law and the CEQA Guidelines, the lead agency has determined that the proposed Project would not have a significant effect on the environment if it is found to be consistent with applicable regulatory plans and policies to reduce GHG emissions, including the emissions-reduction measures discussed within CARB's 2017 Scoping Plan (CARB 2017) and the *Metro Climate Action and Adaption Plan 2019* (2019 CAAP;).

Note that GHGs and climate change are exclusively cumulative impacts; there are no non-cumulative GHG emissions impacts from a climate change perspective. Therefore, in accordance with the scientific consensus regarding the cumulative nature of GHGs, the analysis herein analyzes the cumulative contribution of project-related GHG emissions.

Short-term Construction

Construction of the proposed Project would result in temporary generation of GHG emissions related to off-road equipment use and on-road vehicle operations. As mentioned previously, GHG emissions are measured exclusively as cumulative impacts; therefore, the proposed Project's construction emissions are considered part of the total GHG emissions of the proposed Project, which also include GHG emissions during operations. According to the proposed Project's *SCW Feasibility Study Report*, dated October 15, 2020, the proposed Project would have a lifetime of 30 years (Geosyntec 2020). Thus, the proposed Project's construction emissions are amortized over a 30-year period, and the resulting annual emissions are combined with the proposed Project's annual operational GHG emissions.

Table 2-9, below, shows GHG emissions related to construction of the proposed Project. As shown, construction of the proposed Project is estimated to generate a total of 1,938 $MTCO_2e$ over the construction period. When amortized over the 30-year operational project period, the proposed Project's construction GHG emissions would be approximately 65 $MTCO_2e$ per year. Because construction emission sources would cease once construction is complete, they are considered short term. This approach is consistent with SCAQMD guidance for analyzing construction GHG emissions (SCAQMD 2008).

Table 2-9. Estimated Short-term Construction Related GHG Emissions

Construction Years	Estimated GHG Emissions ($MTCO_2e$)[a]
2024	985
2025	726
2026	227
Total Construction Emissions	**1,938**
Annual Construction Emissions (Amortized over 30 years)	*65*

Source: Emissions modeling by ICF using CalEEMod version 2020.4.0 methodology (Appendix B).
[a] Totals may not add up to 100 due to rounding.
GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

Long-term Operation

The proposed Project would be operational by 2026. Area and indirect sources of GHG emissions associated with the project site and proposed Project would primarily result from electricity and the occasional maintenance trips, as described in Chapter 1, *Proposed Project*. GHG emissions from electricity consumed on the project site would be generated offsite by fossil fuel combustion at the electricity provider. The maintenance trips would generate mobile-source emissions from motor-vehicle trips.

The estimated operational GHG emissions resulting from the proposed Project are shown in Table 2-10. Additionally, in accordance with SCAQMD's recommendation, the proposed Project's amortized construction-related GHG emissions from Table 2-9 are added to the operational emissions estimate, in order to determine the proposed Project's total annual GHG emissions.

Table 2-10. Estimated Annual Greenhouse Gas Emissions from Project Operation (metric tons per year)

Emission Source	Estimated Annual GHG Emissions ($MTCO_2e$ per year)a
Mobile Emissions (Maintenance Trips)	<1
Electricity Emissions	37
Amortized Construction Emissions	65
Annual Project Emissions	**102**

Source: Emissions modeling by ICF using CalEEMod version 2020.4.0 (Appendix B).
[a] Totals may not add up due to rounding.
GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

The proposed Project would generate approximately 102 $MTCO_2e$ per year, starting in 2024, with the majority of the emissions stemming from construction; refer to Table 2-10. The second-largest emission source would come from electrical demand. The proposed Project is expected to be fully operational by 2026. Currently, there are no numerical thresholds for analyzing a project's GHG impacts post-2020 within SCAQMD jurisdiction. Thus, as discussed above, the proposed Project's consistency with applicable regulatory plans and policies to reduce GHG emissions is used instead, which is discussed below in Impact 2.8(b). As shown in Impact 2.8(b), the proposed Project would be consistent with the CARB's 2017 Scoping Plan and the 2019 CAAP. Thus, the proposed Project would not result in a significant generation of GHG emissions. Impacts would be less than significant.

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

Less-than-Significant Impact.

AB 32 and SB 32 outline the state's GHG emissions reduction targets for 2020 and 2030, respectively. In 2008 and 2014, CARB adopted the Scoping Plan and First Update, respectively, as a framework for achieving the emissions reduction targets in AB 32. The Scoping Plan and First Update outline a series of technologically feasible and cost-effective measures to reduce statewide GHG emissions. CARB adopted the 2017 Scoping Plan in November 2017 as a framework for achieving the 2030 GHG-reduction goal described in SB 32. Because the proposed Project is expected to be in operation by 2026, the statewide GHG emissions reduction target for 2030 is the statutory statewide milestone target that is applicable to the proposed Project.

Based on CARB's 2017 Scoping Plan, many of the reductions needed to meet the 2030 target would come from state regulations, including cap-and-trade, the requirement for increased renewable energy sources in California's energy supply, updates to Title 24, and increased emission-reduction requirements for mobile sources. The 2017 Scoping Plan indicates that reductions would need to come in the form of changes pertaining to vehicle emissions and mileage standards, changes to sources of electricity, increased energy efficiency at existing facilities, and state and local plans, policies, or regulations that would lower GHG emissions relative to business-as-usual conditions. The 2017 Scoping Plan carries forward GHG-reduction measures from the First Update, as well as new potential measures to help achieve the state's 2030 target across all sectors of the California economy, including transportation, energy, and industry. Table 2-11 shows the proposed Project's consistency with statutes and programs identified in the state's 2017 Scoping Plan that aim to reduce GHG emissions.

Table 2-11. Consistency of Project with 2017 Scoping Plan

Applicable Policies and Objectives	Project Consistency Assessment
SB 350: Reduce GHG emissions in the electricity sector through the implementation of the 50 percent RPS, doubling of energy savings, and other actions as appropriate to achieve GHG emissions reductions planning targets in the Integrated Resource Plan process.	**Consistent.** This policy is a state program that requires no action at the local or project level. However, as discussed below, Measure Code E-1 of the Metro CAAP would require the proposed Project to have 100-percent renewable-energy procurement by 2035. This would reduce the Project's energy source emissions to zero by 2035.
Low-Carbon Fuel Standard: Transition to cleaner/less-polluting fuels that have a lower carbon footprint.	**Consistent.** This policy is a state program that requires no action at the local or project level. However, the Metro CAAP Measure Code V-3 and V-4 would require Metro to change some of their vehicle fleets to BEVs, which would help the proposed Project reduce its mobile GHG emissions.
Mobile Source Strategy (Cleaner Technology and Fuels Scenario): Reduce GHGs and other pollutants from the transportation sector through transition to zero-emission and low-emission vehicles, cleaner transit systems and reduction of vehicle miles traveled.	**Consistent.** This policy is a state program that requires no action at the local or project level. However, the Metro CAAP Measure Code V-3 and V-4 would require that vanpool and non-revenue vehicles be replaced with BEVs, which would help the proposed Project reduce its mobile GHG emissions.
SB 1383: Approve and Implement Short-Lived Climate Pollutant strategy to reduce highly potent GHGs.	**Not applicable.** This policy is a state program that requires no action at the local or project level and is not applicable to the proposed Project. The proposed Project would not conflict with this statute.
California Sustainable Freight Action Plan: Improve freight efficiency, transition to zero-emission technologies, and increase competitiveness of California's freight system.	**Not applicable.** This policy is a state program that requires no action at the local or project level and is not applicable to the proposed Project. The proposed Project would not conflict with this plan.
Post-2020 Cap-and-Trade Program: Reduce GHGs across largest GHG emissions sources.	**Not applicable.** This policy is a state program that requires no action at the local or project level. The proposed Project would not conflict with this program.

Source: CARB 2017.
BEV = battery electric vehicles; CAAP = Climate Action and Adaptation Plan; GHG = greenhouse gas; RPS = Renewable Portfolio Standards; SB = Senate Bill.

As discussed in Table 2-11, the proposed Project would be consistent with the applicable policies from the 2017 Scoping Plan. Specifically, the proposed Project would be consistent with the Metro CAAP final Mitigation Measures that require 100-percent renewable-energy procurement by 2035 and the change of fleet to battery-electric buses and battery-electric vehicles. These measures would help reduce the state's GHG emissions from the energy and transportation sectors, which are some of the overarching strategies of the 2017 Scoping Plan. Given that the proposed Project would be consistent with these required measures, operation of the proposed Project would not conflict with the statewide GHG target for 2030 mandated by SB 32.

Metro Climate Action and Adaptation Plan 2019

The 2012 CAAP was updated in 2019 to describe Metro's commitment to mitigate the impacts of climate change and build climate resilience. The 2019 CAAP identifies 13 measures to reduce GHG emissions by 79 percent by 2030 and 100 percent by 2050 (from 2017 levels). The 2019 CAAP analyzed strategies that reduce emissions from regional transportation and support vehicle technology with emissions calculations and reviewed estimates, plans, and programs related to biomethane, bus electrification, and other fleet improvements. The 2019 CAAP also assessed existing legislation and guidance from local, regional, state, and federal entities and completed an inventory of all new and/or existing emission-reducing projects. In total, full implementation of the 2019 CAAP would help Metro avoid more than 416,000 metric tons of annual carbon dioxide emissions by 2050, or the equivalent of the annual emissions of more than 88,000 passenger vehicles (Metro 2019). The proposed Project's consistency analysis with the 13 measures found in the 2019 CAAP is discussed Table 2-12.

As shown in this table, the proposed Project would be consistent with the applicable 2019 CAAP measures and would help Metro achieve its GHG-reduction goals of 79 percent by 2030 and 100 percent by 2050 from 2107 levels. Thus, the proposed Project's impacts would be less than significant.

Table 2-12. Consistency of Project with the 2019 CAAP

Final Mitigation Measures by General Sector	Consistency Analysis
V-1: Replace all directly operated buses with Battery Electric Buses (BEBs).	**Not Applicable**. The proposed Project involves a water infiltration system and would not change the current bus operations along the Metro G Line. Thus, the proposed Project would not conflict with this CAAP Measure.
V-2: Replace all contracted buses with renewable natural gas (RNG) buses and BEBs.	**Not Applicable**. The proposed Project involves a water infiltration system and would not change the current bus operations along the Metro G Line. Thus, the proposed Project would not conflict with this CAAP Measure.

Final Mitigation Measures by General Sector	Consistency Analysis
V-3: Replace vanpool vehicles with BEVs.	**Consistent**. The proposed Project would involve operational maintenance trips. It is possible that the employees who would be conducting these maintenance trips may use the vanpool vehicles to get to work at Metro. Additionally, the proposed Project does not involve any vanpool locations and, thus, would not conflict with this measure.
V-4: Replace non-revenue vehicles with Battery Electric Vehicles (BEVs).	**Consistent**. The proposed Project would involve operational maintenance trips. Employees conducting these maintenance trips potentially would use the non-revenue Metro vehicles that are BEVs, reducing the operational GHG emissions shown in Table 2.8-3. Thus, the proposed Project would be consistent with this measure.
V-5: Install WESS to store energy from decelerating railcars.	**Not Applicable**. The proposed Project would not involve any railcars and, thus, would not conflict with this measure.
E-1: Expand use of renewable energy in electricity procurement (100 percent renewable electricity by 2035).	**Consistent**. The proposed Project's second-largest source of GHG emissions is from electrical demand; refer to Table 2.8-3. As required under this measure, the proposed Project would use 100-percent renewable energy by 2035, thus removing all of the electrical GHG emission shown in Table 2.8-3 by 2035.
F-1: Increase onsite solar photovoltaic installations.	**Not Applicable**. The proposed Project would not include a land use where onsite solar photovoltaic solar panels could be installed. Thus, the proposed Project would not conflict with this measure.
F-2: Install new designs or retrofits of low-water sanitary fixtures that require less water and energy.	**Not Applicable**. The proposed Project would not include any land uses that would require water sanitary fixtures. Thus, the proposed Project would not conflict with this measure.
F-3: Install non-potable recycle water systems.	**Consistent**. The proposed Project would construct and operate stormwater runoff infiltration systems along the G Line that would help Metro achieve this measure. According to the 2019 CAAP, measure F-3 would help reduce GHG emissions by approximately 19 $MTCO_2e$ per year in 2030.
F-4: Replace lighting fixtures with LED lights.	**Consistent**. The proposed Project would install energy-efficient LED lights in all the lighting fixtures used in the proposed Project.
F-5:Replace existing appliances with more efficient electric appliances (compressors, water heaters, kitchen appliances).	**Not Applicable**. The proposed Project would not replace a land use with existing appliances. The proposed Project would not conflict with this measure.
F-6: Replace existing HVAC systems with electric systems.	**Not Applicable**. The proposed Project would not replace an existing land use with HVAC systems. The proposed Project would not conflict with this measure.
C-1: Install EV charging infrastructure at Metro facilities for employee commuter use.	**Not Applicable.** The proposed Project is not located at a Metro facility and, thus, would not include land uses where EV-charging infrastructure could be built. The proposed Project would not conflict with this measure.

Source: Metro 2019.
CAAP = Climate Action and Adaptation Plan; EV = electric vehicle; GHG = greenhouse gas; HVAC = heating, ventilation, and air conditioning; LED = light-emitting diode; $MTCO_2e$ = metric tons of carbon dioxide equivalent; WESS = Wayside energy storage systems.

2.8.2 References Cited

California Air Resources Board (CARB). 2017. *California's 2017 Climate Change Scoping Plan*. November. Available: ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/ scoping_plan_2017.pdf. Accessed: March 2022.

Geosyntec Consultants. 2020. *Feasibility Study Report.* Final. Los Angeles, CA. Prepared for Los Angeles County Metropolitan Transportation Authority, Los Angeles CA.

Los Angeles County Metropolitan Transportation Authority (Metro). 2019. *Metro Climate Action and Adaptation Plan 2019*. Available: media.metro.net/projects_studies/sustainability/images/Climate_Action_Plan.pdf. Accessed: March 2022.

South Coast Air Quality Management District (SCAQMD). 2008. *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules, and Plans*. December 5. Available: www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf. Accessed: March 2022.

South Coast Air Quality Management District (SCAQMD). 2010. *Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #15*. September. Available: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf. Accessed: March 2022.

2.9 Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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 involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☒	☐	☐
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and 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?	☐	☐	☐	☒

2.9.1 Discussion

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

Less-than-Significant Impact.

Project construction would involve routine transport, use, and disposal of hazardous materials, such as solvents, paints, oils, grease, and fuels. Such transport, use, and disposal must comply with applicable regulations, including regulations from Resource Conservation and Recovery Act, Occupational Safety and Health Administration, the U.S. Department of Transportation, and others. Although solvents, paints, oils, grease, and fuels would be transported, used, and disposed of during the construction phase, these materials typically are used in construction projects and would not represent the transport, use, and disposal of acutely hazardous materials. In addition, BMPs would be employed during construction to prevent spills of hazardous materials into the surrounding environment, as required by the project-specific SWPPP to be prepared under the

Construction General Permit (Order No. 2012-0006-DWQ). The contractor would also be responsible for preparing a Contaminated Substances and Hazardous Substances Disposal Plan prior to construction. Therefore, potential construction impacts associated with the routine transport, use, or disposal of hazardous materials would be less than significant.

The proposed Project would consist of a network of underground pretreatment and infiltration facilities across seven stormwater BMP clusters. As mentioned in Section 1.1.4, *Project Description*, the pretreatment facilities and the diversion structures would be inspected four times per year, with maintenance performed twice per year (utilizing vacuum trucks). Infiltration facilities would be inspected twice per year, but maintained once every 5 years. These maintenance activities could include the use of common materials, such as solvents, fuels, paints, and lubricants. Due to the frequency of maintenance activities and nature of the proposed Project's operations, it is unlikely that hazardous materials would be stored or used in quantities that would result in a significant release. Any spills involving these materials would be small, localized, and cleaned up as they occur. Therefore, potential operational impacts associated with the routine transport, use, or disposal of hazardous materials would be less than significant.

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?

Less-than-Significant Impact with Mitigation Incorporated.

As mentioned under response to Impact 2.9a., hazardous materials would be used during construction of the proposed Project, including fuel, solvents, paints, oils, and grease. It is possible that any of these substances could be released during construction activities. However, compliance with federal, state, and local regulations, in combination with construction BMPs (as required by a project-specific SWPPP), would ensure that all hazardous materials would be used, stored, and disposed of properly, minimizing potential impacts related to a hazardous materials release during the construction phase of the proposed Project. Furthermore, it is unlikely that hazardous materials would be stored or used in quantities that would result in a significant release during project operations.

An environmental database search was conducted via State Water Resources Control Board's Geotracker (SWRCB 2022) and Department of Toxic Substances Control's Envirostor (Department of Toxic Substances Control 2022) online databases. The information provided in these databases could be an indicator that historical activities conducted within (or immediately adjacent to) the MGL cluster sites have the potential to negatively affect the implementation of the proposed Project. The database search was conducted for the seven BMP clusters locations along with a 1,000-foot radius surrounding said locations. Hazardous materials sites within a 1,000-foot radius were reviewed because they have the highest likelihood of producing a deleterious condition to project implementation. The following table contains the sites identified, their address, the database in which it was located, and a summary of the site's environmental status. The table also identifies which MGL clusters are within a 1000-foot radius from the hazardous materials site identified.

This page was intentionally left blank.

Table 2-13. Hazardous Material Sites in Vicinity of Proposed Project

MGL Cluster Within 1000 Feet of Site	Site (and ID)	Address	Databases	Site Status Summary
MGL-1	Angelus Block Company (T0603702464)	15025 Oxnard Street, Van Nuys, CA	SWRCB LUST	Site is listed as a LUST site with a *Completed – Case Closed as of 4/22/1988* status. The site was listed with gasoline impacts on onsite soil. The case was opened in April 1985.
MGL-1	Sherwin-Williams Company (T0603702463)	6111 Kester Avenue, Van Nuys, CA	SWRCB LUST	Two historical releases associated with the site were identified. One was identified as an aviation fuel release to onsite soil. The case was listed as *Completed – Case Closed as of 4/30/1987.* The second release was identified as an acetone release. The affected media was not disclosed. The case was listed as *Completed – Case Closed as of 7/13/2011.* The City of Los Angeles provided oversight and closure.
MGL-1	Studio Services Inc. (T0603781181)	14817 West Bessemer Street, Los Angeles, CA	SWRCB LUST	Site is listed as a LUST site with a *Completed – Case Closed as of 6/22/2011* status. The site was listed with gasoline impacts on onsite soil. The case was opened in August 1995. The City of Los Angeles provided oversight and closure.
MGL-1	Former Texaco Automotive Service (T0603702471)	6200 Kester Avenue, Van Nuys, CA	LUST	Site is listed as a LUST site with a *Completed – Case Closed as of 3/7/2003* status. The site was listed with gasoline impacts on onsite soil. The case was opened in January of 1985. The Regional Water Quality Control Board (RWQCB) provided oversight and closure.
MGL-1	Former Systron Donner (SL184281411)	14837 Califa Street, Van Nuys, CA	Cleanup Program	Site is listed as a Cleanup Program site with an *Open – Remediation as of 5/20/2019* status. The site was listed with VOC impacts on groundwater. Systron Donner designed, manufactured, assembled, and tested waveguide and coaxial microwave components and subsystems and hydraulic components at the site from 1965 through 1990. According to the site's *Groundwater and Soil Vapor Extraction System Operation, Maintenance, and Monitoring Report – 3rd Quarter 2021,* groundwater flow direction and gradient based on three deep groundwater monitoring wells are toward the northeast.

MGL Cluster Within 1000 Feet of Site	Site (and ID)	Address	Databases	Site Status Summary
MGL-2, MGL-3	Van Nuys Plating (T0603702461)	6109 Vesper Avenue, Van Nuys, CA	LUST	Site is listed as a LUST site with *Completed – Case Closed as of 8/25/1987* status. The site was listed with aviation fuel impacts on onsite soil. The case was opened in November 1985. The RWQCB provided oversight and closure.
MGL-3	Bob Faeber Volkswagen (T0603702405)	6115 Van Nuys Boulevard, Van Nuys, CA	LUST	Site is listed as a LUST site with *Completed – Case Closed as of 3/20/2003* status. The site was listed with gasoline impacts on onsite soil. The case was opened in April 1988. The City of Los Angeles provided oversight and closure.
MGL-2, MGL-3	Valley Motor Center (T0603702403)	6001 Van Nuys Boulevard, Van Nuys, CA	LUST	Site is listed as a LUST site with *Completed – Case Closed as of 8/25/1987* status. The site was listed with gasoline impacts on onsite soil. The case was opened in March 1984. The RWQCB provided oversight and closure.
MGL-3	US-Gas-ARCO (T0603707552)	6171 Van Nuys Boulevard, Van Nuys, CA	LUST	Site is listed as a LUST site with *Completed – Case Closed as of 1/19/2018* status. The site was listed with gasoline impacts on undisclosed media. The case was opened in February 1999. The RWQCB provided oversight and closure.
MGL-4	L.T. Sawyer Inc. (T0603702406)	14117 Aetna Street, Van Nuys, CA	LUST	Site is listed as a LUST site with an *Open – Verification Monitoring as of 1/15/2021* status. The site was listed with *Other Solvent or Non-Petroleum Hydrocarbon* impacts on groundwater. Southern Pacific Transportation Company operated a storage facility on site for the distribution of fuels, oils, and chemicals (as early as 1926). L.T. Sawyer assumed site operations in 1948. A tank inventory dating from 1956 indicated that there were seven ASTs containing gasoline, diesel fuel, stove oil, solvent, and kerosene and seven USTs containing weed oil, deodorant-spray base, rubber solvent, aviation gasoline, gasoline, solvent, and white gasoline (appliance fuel) onsite. Site tanks have also stored transmission oil, BI 57, and Stoddard solvents. All USTs have been removed from the site. According to the site's *Groundwater Monitoring and Status Report – Second Half 2021*, remediation and monitoring continues, and groundwater-flow direction was identified as flowing to the northeast and south.

MGL Cluster Within 1000 Feet of Site	Site (and ID)	Address	Databases	Site Status Summary
MGL-5	MTA – Burbank Branch Line B-15C (SLT43630628)	Bessemer Street, Van Nuys, CA	Cleanup Program	Site listed as a Cleanup Program site with a *Completed – Case Closed as of 4/22/1998* status. The site was listed with nitrate impacts on groundwater. An RWQCB letter granting no further action is located in Geotracker.
MGL-5, MGL-6	TOSCO S.S. #3175 (T0603702414)	6003 Woodman Avenue, Van Nuys, CA	LUST	Site is listed as a LUST site with *Completed – Case Closed as of 9/23/1998* status. The site was listed with benzene impacts on onsite soil. The case was opened in September 1997. The City of Los Angeles provided oversight and closure.
MGL-5, MGL-6	Mobil #18-L1L Former #17-L1L (T0603702413)	5955 Woodman Avenue, Van Nuys, CA	LUST	Site is listed as a LUST site with *Completed – Case Closed as of 11/21/2006* status. The site was listed with gasoline impacts on onsite soil. The case was opened in December of 1991. The City of Los Angeles provided oversight and closure.

Source: State Water Resources Control Board's Geotracker and Department of Toxic Substances Control's Envirostor online databases.
AST = aboveground storage tanks; LUST = Leaking Underground Storage Tank; MGL = Metro Green Line; RWQCB = County of Los Angeles Regional Water Quality Control Board; UST = Underground Storage Tank; VOC = volatile organic compounds.

This page was intentionally left blank.

Of the 13 sites identified above, 11 have been granted closure. Closed sites have been remediated to the satisfaction the oversight agency and, thus, are not considered a significant risk to the proposed Project. The two remaining sites, the Former Systron Donner and L.T. Sawyer Inc., remain open and active in the RWQCB's Cleanup Program and LUST databases, respectively. The Former Systron Donner site is listed with volatile organic compound (VOC) impacts on groundwater, whereas the L.T. Sawyer Inc. site was listed with solvent impacts on groundwater. Although dewatering is not anticipated during construction due to the anticipated gap between drywell installation (approximately 45 feet bgs) and typical groundwater depth in the project area (approximately 77 feet bgs), implementation of **Mitigation Measure HAZ-1** would be implemented as a contingency during construction activities at locations MGL-1, MGL-2, and MGL-4 due to the potential to encounter affected groundwater. If dewatering occurs during construction activities at these locations, then implementation of **Mitigation Measure HAZ-1** would minimize potential impacts associated with handling affected groundwater.

Mitigation Measure

HAZ-1: Implement Engineering Controls and Waste Discharge Requirements.

Provisions will be established and implemented by the construction contractor during dewatering activities that have the potential to expose construction workers to contaminated water, along with provisions for the management and handling of any potentially contaminated water that could be encountered. Such provisions could include compliance with Occupational Safety and Health Administration worker safety guidelines, including guidelines regarding personal protective equipment. The safety provisions will apply to all construction personnel involved in dewatering activities. In addition, dewatering activities will be in compliance with the discharge sampling, monitoring, and reporting requirements of the Los Angeles RWQCB regarding waste discharge requirements for dewatering. If it is found that the groundwater does not meet water quality standards, it must either be treated prior to discharge or hauled off site for treatment and disposal at an appropriate waste treatment facility that is permitted to receive such water.

During operations, Project facilities intend to capture, and infiltrate stormwater runoff for groundwater recharge; however, stormwater captured and infiltrated at MGL cluster sites adjacent to affected groundwater sites is not expected to affect contaminated plumes or remediation activities because recharge volumes associated with the proposed Project would be too small to significantly affect subsurface hydrologic conditions or remedial site activities at these locations. Impacts would be less than significant.

c) Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less-than-Significant Impact with Mitigation Incorporated.

Four schools are within 0.25 mile from the proposed project BMP clusters, as follows.

- Sylvan Park Elementary School 6238 Noble Avenue, Van Nuys – approximately 0.15 to the northeast of MGL-1
- Children's Community School 14702 Sylvan Street, Van Nuys – approximately 0.25 mile north of MGL-2
- La Valley College 5645 Fulton Avenue, Van Nuys – immediately adjacent to MGL-7
- Sunrise School 13130 Burbank Boulevard, Sherman Oaks – approximately 0.08 mile to the east of MGL-7

As such, implementation of the proposed Project could result in the handling or release of hazardous materials or hazardous waste near one of these schools. However, as described under Impact 2.9a., compliance with federal, state, and local regulations, in combination with construction BMPs (as required by a SWPPP), would reduce potential impacts associated with the handling of hazardous materials during construction to less than significant. Additionally, potential impacts associated with the handling of affected groundwater would be reduced to less than significant with the implementation of **Mitigation Measure HAZ-1**. Thus, potential impacts associated with hazardous emissions or the handling of hazardous materials or waste within 0.25 mile of a school would be less than significant.

Maintenance activities associated with the proposed Project could include the use of common materials, such as solvents, fuels, paints, and lubricants. However, due to the frequency of maintenance activities and nature of the proposed Project's operations, it is unlikely that hazardous materials would be stored or used in quantities that would result in a significant release. Any spills involving these materials would be small, localized, and cleaned up as they occur. Thus, potential long-term impacts associated with hazardous emissions or the handling of hazardous materials or waste within 0.25 mile of a school would be less than significant.

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?

No Impact.

The provisions in Government Code section 65962.5 are commonly referred to as the Cortese List. The list—specifically, a site's presence on the list—has bearing on compliance with CEQA. The following resources contain sites that meet Cortese List requirements (CalEPA 2022):

- Sites listed in the leaking underground storage tank (LUST) sites database, part of the State Water Resources Control Board's GeoTracker site
- List of hazardous waste and substance sites from the California Department of Toxic Substances Control
- List of solid waste disposal sites identified by the Bay Area RWQCB with waste constituents above hazardous waste levels
- List of active cease-and-desist orders and cleanup-and-abatement orders from the RWQCB
- List of hazardous waste facilities identified by the California Department of Toxic Substances Control subject to corrective action, pursuant to Health and Safety Code section 25187.5

A review of the sources listed above did not identify any Cortese List sites within any of the MGL cluster sites. Thus, no impacts would occur as a result of site that are included on the Cortese List.

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

No Impact.

The proposed Project is not within an airport land use plan. The project site is within 2 miles of the Van Nuys Airport (approximately 1.8 miles to the northwest); however, according to the Los Angeles County Airport Land Use Commission's Van Nuys Airport Influence Area map, (County of Los Angeles Airport Land Use Commission 2003), the project site does not overlap with the Van Nuys Airport's planning boundary, airport influence area, or any runway-protection zones. The next closest airport is the Hollywood Burbank Airport, approximately 3.2 miles to the northeast. No impact would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact.

The majority of construction associated with the proposed Project would occur within Metro-owned ROW and would not include any characteristics (e.g., permanent road closures, long-term blocking of road access) that would physically impair or otherwise interfere with emergency response or evacuation in the proposed Project's vicinity. If lane closures are required, then they would be performed on a temporary basis. All large construction vehicles entering and exiting the site would be guided by the use of personnel using signs and flags to direct traffic. In addition, construction activities would comply with any applicable general plan, hazard mitigation plan, response plan, emergency operations plan (EOP), and fire department or police department emergency response requirements, by providing adequate emergency access, minimizing temporary impacts on local evacuation routes, and not permanently affecting major arterials surrounding the proposed Project.

Compliance with such existing standard industry practices, such as traffic control and signage, and adherence to County and local agency criteria (as necessary) would provide adequate emergency access during the proposed Project. Impacts would be less than significant.

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

No Impact.

The project site, which is in a highly urbanized setting (in Los Angeles County) with no wildlands nearby, does not lie within a Very High Fire Hazard Severity Zone (VHFHSZ) according to the California Department of Forestry and Fire Protection’s (CAL FIRE) *Very High Fire Hazard Severity Zones in LRA, Los Angeles* (CAL FIRE 2011). Thus, wildfire is highly unlikely to occur within the project site. No impact would occur.

2.9.2 References Cited

California Environmental Protection Agency (CalEPA). 2022. Cortese List Data Resources. Available: calepa.ca.gov/sitecleanup/corteselist/. Accessed: February 4, 2022.

California Department of Forestry and Fire Protection (CAL FIRE). 2011. Very High Fire Hazard Severity Zones in LRA, Los Angeles. Available: osfm.fire.ca.gov/media/5830/los_angeles.pdf. Accessed: February 4, 2022.

Department of Toxic Substances Control. 2022. Envirostor. Available: www.envirostor.dtsc.ca.gov/public/. Accessed: February 4, 2022.

County of Los Angeles Airport Land Use Commission. 2003. *Van Nuys Airport – Airport Influence Area*. Available: planning.lacounty.gov/assets/upl/project/aluc_airport-van-nuys.pdf. Accessed: February 4, 2022.

State Water Resources Control Board (SWRCB). 2022. Geotracker. Available: geotracker.waterboards.ca.gov/. Accessed: February 4, 2022.

2.10 Hydrology and Water Quality

Issues (and Supporting Information Sources):		Potentially Significant Impact	Less than Significant 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 that would:				
c.1	Result in substantial erosion or siltation on or off site;	☐	☐	☒	☐
c.2	Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site;	☐	☐	☒	☐
c.3	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
c.4	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?	☐	☐	☐	☒

2.10.1 Discussion

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less-than-Significant Impact.

Project construction and earth-disturbing activities, such as excavation and grading, could result in short-term water quality impacts associated with soil erosion and sediment transport to down-gradient areas, potentially resulting in water quality standard violations. Construction activities could also generate dust, sediment, litter, oil, and other pollutants (e.g., fuels or oils from construction equipment) that could temporarily contaminate runoff from the project site. However, construction activities would comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. As part of the Construction General Permit, standard erosion-control measures and BMPs would be identified in an SWPPP and implemented during construction to reduce erosion and manage stormwater. Compliance with the Construction General Permit, as well as acquiring the applicable grading permit, would require BMPs to restrict soil erosion and sedimentation, as well as non-stormwater discharges from the construction site and the release of hazardous materials. As a performance standard, the BMPs to be selected would represent the best-available technology that is economically achievable and best conventional pollutant control technology to reduce pollutants. Compliance with the SWPPP and implementation of BMPs would maintain water quality in accordance with State Water Resources Control Board and RWQCB standards such that construction of the proposed Project would not violate any water quality standards.

The proposed Project would not introduce additional runoff into the storm drains. Infiltration BMPs would use natural materials, such as gravels, for natural filtration to capture stormwater. By capturing and infiltrating the untreated runoff into a series of distributed stormwater BMPs, the proposed Project would reduce metal and nutrient pollutant loading to downstream surface-water features. The proposed Project is expected to achieve an approximately 65 percent pollutant-load reduction on an annual basis (Metro and Geosyntec Consultants 2020). In addition, landscape areas disturbed by project construction would be restored with drought-tolerant shrubs and trees. Water quality benefits achieved by the proposed Project include reduction in metal (i.e., total zinc, total copper, and total lead), bacteria (*e. coli*), and nutrients (i.e., total nitrogen and total phosphorus). Continuous and grab-sample monitoring and reporting would be established to measure water quality–control performance. The proposed Project may capture trash and include maintenance procedures for offsite trash disposal.

Operation and maintenance would include drywells, pretreatment facilities, and diversion structures/pumpstations. The dry well cluster location designated as MGL-4 is in an area of known groundwater contamination, including the EPA-defined plume area for perchloroethene (PCE) and trichloroethene (TCE) at concentrations at or above the maximum contaminant level for drinking water. A portion of the project site (the diversion structure/conveyance pipe) is within the plume area. However, the drywells would be sited outside of the PCE and TCE plume area, and infiltration would be designed to occur outside the area of concern. Stormwater capture at the proposed project site near contamination plumes is not expected to have an impact on the contamination plume spreading because the proposed Project would relocate the proposed MGL-4 location approximately 500 feet to the west of the open LUST site and the EPA-defined plumes. As a result, the MGL-4 dry-well cluster location would be located sufficiently outside of both the VOC-affected groundwater associated with a LUST cleanup site and the EPA-defined plume, and there would be no groundwater quality concerns regarding stormwater infiltration in the new proposed location. No additional or considerable contaminant plume was identified beneath the proposed BMP sites. Therefore, the risk of the proposed BMP introducing additional contaminants into the San Fernando Valley Groundwater Basin is low.

During operations, the proposed Project would comply with the County's Municipal Separate Storm Sewer System permit, the General Plan, and local ordinances, which contain standards to ensure that water quality is not degraded. The proposed Project would be designed and maintained in accordance with the water quality requirements of the county and the Los Angeles RWQCB, such as the Water Quality Control Plan (Basin Plan), and minimize the transport of urban runoff pollutants. Therefore, the proposed Project would not violate any water-quality standards or degrade water quality. Therefore, construction and operation of the proposed stormwater capture facilities would not violate any water-quality standards or waste discharge requirements, nor otherwise degrade water quality. Impacts would be less than significant.

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

No Impact.

The proposed Program would capture stormwater and infiltrate that water into the underlying aquifer. The proposed Program would not increase groundwater demand because operation of the proposed Project would not utilize groundwater supplies. Instead, the proposed Project would provide groundwater resource benefits by augmenting groundwater supplies and increased groundwater recharge. Generally, the depth to groundwater at the project site is more than 77 feet bgs. The drywells would be constructed to a depth of approximately 45 feet bgs; therefore, there would be an approximate 32-foot minimum separation between the bottom of the well and the top of the groundwater table. As a result, water infiltrated through the proposed drywells is not anticipated to raise the groundwater elevation substantially because a separation of more than 10 feet between the bottom of the drywells and the groundwater table is expected. Based on other drywell projects implemented in the San Fernando Valley area, and given the separation distance between the average groundwater table elevation and the bottom of the drywell, infiltration constraints are not anticipated. A groundwater mounding analysis is recommended as part of the geotechnical investigation during the project design. Water supply benefits through increased capture and rate of infiltration would improve groundwater recharge. The proposed Project is estimated to recharge 890 acre-feet of runoff into the San Fernando Groundwater Basin on an annual basis (Metro and Geosyntec Consultants 2020). Therefore, there would be no impacts related to a decrease in groundwater supplies or interference with groundwater recharge in a manner that may impede sustainable groundwater management. No mitigation is required.

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 that would:

c.1 Result in substantial erosion or siltation on or off site;

c.2 Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site;

c.3 Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

c.4 Impede or redirect flood flows?

Less-than-Significant Impact.

During construction, stormwater drainage could be temporarily altered and result in erosion or siltation and/or increase the rate or amount of surface runoff. However, implementation of the required project-specific SWPPP and implementation of associated BMPs would minimize the potential for erosion or siltation and flooding. Therefore, impacts associated with substantial erosion and temporary drainage alterations, including flooding, during construction would be less than significant.

The proposed Project includes drywells, which allow for small pockets of very high infiltration. High infiltration enables the area to mimic natural stormwater behavior in a space-efficient manner without needing to remove large amounts of existing impervious surface. As a result, there would be no change in the impervious area following implementation of the proposed Project (the pre- and post-project impervious area would both total 1,473 acres). The proposed Project consists of seven BMP sites contained within independent drainage areas that drain to the Los Angeles River. Stormwater runoff would be captured and infiltrated into a series of distributed stormwater BMPs, reducing the runoff to surface channels and downstream surface water features. Stormwater would be collected from rainfall that flows as sheet flow across nonpermeable paved areas within the project area and directed to one of the proposed drywell clusters (the infiltration systems, made available for deep percolation) for infiltration into the subsurface. The proposed infiltration systems would be constructed within seven drywell cluster locations throughout the proposed project area and would connect to county-operated storm drains (Metro and Geosyntec Consultants 2020).

Minor alterations to existing storm-drain infrastructure within Metro-owned ROW would be required for construction of the BMPs. The proposed Project is estimated to capture 91 percent of the runoff volume from a 24-hour, 85^{th}-percentile design storm or 268 acre-feet of 24-hour runoff on an annual basis (Metro and Geosyntec Consultants 2020). The design exceeds the runoff targets set by the ULAR Enhanced Watershed Management Program for runoff management. Because most of the project features are underground, flood flows would not be impeded or redirected.

Six of the BMP clusters would require diversion from county-owned storm drains and active pumping to divert stormwater to the infiltration BMP clusters. The maximum diversion rates range between 10 to 32 cubic feet per second to match the maximum capacity of each infiltration BMP cluster. When the maximum capacity of each infiltration BMP cluster is reached, the pump station would turn off, allowing stormwater to continue flowing into the storm drain. If a hazardous-material spill were to occur upstream, the pump station would be shut down to prevent diverting the spill into the infiltration BMPs. At a later design stage, the proposed Project may replace the proposed pump stations with gravity-driven diversions, pending further hydraulic gradient analysis. A detailed hydraulic analysis would be completed to demonstrate that the proposed diversion structures would not affect storm drain conveyance capacity (Metro and Geosyntec Consultants 2020). Therefore, drainage related impacts of the proposed Project would be less than significant.

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

No Impact.

The proposed Project is approximately 11 miles northeast of the Pacific Ocean. According to California Emergency Management Agency tsunami mapping, the proposed Project is not subject to inundation by a tsunami (CalEMA 2021). There are no large reservoirs near the project site; therefore, there is no potential for seiche risks. The project area is outside of the 100-year floodplain, within Federal Emergency Management Agency (FEMA) Zone X (unshaded) (FEMA 2008). FEMA Zone X (unshaded) is an area of minimal flood hazard, usually depicted on Flood Insurance Rate Maps as above the 500-year flood level, and none of the project area overlaps with a floodway. Therefore, the project site is not subject to inundation from flooding during a storm. Hansen Dam is approximately 6 miles northeast of the project site, and Lopez Dam and Pacoima Dam and Reservoir are approximately 9 and 11 miles north of the project site, respectively. These dams are continually monitored to protect against the threat of dam failure. Catastrophic failure of a major dam related to an earthquake is unlikely due to ongoing review and as-needed modifications. The potential for inundation as a result of dam failure is considered low. Therefore, the project site would not be subject to inundation from a storm event, dam failure, tsunami, or seiche wave, and there would be no risk of release of pollutants due to inundation. No mitigation is required.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact.

The project site is within the jurisdiction of the Los Angeles RWQCB, which adopted a Basin Plan that designates beneficial uses for all surface and groundwater within its jurisdiction and establishes the water quality objectives and standards necessary to protect those beneficial uses. The proposed Project would comply with existing NPDES requirements and would implement construction and operational BMPs to reduce pollutants of concern in stormwater runoff. Compliance with these regulatory requirements would ensure that the proposed Project would not degrade or alter water quality, cause the receiving waters to exceed water-quality objectives, or impair the beneficial use of receiving waters. The proposed Project would provide water-quality benefits, including a reduction in metals, bacteria, and nutrients. As such, the proposed Project would not result in water-quality impacts that would conflict with the Basin Plan. Construction and operational impacts related to a conflict with the Basin Plan would be less than significant, and no mitigation is required.

Portions of the proposed Project overlie the San Fernando Valley Groundwater Basin. In 2014, basin prioritization was designated as medium by the Los Angeles Department of Water Resources. However, in 2018, the final basin prioritization evaluation conducted by the Los Angeles Department of Water Resources changed the basin priority from medium to very low

(Groundwater Exchange 2018). As a result, a sustainable groundwater management plan is not required. Therefore, no impact would occur.

2.10.2 References Cited

California Emergency Management Agency (CalEMA). 2021. Los Angeles County Tsunamic Hazard Areas. Available: www.conservation.ca.gov/cgs/tsunami/maps/los-angeles. Accessed: January 24, 2022.

Federal Emergency Management Agency (FEMA). 2008. FEMA's National Flood Hazard Layer (NFHL) Viewer. Map Numbers 06037C1315F and 06037C1320F, dated September 26, 2008. Available: hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd. Accessed: January 24, 2022.

Groundwater Exchange. 2018. San Fernando Valley. Available: groundwaterexchange.org/basin/san-fernando-valley-4-012/. Accessed: January 21, 2022.

Metro and Geosyntec Consultants. 2020. *Metro Orange Line a Water Infiltration and Quality Project Safe Clean Water Feasibility Study Repor*t. Safe, Clean Water Program Regional Program Projects Module.

2.11 Land Use and Planning

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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?	☐	☐	☐	☒

2.11.1 Discussion

a) Physically divide an established community?

No Impact.

The physical division of an established community typically refers to the construction of a linear feature, such as a highway or railroad, or removal of a means of access, such as a road or bridge, that would affect mobility within or between existing communities. The proposed Project would occur mainly within land zoned as public facilities. Once constructed, the proposed stormwater facilities would be located mostly subsurface within MGL ROW, with some pipes underneath Los Angeles ROW. The proposed stormwater capture facilities would not create a barrier or physically divide an established community. No impact would occur.

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?

No Impact.

Land uses within the proposed Program area are under the jurisdiction of the City of Los Angeles. All of the project sites have land use designations of Public Facility, as designated in the General Plan (City of Los Angeles 2001) and ZIMAS Maps (City of Los Angeles 2020). The proposed stormwater facilities, once constructed, would be within Metro-owned ROW or underground and would not conflict with any applicable land use plan, policies, or regulations. Neither the zoning, nor the land use designation, would change as result of the proposed Project. No impact would occur.

2.11.2 References Cited

City of Los Angeles. 2020. Zone Information and Map Access System (ZIMAS). Available at: zimas.lacity.org/. Accessed December 16, 2020.

This page was intentionally left blank.

2.12 Mineral Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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?	☐	☐	☐	☒

2.12.1 Discussion

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?

No Impact.

The MGL runs through an urban and developed area. No active mineral claims are within the proposal project area. The proposed Project would not result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state. No impact is expected to occur.

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?

No Impact.

The proposed Project would not result in the loss of availability of locally important mineral resource recovery sites or known mineral resources delineated on a local general plan or specific plan. The proposed Project is within an urban and developed area. Not active mineral claims are located within the proposed project area. No impact is expected to occur.

This page was intentionally left blank.

2.13 Noise

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIII. NOISE – Would the project:				
a. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
b. Generate excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c. Be 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 and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

2.13.1 Discussion

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

Less-than-Significant Impact.

Thresholds of significance used to assess project noise levels were based on the Los Angeles Municipal Code (LAMC).

City of Los Angeles Municipal Code

Construction Noise Standards

LAMC Section 41.40(a) prohibits the use, operation, repair, or servicing of construction equipment, as well as job-site delivery of construction materials, between the hours of 9:00 p.m. and 7:00 a.m. where such activities would disturb "persons occupying sleeping quarters in any dwelling hotel or apartment or other place of residence." Construction noise emanating from property zoned for manufacturing or industrial uses is exempted from the Section 41.40(a) standards. In addition, Section 41.40(c) prohibits construction, grading, and related job-site deliveries on or within 500 feet of land developed with residential structures before 8:00 a.m. or after 6:00 p.m. on any Saturday or national holiday or at any time on Sunday.

LAMC Section 112.05 places a noise level limit of 75 A-weighted decibels (dBA) at a distance of 50 feet for powered equipment or tools, which includes construction equipment in, or within 500 feet of, any residential zone between the hours of 7 a.m. and 10 p.m. Under the code, the limit would not apply where compliance is technically infeasible. *Technical infeasibility* means that the noise limit cannot be achieved despite the use of mufflers, shields, sound barriers, and/or other noise-reduction devices or techniques during operation of the equipment. LAMC Section 111.02 provides guidance on conducting sound level measurements pursuant to city noise regulations. The guidance from this section states, in part, "…the level of a particular noise being measured will be the numerical average of noise measurements taken at a given location during a given time period."

LAMC does not state a specific averaging time to be used for a noise measurement conducted pursuant to city noise regulations. However, as indicated in LAMC Section 111.02(b) in regard to sound level measurement procedure and criteria, the City of Los Angeles references a period of "60 consecutive minutes" as a criterion in assessing an alleged offensive noise. Therefore, for the purpose of assessing construction activities, the equivalent continuous sound level (L_{eq}) for a 1-hour period is appropriate to assess project impacts.

For the proposed Project, the distance between sensitive land uses and proposed stormwater collection facilities varies and includes locations where sensitive land uses may be less than 50 feet from the project boundary. Therefore, for the purpose of assessing potential noise impacts in this analysis, the construction noise limit of 75 dBA 1-hour L_{eq} is applied at the locations of the closest noise-sensitive buildings.

Operational Noise Standards

LAMC Chapter XI, *Noise Regulation (Noise Ordinance)*, regulates noise from non-transportation noise sources, such as commercial or industrial operations, mechanical equipment, or residential activities. The exact noise standards vary, depending on the type of noise source; however, the allowable noise levels are generally determined relative to the existing ambient noise levels at the affected location. LAMC Section 111.01(a) defines ambient noise as "the composite of noise from all sources near and far in a given environment, exclusive of occasional and transient intrusive noise sources and the particular noise source or sources to be measured. Ambient noise would be averaged over a period of at least 15 minutes." LAMC Section 111.03 provides minimum ambient noise levels for various land uses, as described in Table 2-14, below. If the actual measured ambient noise level at a subject location is lower than that provided in the table, the level in the table would be assumed.

Table 2-14. City of Los Angeles Assumed Minimum Ambient Noise Levels

Zone	Assumed Minimum Ambient Noise (L_{eq}), dBA[a,b]	
	Daytime (7 a.m.–10 p.m.)	Nighttime (10 p.m.–7 a.m.)
A1, A2, RA, RE, RS, RD, RW1, RW2, R1, R2, R3, R4, and R5	50	40
P, PB, CR, C1, C1.5, C2, C4, C5, and CM	60	55
M1, MR1, and MR2	60	55
M2 and M3	65	65

Source: Los Angeles Municipal Code, Section 111.03.
Notes:
For steady-tone noise with an audible fundamental frequency or overtones (except for noise emanating from any electrical transformer or gas-metering and pressure-control equipment existing and installed prior to September 8, 1986), reduce the allowable noise level by 5 dBA.
For repeated impulsive noise, reduce the allowable noise level by 5 dBA.
For noise occurring fewer than 15 minutes in any period of 60 consecutive minutes between the hours of 7:00 a.m. and 10:00 p.m., increase the allowable noise level by 5 dBA.
[a] At the boundary line between two zones, the allowable noise level of the quieter zone would be used.
[b] The allowable noise levels listed in this table would be adjusted when the following conditions apply to the alleged offensive noise:

> For steady-tone noise with an audible fundamental frequency or overtones (except for noise emanating from any electrical transformer or gas-metering and pressure-control equipment existing and installed prior to September 8, 1986), reduce the allowable noise level by 5 dBA.
> For repeated impulsive noise, reduce the allowable noise level by 5 dBA.
> For noise occurring fewer than 15 minutes in any period of 60 consecutive minutes between the hours of 7:00 a.m. and 10:00 p.m., increase the allowable noise level by 5 dBA.

dBA = A-weighted decibels; L_{eq} = equivalent continuous sound level.

As discussed previously, LAMC is not explicit with respect to defining the length of time over which an average noise level should be assessed. However, based on the noted reference to "60 consecutive minutes" in Table 2-14, above, LAMC indicates that the 1-hour L_{eq} metric should be used.

Section 112.02 of the Noise Ordinance addresses noise from air-conditioning, refrigeration, heating, pumping, and filtering equipment. This section states that such equipment may not generate noise that would exceed the ambient noise level at any adjacent property by more than 5 dBA.

Existing Conditions

The proposed Project is in a developed urban area with a mixture of commercial, industrial, and residential land uses. The closest noise-sensitive receptors to the seven project sites include single- and multi-family homes at distances ranging between 20 and 650 feet from the closest project site boundary. Ambient noise levels in the project vicinity were established using data from long-term noise measurements previously conducted as part of the *Metro Orange Line BRT Improvements Project, Technical Noise and Vibration Report* (Cross-Spectrum Acoustics 2018). Four of the measurement locations included in the report are close to the project sites considered in this IS/MND. These locations and the measured noise levels at each are summarized in Table 2-15. At each location, measurements were conducted for a period of approximately 24 hours. Table 2-15 summarizes the range of noise levels measured between 7:00 a.m. and 9:00 p.m. because these are the maximum range of hours over which construction noise is permitted by LAMC.

Table 2-15. Existing Ambient Noise Levels in Study Area

Measurement ID	Location	Hourly L_{eq} Range (Average), dBA
LT-C	5805 Hillview Park Avenue. Approximately 975 feet northwest of MGL-7 and 1,850 southeast of MGL-6.	49–60 (55)

Measurement ID	Location	Hourly L_{eq} Range (Average), dBA
LT-D	13600 Oxnard Street. Approximately 150 feet southeast of MGL-6.	57–66 (64)
LT-E	14040 Bessemer Street. Approximately 1,050 feet west of MGL-5 and 225 feet east of MGL-4	51–57 (54)
LT-F	14632 Calvert Street. Approximately 1,000 feet west of MGL-3, 400 feet northeast of MGL-2, and 1,650 feet east of MGL-1.	51–64 (57)

dBA = A-weighted decibels; L_{eq} = equivalent continuous sound level; LT = long-term.

Construction Noise

Construction-related noise was analyzed using data and modeling methodologies from the Federal Highway Administration's *Roadway Construction Noise Model* (FHWA 2008), which predicts average noise levels based on the type of equipment, number of equipment items, usage factor (i.e., the fraction of time the equipment is operating in its noisiest mode while in use), and the distance from source to receptor. The proposed Project's Applicant has identified that construction work hours would be limited to the daytime hours permitted by the LAMC. Construction noise levels were estimated based on the same equipment schedule developed for the air quality analysis. The schedule identified 16 construction phases that could occur at each of the seven project sites. Noise levels from each phase were first calculated at a reference distance of 50 feet. It was assumed that all listed equipment would be used throughout an 8-hour construction workday. The equipment lists, individual noise levels, and combined construction phase noise levels are provided in Appendix D, *Noise and Vibration Analysis Calculations*, and summarized in Table 2-16. Noise levels from these construction phases range from 75.1 to 84.7 dBA L_{eq} at a reference distance of 50 feet. The highest noise levels would occur during the Bypass/Demo Trunk Line in Diversion Structure phase.

Table 2-16. Combined Noise Level by Construction Phase, at 50 feet

Phase/Equipment Item(s)	Maximum Noise Level, dBA	Usage Factor	Individual Hourly L_{eq}, dBA	Number of Units	Combined Hourly L_{eq}, dBA
Contractor Mobilization					
Flatbed Truck	74.3	0.4	70.3	3	75.1
Excavation for Pretreatment Vault					
Excavator	80.7	0.4	76.7	1	79.0
Loader	79.1	0.4	75.1	1	
FRPs Pretreatment Vault Complete					
Crane	80.6	0.16	72.6	1	78.9
Forklift	79.1	0.4	75.1	1	
Concrete Pump Truck	81.4	0.2	74.4	1	
Install Drywells					
Drill Rig	84.4	0.2	77.4	1	80.4
Loader	79.1	0.4	75.1	1	

Phase/Equipment Item(s)	Maximum Noise Level, dBA	Usage Factor	Individual Hourly L_{eq}, dBA	Number of Units	Combined Hourly L_{eq}, dBA
Skid Steer	77.6	0.4	73.6	1	
Test Infiltration Rate of Drywells					
Generator	80.6	0.5	77.6	1	80.8
Sump Pump	80.9	0.5	77.9	1	
Dig/Lay/Backfill Pretreatment to Drywell Pipes					
Excavator	80.7	0.4	76.7	1	79.0
Loader	79.1	0.4	75.1	1	
Restore Surfacing					
Asphalt Paver	77.2	0.5	74.2	1	76.7
Roller	80	0.2	73.0	1	
Excavate for Diversion Struct (Cut and Cover)					
Excavator	80.7	0.4	76.7	1	79.0
Loader	79.1	0.4	75.1	1	
FRPs Diversion Structure Complete					
Crane	80.6	0.16	72.6	1	78.9
Forklift	79.1	0.4	75.1	1	
Concrete pump truck	81.4	0.2	74.4	1	
Dig/Shore/Lay/Backfill 20-inch Pipe: Diversion to Pump Station					
Excavator	80.7	0.4	76.7	1	79.0
Loader	79.1	0.4	75.1	1	
Shore/Excavate for Pump Station					
Excavator	80.7	0.4	76.7	1	79.0
Loader	79.1	0.4	75.1	1	
Set/Backfill Precast Pump Station					
Crane	80.6	0.16	72.6	1	77.1
Loader	79.1	0.4	75.1	1	
Dig/Lay/Backfill 20-inch Pump Station to Pretreat					
Excavator	80.7	0.4	76.7	1	79.0
Loader	79.1	0.4	75.1	1	
Install Pump Station Mechanical					
Forklift	79.1	0.4	75.1	1	75.1
Install Pump Station Electrical					
Forklift	79.1	0.4	75.1	1	75.1
Bypass/Demo Trunk Line in Diversion Structure					
Generator	80.6	0.5	77.6	1	84.7
Sump pump	80.9	0.5	77.9	1	
Air Compressor	77.7	0.4	73.7	1	
Pneumatic breaker	88.9	0.2	80.9	1	

Source: FHWA 2008 and Appendix D.
Note:
All noise levels are reported at a reference distance of 50 feet.

dBA = A-weighted decibels; FRP = fiber-reinforced polymer; L_{eq} = equivalent continuous sound level.

To analyze noise levels at each of the nearest noise-sensitive receptors (i.e., homes), the reference noise levels were adjusted to account for the distance between each home and to the proposed construction area. Figure 2-1 provides a map of the nearest noise-sensitive receptors considered in the analysis. To reflect the mobile nature of many construction noise sources, and the distribution of equipment across the project site, source-to-receptor distances used in the analysis were the acoustical average distances between the project site and each receptor.[7] Noise levels also were adjusted to account for excess attenuation provided by intervening buildings and walls. At least one receiver (i.e., the closest home) was analyzed for each project site. Additional receivers were analyzed as necessary to represent multiple homes near a single project site (i.e., near MGL-4 and MGL-7). The results of these calculations are provided in Appendix D and summarized in Table 2-17. Noise levels at the sensitive receptors are compared to the LAMC stationary noise standard of 75 dBA L_{eq} to determine if temporary construction noise would result in an impact.

Table 2-17. Estimated Construction Noise Levels and Ambient Noise Increases at Nearest Receivers

Project Site	Sensitive Receptor ID	Estimated Construction Noise Levels, Hourly L_{eq}, dBA	Local Daytime Average Noise Levels, Hourly L_{eq}, dBA[a]	Estimated Ambient + Construction Noise Levels, Hourly L_{eq}, dBA	Noise Increase due to Construction	Complies with LAMC 75 dBA at Receiver?
MGL-1	SFR 1	54.2–63.8	57.3	59.0–64.7	1.7–7.4	Yes
MGL-2	SFR 2	49.0–58.7	57.3	57.9–61.0	0.6–3.8	Yes
MGL-3	SFR 3	44.6–54.2	57.3	57.5–59.0	0.2–1.7	Yes
MGL-4	MFR 1	55.3–65.0	53.7	57.6–65.3	3.9–11.6	Yes
MGL-4	MFR 2	54.3–64.0	53.7	57.0–64.3	3.3–10.6	Yes
MGL-4	SFR 4	53.6–63.3	53.7	56.7–63.7	3.0–10.0	Yes
MGL-4	SFR 5	52.4–62.1	53.7	56.1–62.7	2.4–9.0	Yes
MGL-5	SFR 6	65.2–74.9	53.7	65.5–74.9	11.8–21.2	Yes
MGL-6	MRF 3	65.4–75.0	64.0	67.8–75.4	3.8–11.4	Yes
MGL-7	SFR 7	63.1–72.7	54.9	63.7–72.8	8.7–17.8	Yes
MGL-7	SFR 8	58.4–68.0	54.9	60.0–68.2	5.0–13.3	Yes

Source: Appendix D
[a] Ambient noise levels obtained from Cross-Spectrum Acoustics (2018).
dBA = A-weighted decibels; LAMC = Los Angeles Municipal Code; L_{eq} = equivalent continuous sound level; MFR = Multi-family residence; MGL = Metro Green Line; SFR = Single-family residence.

[7] The acoustical average distance is used to represent noise sources that are mobile or distributed over an area (such as the analyzed project site); it is calculated by multiplying the shortest distance between the receptor and project site boundary by the farthest distance, and then taking the square root of the product.

Estimated noise levels range from 45 to 75 dBA, depending on the receptor and construction phase. Ambient noise increases would range from 0 to 21 decibels. Although many of the predicted noise increases would be clearly audible at the nearby homes, the resulting noise levels all would comply with the LAMC noise limit of 75 dBA. In addition, construction noise would be temporary and cease entirely when project construction is complete. The impact of construction noise would be less than significant.

This page was intentionally left blank.

Figure 2-1. Map of Analyzed Noise-Sensitive Receptor Locations

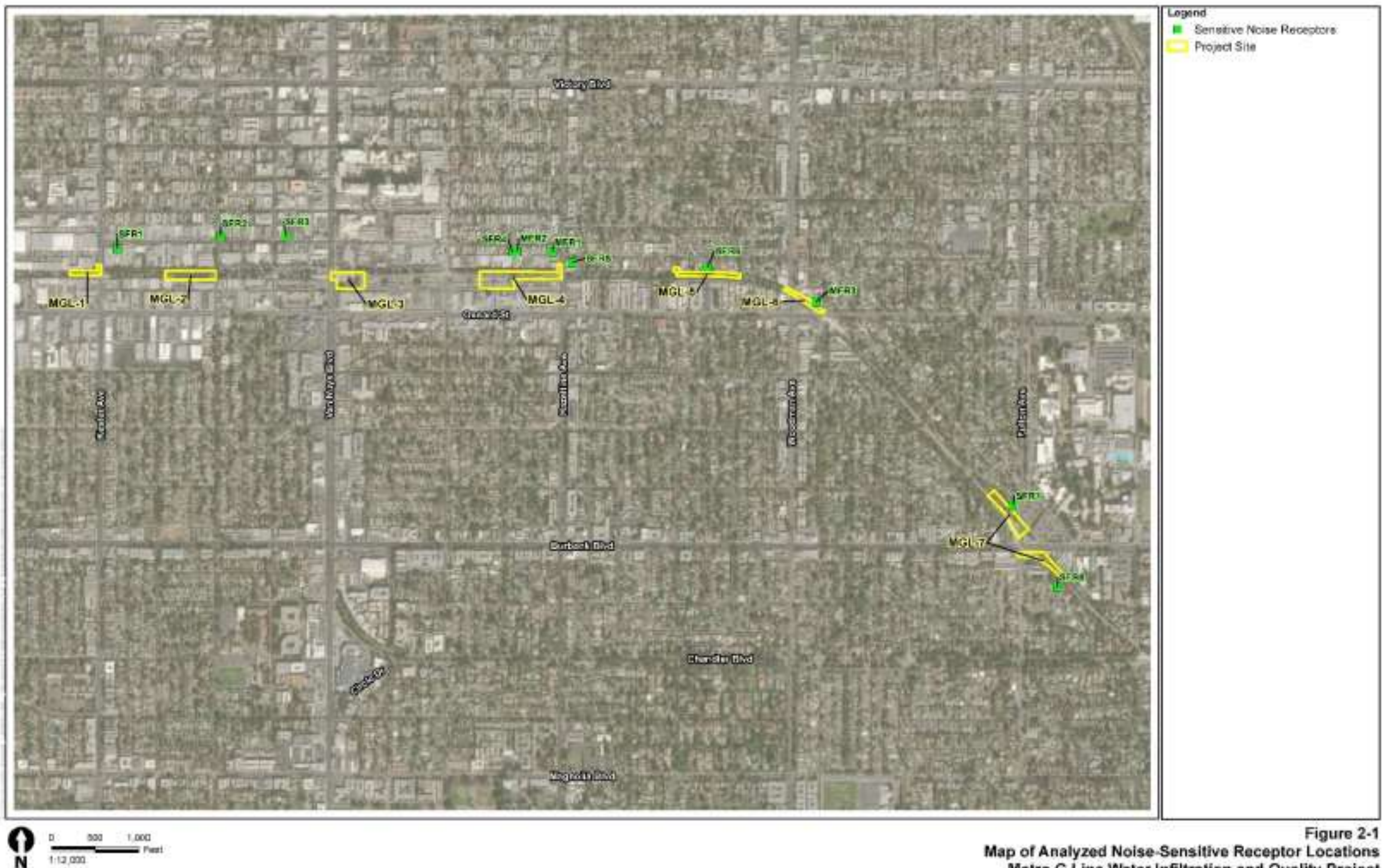


Figure 2-1
Map of Analyzed Noise-Sensitive Receptor Locations
Metro G Line Water Infiltration and Quality Project

This page was intentionally left blank.

Operational Noise

Once operational, most of the proposed Project would be passive in nature, with water runoff flowing into the system under gravity and leaving the system through via infiltration at the dry wells. The only noise-generating equipment proposed as part of the proposed Project would be the pumps within the pump station. Noise from these pumps would not be substantial and would likely be inaudible at noise-sensitive receptors for the following reasons:

- The pump stations proposed as part of the proposed Project would be subterranean concrete structures that would be effective at containing noise.
- The access openings to the pump stations would be covered by heavy, metal access hatches (preliminary plans indicate 300-pounds-per-square-foot aluminum hatches, which would typically consist of0.25-inch-thick aluminum panels weighing more than 3 pounds per square foot). These hatches would remain closed, except for occasional maintenance and repairs, and would serve to minimize noise propagating out of the access openings.
- The pumps would be submersible pumps located at the bottom of the pump station. The pumps would only operate when submerged under water. Because air and water are two media with very different acoustical properties (i.e., there is a substantial acoustical impedance mismatch between the two) noise transfer from the water to the air above would be very limited.

Therefore, operational noise levels would be less than significant.

b) Generate excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact with Mitigation Incorporated.

Operation of the proposed Project would not introduce substantial vibration sources to the project vicinity. However, the use of heavy equipment during proposed project construction would generate groundborne vibration. No quantitative federal, state, or local vibration standards directly apply to the proposed Project. Therefore, it is necessary to reference other relevant guidelines to develop thresholds of impact for groundborne vibration. The Federal Transit Administration (FTA) provides useful criteria for groundborne vibration in its widely referenced *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018). The manual provides guidance for two types of potential vibration impacts: (1) damage to buildings; and (2) annoyance to people. Guideline criteria for each are provided in Table 2-18 and Table 2-19. The criteria for building damage are specified in terms of peak particle velocity (PPV) measured in inches per second (in/s). Because building damage would be considered a permanent negative effect at any building, regardless of land use, any type of building would typically be considered sensitive to this type of impact. Fragile structures, which often include historic buildings, are most susceptible to damage and are of particular concern. The criteria for human annoyance are specified in terms of the vibration velocity level (L_V), measured in vibration decibels (VdB). Human annoyance effects from groundborne vibration are typically only considered inside occupied buildings and not at outside areas such as residential yards, parks, or open space.

Buildings that would be considered sensitive to human annoyance caused by vibration are generally the same as those that would be sensitive to noise, such as residences, hotels/motels, schools, day care, hospitals, convalescent facilities, libraries, churches, or museums.

Table 2-18. FTA Construction Vibration Damage Criteria

Building/ Structural Category	Maximum PPV (in/s)
I. Reinforced-concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2018.
FTA = Federal Transportation Administration; in/s = inches per second; PPV = peak particle velocity.

Table 2-19. FTA Indoor Groundborne Vibration Impact Criteria

Land Use Category	Groundborne Vibration, L_v (VdB)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations	65	65	65
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime use	75	78	83

Source: FTA 2018.
Notes:
[1] Frequent events = more than 70 events per day.
[2] Occasional events = 30–70 events per day.
[3] Infrequent events = fewer than 30 events per day.
FTA = Federal Transportation Administration; L_v = vibration velocity level; VdB = vibration decibels.

FTA’s thresholds were developed primarily to assess impacts from trains passing sensitive receptors during operations on rail lines. Those events are typically permanent/long term impacts that would occur daily at the same location. Because construction is a temporary vibration source and worst-case vibration levels would only occur when construction is closest to a specific receiver, it considered appropriate to use the “infrequent events” thresholds to assess groundborne vibration from project construction.

In addition to providing useful thresholds, FTA’s *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018 also provides typical vibration source levels for various types of construction equipment, as well as methods for estimating the propagation of groundborne vibration over distance. Vibration inducing equipment proposed by the Project Applicant may include a double drum roller, large earthmoving equipment (i.e., excavators and loader), a drill rig, a jackhammer, and small earthmoving equipment (i.e., a skid steer). Table 2-20 provides the PPV levels of the anticipated construction equipment; the levels are provided for a reference distance of 25 feet.

Table 2-20. Construction Equipment Vibration Levels

Equipment Item	Reference PPV at 25 feet, in/s
Vibratory roller	0.210
Large bulldozer[1]	0.089
Drilling[2]	0.089
Jackhammer	0.035
Small bulldozer[3]	0.003

Source: Caltrans 2020.
[1] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.
[2] Based on data for caisson drilling.
[3] Considered representative of smaller equipment such as small skid steers and mini excavators.
in/s = inches per second; PPV = peak particle velocity.

Vibration-Related Damage

The buildings adjacent to the seven project sites are a mixture of older residential structures, new residential structures, and modern commercial/industrial buildings (the cultural resources analysis for the proposed Project did not identify any historical buildings near the proposed construction areas). Using FTA's source vibration levels and methodology, the maximum distances at which potential vibration damage impacts might occur at the relevant nearby building categories were calculated for the range of anticipated construction equipment. Because the potential for building damage is assessed based on the instantaneous PPV, the identified distances refer to the closest distances between the construction equipment and the potentially affected structure (not the average distance). The analyses are provided in Appendix D, and the results are summarized in Table 2-21.

Table 2-21. Impact Distances for Potential Vibration Damage from Project Construction

Equipment Item	Building Category	Vibration Damage Impact Criteria, PPV[1]	Distance to Impact Criteria
Vibratory Roller	Reinforced-concrete, steel, or timber (no plaster)	0.5	15
	Engineered concrete and masonry (no plaster)	0.3	20
	Non-engineered timber and masonry buildings	0.2	26
Large Bulldozer[1]	Reinforced-concrete, steel, or timber (no plaster)	0.5	8
	Engineered concrete and masonry (no plaster)	0.3	12
	Non-engineered timber and masonry buildings	0.2	15
Drilling[2]	Reinforced-concrete, steel, or timber (no plaster)	0.5	8
	Engineered concrete and masonry (no plaster)	0.3	12
	Non-engineered timber and masonry buildings	0.2	15
Jackhammer	Reinforced-concrete, steel, or timber (no plaster)	0.5	5
	Engineered concrete and masonry (no plaster)	0.3	6

Equipment Item	Building Category	Vibration Damage Impact Criteria, PPV[1]	Distance to Impact Criteria
	Non-engineered timber and masonry buildings	0.2	8
Small Bulldozer[3]	Reinforced-concrete, steel, or timber (no plaster)	0.5	1
	Engineered concrete and masonry (no plaster)	0.3	2
	Non-engineered timber and masonry buildings	0.2	2

Source: FTA 2018 and Appendix D.
[1] Considered representative of other heavy earthmoving equipment, such as excavators, graders, and/or backhoes.
[2] Based on data for caisson drilling.
[3] Considered representative of smaller equipment such as small skid steers and mini excavators.
PPV = peak particle velocity.

The precise locations where each type of construction equipment would operate is currently unknown. However, because several of the project sites are immediately adjacent to existing buildings, it is possible that construction equipment could work within the potential impact distances for those buildings. As a result, there would be potentially significant vibration-damage impacts at these adjacent buildings, and **Mitigation Measure NOI-1** is required to avoid potential damage caused by groundborne vibration from project construction.

Vibration-Related Annoyance

Using FTA's source vibration levels and methodology, the maximum distances at which different vibration annoyance criteria would be exceeded were calculated for the range of anticipated construction equipment. Because the closest sensitive receptors are residences, the analysis consider the criteria for FTA Land Use Category 2 (residences and buildings where people normally sleep). Because the potential for annoyance from groundborne vibration is assessed based on the maximum L_v, the identified distances refer to the closest distances (not the average distances) between the construction equipment and the sensitive (residential) buildings. The analyses are provided in Appendix D, and the results are summarized in Table 2-22.

Table 2-22. Distances to Groundborne Vibration Annoyance Criteria from Project Construction

Equipment Item	Distance to Annoyance Criterion (80 VdB),[1] feet
Vibratory Roller	73
Large Bulldozer[2]	43
Drilling[3]	43
Jackhammer	40
Small Bulldozer[4]	5

Source: FTA 2018 and Appendix D.
[1] Criteria based on infrequent events at Land Use Category 2 (residences and buildings where people normally sleep).
[2] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.
[3] Based on data for caisson drilling.
[4] Considered representative of smaller equipment such as small skid steers and mini excavators.
VdB = vibration velocity.

Many of the closest sensitive land uses, including all homes in the vicinity of MGL-1 through MGl-4, would be more than 73 feet away from the proposed project sites and, as a result, would not experience groundborne vibration levels in excess of the established criterion (80 VdB). However, the homes closest to MGL-5, MGL-6, and MGL-7 would be within 73 feet of the project site boundary and, depending on the exact location of construction equipment within the site, could be exposed to groundborne vibration levels in excess of the established criterion. Although such vibration would likely generate short-term annoyance, the mobile nature of the construction equipment and the large size of the project site would limit the duration of activity close to any individual receptor. Vibration levels would reduce rapidly as work moves away from the receptor. In addition, based on the proposed daytime construction schedule for the proposed Project, groundborne vibration would not occur during the nighttime hours, when people are typically most sensitive to disturbance and annoyance from vibration (because they are trying to relax and sleep). Nonetheless, **Mitigation Measure NOI-1** is required to avoid and minimize potential annoyance to nearby residents.

Mitigation Measure

NOI-1. Develop and implement a vibration control plan.

Develop and implement a vibration control plan to eliminate excessive vibration at nearby buildings and occupied homes, in advance of project construction activities. The vibration control plan may be tailored based on the final design of the proposed Project, but may include measures such as:

- Conducting preconstruction monitoring to establish ambient vibration levels
- Minimizing the use or impact devices and selecting construction techniques and equipment that generate lower vibration levels
- Maximizing the distances between vibration-generating equipment and nearby buildings and sensitive receptors
- Maintaining smooth surfaces for construction equipment and vehicle travel (e.g., truck routes) to minimize vibration
- Grading surface irregularities on worksites to prevent the generation of ground vibration by passing vehicles
- Developing a vibration monitoring plan for use during project construction, including monitoring procedures and monitoring equipment specifications
- Developing and implementing vibration-reporting requirements
- Developing and implementing construction personnel training requirements
- Identifying the roles, responsibilities, and required qualifications for personnel overseeing and implementing the vibration control plan/specifications
- Placing limits on work schedules and permissible construction hours

- Developing and implementing procedures for public outreach and handling of complaints from residents, business owners, and members of the public

Implementation of **Mitigation Measure NOI-1** would reduce potential building damage and annoyance impacts from groundborne vibration to less than significant.

c) Be 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 and expose people residing or working in the project area to excessive noise levels?

No Impact.

The proposed Project is not within an airport land use plan. The project site is within 2 miles of the Van Nuys Airport (approximately 1.8 miles to the northwest), however, according to the Los Angeles County ALUC Van Nuys Airport Influence Area map (County of Los Angeles ALUC 2003), the project site does not overlap with the Van Nuys Airport's planning boundary, airport influence area, or any runway-protection zones. The next closest airport is the Hollywood Burbank Airport, approximately 3.2 miles to the northeast. Furthermore, the proposed Project would not create any new noise-sensitive land uses, introduce any new aircraft noise sources to the study area, nor cause changes to flight operations at existing airstrips or airports in the region. There would be no impact.

2.13.2 References Cited

Cross-Spectrum Acoustics. 2018. *Metro Orange Line BRT Improvements Project, Technical Noise and Vibration Report*. September 28. East Longmeadow, MA.

County of Los Angeles Airport Land Use Commission (ALUC). 2003. Van Nuys Airport – Airport Influence Area. Available: planning.lacounty.gov/assets/upl/project/aluc_airport-van-nuys.pdf. Accessed: February 4, 2022.

Federal Highway Administration (FHWA). 2008. FHWA Roadway Construction Noise Model (RCNM), Software Version 1.1. December 8. Prepared by: U.S. Department of Transportation, Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center, Environmental Measurement and Modeling Division.

Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual*. Final. FTA Report No. 0123. September. Washington, DC. Prepared by Volpe National Transportation Systems Center. Cambridge, MA.

2.14 Population and Housing

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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 (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

2.14.1 Discussion

a) Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?

No Impact.

The proposed Project consists of a network of underground pretreatment and infiltration facilities across seven stormwater BMP clusters within Metro-owned properties in the City of Los Angeles and the ULAR Watershed in the County of Los Angeles. The proposed Project would not directly induce population growth because the proposed Project would not include the addition of any growth-inducing infrastructure, such as new homes and businesses. Therefore, this proposed Project would not indirectly support new population or economic expansion. Metro has identified opportunities to increase stormwater capture in Los Angeles as part of its effort to recharge stormwater into the San Fernando Groundwater Basin, improve surface water quality at downstream receiving waters (Los Angeles River), and reduce the risk of localized flooding by mitigating peak flow rates. The proposed Project would not result in any substantial change to the existing land use pattern or trigger growth in the area. Therefore, there would be no impact.

b) Displace a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact.

The proposed Project would not displace any housing units or people, nor necessitate the construction of replacement housing elsewhere. Therefore, no impact would occur.

This page was intentionally left blank.

2.15 Public Services

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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 or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
a.1 Fire protection?	☐	☐	☐	☒
a.2 Police protection?	☐	☐	☐	☒
a.3 Schools?	☐	☐	☐	☒
a.4 Parks?	☐	☐	☐	☒
a.5 Other public facilities?	☐	☐	☐	☒

2.15.1 Discussion

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

a.1 Fire protection?

No Impact.

The proposed Project would be entirely within the City of Los Angeles. The Los Angeles Fire Department (LAFD) provides fire-protection services to the City of Los Angeles (City of Los Angeles 2010). The proposed Project would not include new homes or businesses that would require additional services or extended response times for fire-protection services. The proposed project sites are currently served by LAFD and would not substantially alter the existing fire service demands once construction is completed. LAFD would not be required to expand or construct new fire station locations to serve the project area. Therefore, no impact would occur.

a.2 Police protection?

No Impact.

Police services to the proposed project sites are provided by the Los Angeles Police Department, which serves the City of Los Angeles (City of Los Angeles 2022). Construction activities would be short-term, and operation and maintenance would be performed by Metro employees or contractors. The proposed Project would not include new housing or businesses that would require any additional police protection services. Therefore, police protection needs would not increase, and the Los Angeles Police Department would not be required to expand or construct new police stations to serve the proposed project area. No impacts would occur.

a.3 Schools?

No Impact.

The proposed Project would not change existing demand for school services because the proposed Project would not result in an increase in population. Therefore, the proposed Project would have no impact related to school services.

a.4 Parks?

No Impact.

As discussed in Section 2.16, *Recreation*, no residential uses or other land uses typically associated with directly inducing population growth are included as a part of the proposed Project. An increase in patronage at park facilities is not expected. Therefore, no impacts associated with the construction or expansion of part facilities would occur.

a.5 Other public facilities?

No Impact.

The proposed Project would not include new housing or businesses that would require any additional services or public facilities. Therefore, the proposed Program would have no impact related to other public facilities.

2.15.2 References Cited

City of Los Angeles. 2010. Los Angeles Fire Department. Available: www.lafd.org. Accessed: March 2022.

City of Los Angeles. 2022. Los Angeles Police Department. Available: www.lapdonline.org. Accessed: March 2022.

2.16 Recreation

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVI. RECREATION – Would the project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

2.16.1 Discussion

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

Less-than-Significant Impact.

Construction of the proposed Project would temporarily dimmish access to the G Line Busway Bike Path. The proposed Project would cross over the bike path and require a temporary construction easement. The bicycle path would be protected in place during construction and closed intermittently to support project construction. Detours would be provided so that access would be maintained around the construction area, and intermittent closures to the bicycle path would be a temporary disruption. However, the proposed Project could diminish access to the G Line Busway Bike Path as a result of temporary construction activities. The diminished access could prevent the use of this resource during construction. However, prior to construction (i.e., any ground-disturbing activity affecting trails), the contractor would prepare Worksite Traffic Controls Plans, Traffic Circulation Plans, and Temporary Traffic Signal Plans for approval by local authorities. The plans would also include traffic land requirements for acceptance by Metro and the local jurisdictions. Construction flaggers would be used to protect vehicular and pedestrian traffic. Pedestrian traffic would be protected on streets and sidewalks, including the bike path, in areas adjacent to the worksite affected by construction. The contractor would restrict construction vehicle traffic to accepted haul routes and travel times, ensure unimpeded access to buildings adjacent to the work areas, and ensure compliance with traffic-lane requirements. Temporary pedestrian walkways and detours would be provided, in addition to maps that could be used in conjunction with the approved Traffic Management Plan to assist the public in readily identifying and understanding approved detours. As a result, with the preparation of site-specific plans for pedestrian access as part of the proposed Project, including access to the bike path, impacts would be less than significant.

b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No Impact.

The proposed Project would not include recreational facilities or new residential development that would require construction or expansion of recreational facilities. Therefore, no new or expanded recreational facilities would be constricted, and no impact would occur. No mitigation is required.

2.17 Transportation

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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 State CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
c. Substantially increase hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d. Result in inadequate emergency access?	☐	☐	☒	☐

2.17.1 Discussion

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

Less-than-Significant Impact.

There is the potential for roadway closures and detours during project construction, which would result in decreased roadway capacity and increased congestion. However, as part of the proposed Project's general requirements, the contractor would prepare drawings that would include Worksite Traffic Controls Plans, Traffic Circulation Plans, and Temporary Traffic Signal Plans for approval by the local Authorities Having Jurisdiction. The plans would also include Traffic Lane Requirements for approval by Metro and the local jurisdiction. The contractor would also: furnish flaggers; protect vehicular and pedestrian traffic on streets and sidewalks adjacent to areas affected by construction; restrict construction vehicle traffic to accepted haul routes and travel times; ensure unimpeded access to buildings adjacent to construction activities; and ensure compliance with Traffic Lane Requirements accepted by Metro or the local Authorities Having Jurisdiction. Therefore, with the project requirements in place, any impacts on the circulation system would be temporary and less than significant.

As stated in Section 2.16, *Recreation*, construction of the proposed Project would temporarily diminish access to the G Line Busway Bike Path. The bicycle path would be protected in place during construction and closed intermittently to support project construction. Detours would be provided so that access would be maintained around the construction area, and intermittent closures to the bicycle path would be a temporary disruption. However, as part of the proposed Project, site-specific plans would be developed; as a result, the impact to recreational facilities would be less than significant.

b) Conflict or be inconsistent with State CEQA Guidelines section 15064.3, subdivision (b)?

No Impact.

Operation of the proposed Project would not change any traffic or circulation patterns or increase capacity resulting in an increase in VMT. Therefore, no operational impacts would result that would be inconsistent with CEQA Guidelines Section 15064.3(b). The proposed Project would have no impact on the existing local circulation patterns.

c) Substantially increase hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact.

This proposed Project does not include any geometric design features that would be deemed hazardous and would follow California Department of Transportation guidelines for construction and design.

d) Result in inadequate emergency access?

Less-than-Significant Impact.

The majority of construction associated with the proposed Project would occur within Metro-owned ROW and would not include any characteristics (e.g., permanent road closures, long-term blocking of road access) that would physically impair or otherwise interfere with emergency response or evacuation in the proposed Project's vicinity. If lane closures are required, they would be performed on a temporary basis. All large construction vehicles entering and exiting the site would be guided by the use of personnel using signs and flags to direct traffic. In addition, construction activities would comply with any applicable General Plan, Hazard Mitigation Plan, Response Plan, EOP, and fire department or police department emergency response requirements by providing adequate emergency access, minimizing temporary impacts on local evacuation routes, and not permanently affecting major arterials surrounding the proposed Project.

Compliance with such existing standard industry practices as traffic control, signage, and adherence to county and local agency criteria (as necessary) would provide adequate emergency access during the proposed Project. Impacts would be less than significant.

2.18 Tribal Cultural Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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.	☐	☒	☐	☐

2.18.1 Discussion

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)

Less-than-Significant Impact with Mitigation Incorporated.

AB 52, through its implementing regulations, requires that lead agencies consult with California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed Project and who have requested in writing to be informed by the lead agency of proposed Projects in the tribe's geographic area (PRC § 21080.3.1[b] and [d]).

An Sacred Lands File search conducted by the NAHC on January 27, 2022, indicated that Native American cultural resources are known to be located within the general project vicinity. The letter did not provide details on the resources identified, but recommended that the Fernandeño Tataviam Band of Mission Indians (FTBMI) be consulted regarding the resource.

On February 1, 2022, Metro sent notification of the proposed Project to California Native American tribal representatives identified by the NAHC as being traditionally or culturally affiliated with the geographic area. The letters were sent to 10 tribes and notified the tribes of the proposed Project, provided a description of the proposed Project and location information, assured the tribe of Metro's commitment to confidentiality under PRC Section 21082.3(c), provided Metro's contact information, and invited the tribes to respond within 30 days with their interest in AB 52 consultation. Metro sent follow up emails to the tribes on both February 15 and

16, 2022, as requested by the NAHC. Metro received responses to the AB 52 notification letters from two groups, including the Tribal Historic Preservation Officer from the FTBMI and the Chairman of the Gabrieleño Band of Mission Indians – Kizh Nation (Kizh Nation). The results of the AB 52 consultation are summarized in the following paragraphs.

Fernandeño Tataviam Band of Mission Indians

On February 1, 2022, Jairo Avila, the Tribal Historic and Cultural Preservation Officer for FTBMI, responded to Metro's notification letter via email. Mr. Avila requested formal consultation regarding the proposed Project pursuant to AB 52. Mr. Avila also requested copies of the cultural resources assessment report prepared for the proposed Project, as well as any excavation, grading plans, or geotechnical data. On February 7, 2022, Metro responded to Mr. Avila via email accepting his request for AB 52 consultation and asking to schedule a date and time for the consultation. Additionally, on February 7, 2022, Metro sent electronic copies of the requested geotechnical reports from overlapping project areas, current project conceptual design plans and renderings, and a draft project construction narrative to Mr. Jairo Avila. Mr. Jairo Avila responded via email on February 8, 2022, thanking Metro for the provided electronic data and stating that FTBMI would meet internally about available meeting dates. Metro sent an email on February 15, 2022, inquiring about potential meeting dates, and Mr. Jairo Avila responded with available dates and times for a consultation meeting. Metro responded via email on February 16, 2022, selecting the February 22, 2022, date for the meeting. On February 22, 2022, Metro met with Mr. Avila via telephone to discuss the proposed Project and cultural resources investigation results, which included the archaeological sensitivity analysis and proposed mitigation measures, Mr. Avila asked to review the cultural resources technical memorandum when completed, and Metro agreed to provide the draft report for review when Metro had completed review. Mr. Avila indicated that the project study area vicinity was sensitive for tribal resources due to the proximity to the Los Angeles River, El Camino Real (US-101), and the washes to the east of the proposed Project. Mr. Jairo asked for inclusion of tribal background information in the report, and Metro agreed to review and include it if the tribe identified publicly available information to share and sent it to Metro. Mr. Jairo asked for the tribe to be included on any decision concerning artifacts discovered during construction and decisions concerning final disposition. No tribal cultural resources were identified in the project study area as a result of the consultation. Metro provided draft meeting notes and the cultural resources technical memorandum for review and comment to the tribe on April 29, 2022. Metro followed up by email on May 10, 2022, to remind the tribe about the comment response date of May 13, 2022. FTBMI replied via email on May 17, 2022, indicating that the tribe had reviewed the technical memo and had concerns. FTBI requested to schedule an additional consultation meeting to discuss the report and mitigation measures. In addition, FTBMI requested to keep AB 52 consultation open until all concerns were addressed, Metro responded to FTBMI on May 18, 2022, with available meeting dates and times and FTBMI responded on May 20, 2022, agreeing to conduct the additional consultation meeting on May 25, 2022. The additional consultation meeting was conducted on May 25, 2022, and FTBMI discussed their concerns with the technical memorandum and proposed mitigation measures. Metro stated that they would provide meeting notes to the tribe when compiled. As a result of the meeting, FTBMI agreed to provide revised mitigation measure text to Metro for review and inclusion in the technical memorandum and the environmental documents. Metro followed up with an email reminding FTBMI about revisions to mitigation measure text on June 1, 2022. FTBMI responded on June 6, 2022, with text revisions for the proposed mitigation measure. Metro responded via email on June 6, 2022, thanking the tribe for providing the proposed revisions. FTBMI agreed that AB 52 consultation could be concluded after Metro made the mitigation measure revisions.

The Gabrieleno Band of Mission Indians – Kizh Nation

The Kizh Nation responded to Metro on February 18, 2022, requesting consultation under AB 52. A meeting to be held via telephone and video was scheduled with the Kizh Nation for March 17, 2022. Metro conducted the AB 52 consultation conference call with Chairman Salas and Matt Teutimez of the Kizh Nation. Chairman Salas and Mr. Teutimez identified tribal concerns over the proposed Project and the subsurface and surface sensitivity of the project study area. Tribal areas of concern were mentioned as being in close proximity to the proposed Project, and the presence of tribal trails and travel corridors were discussed. The Kizh Nation discussed the importance of the project study area and vicinity to the tribe and its cultural history. The potential for the presence of tribal cultural resources was discussed during the call, but specific spatial or descriptive elements of the resource were not discussed. Chairman Salas emailed background and reference materials to Metro during the consultation call. Meeting notes were recorded and were provided to the Kizh Nation, along with the draft cultural resources technical memorandum for review and comment on April 29, 2022. The Kizh Nation sent a letter on May 4, 2022, outlining the tribe’s comments on the technical memorandum and preferred mitigation measure revisions. Metro sent a response letter on May 18, 2022, which provided background for slight modifications to the proposed mitigation measures. The tribe sent another letter on May 24, 2022, reiterating the same mitigation measure revisions proposed in the May 4, 2022, letter. Metro responded to the letter and reiterated that Metro thanks them for their participation and that Metro had responded to the concerns through additional modifications to the proposed mitigation measures. AB 52 consultation with both tribes was considered concluded after Metro reviewed and revised the mitigation measures based on Tribal input.

The Sacred Lands File and tribal list provided by the NAHC and a summary of AB 52 Consultation outreach and nonconfidential meeting information to date is provided in Appendix A, *Cultural Resources Report*.

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.

Less-than-Significant Impact with Mitigation Incorporated.

There is increased potential for the presence of tribal cultural resources in the project study area as a result of the consultation with the Kizh Nation and FTBMI. The proposed Project has the potential to affect potential tribal cultural resources as identified through consultation. AB 52 consultation is concluded. Consultation is ongoing, and Metro would consult with the tribes on the existing mitigation measures and make revisions, as appropriate. The implementation of the draft **Mitigation Measures CR-1** through **CR-3** and TCR-1 would reduce the potential for any impacts on tribal cultural resources to less than significant.

CR-1, CR-2 and CR-3 provided under Section 2.5, *Cultural Resources*.

TCR-1: Metro will, in good faith, consult with the Consulting Tribes on the disposition and treatment of any artifacts or other cultural materials if encountered during the proposed Project.

2.19 Utilities and Service Systems

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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, 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 that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

2.19.1 Discussion

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

Less-than-Significant Impact.

The proposed Project is a stormwater-collection project involving a network of underground pretreatment and infiltration facilities across seven stormwater BMP clusters within Metro-owned properties in through the City of Los Angeles and the ULAR Watershed, in the County of Los Angeles. As stated in Section 2.10, *Hydrology and Water Quality*, the proposed Project aims to increase stormwater capture in Los Angeles as part of its effort to recharge stormwater into the San Fernando Groundwater Basin, improve surface water quality at downstream receiving water (Los Angeles River), and reduce the risk of localized flooding by mitigating peak flow rates. The proposed Project would require some water for construction-related services, such as dust control, which would be provided by imported water trucks. Furthermore, any wastewater generated during construction of the proposed Project would be minimal, consisting of portable toilet waste generated by construction workers. This wastewater generated during construction would be collected within portable toilet facilities, and then properly diverted or transferred by a permitted portable-toilet waste hauler and appropriately disposed of at an identified liquid-disposal station. As required by state and local laws, Metro would be required to identify existing underground utilities with the potential to be affected or that need to be relocated due to implementation of the proposed Project prior to the start of construction. Therefore, through implementation of state and local laws and proper disposal of wastewater generated during construction, impacts would be considered less than significant.

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

Less-than-Significant Impact.

The proposed Project is a stormwater-collection project being implemented to help capture surface flow and divert stormwater runoff from existing regional storm drains and surface flows to a network of underground pretreatment and infiltration facilities to recharge stormwater into the San Fernando Groundwater Basin. Even though the proposed Project would require minimal amounts of water during construction activities, such as concrete mixing, dust control, and sanitary purposes, there would be a net-positive impact on water supplies by the proposed Project, increasing water supplies from recharged stormwater. Therefore, because there would be a net-positive impact on water supplies, impacts would be considered less than significant.

c) Result in a determination by the wastewater treatment provider that 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?

Less-than-Significant Impact.

As stated above, the proposed Project's construction operations would generate minimal wastewater, which would be collected by a permitted portable-toilet waste hauler and appropriately disposed of at an identified liquid-disposal station. The proposed Project would involve construction of a network of infiltration drywells to further capture, pretreat, and infiltrate stormwater runoff and would not require wastewater treatment. Therefore, the proposed Project would not affect the wastewater treatment provider's capacity, and impacts would be considered less than significant.

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?

Less-than-Significant Impact.

The waste generated during construction of the proposed Project primarily would consist of soil disposal, as well as general construction debris and worker personal waste. The construction contractor would be required to dispose of solid waste in accordance with local solid-waste disposal requirements. In compliance with project General Requirements Section 01 74 19, Waste Management and Disposal, the proposed Project would be required to develop and submit a Construction Waste Management Plan for diverting and implementing procedures to maximize the diversion of demolition and construction waste from landfill disposal. The submitted Construction Waste Management Plan would include calculations on end-of-project recycling rates, salvage rates, and landfill rates, itemized by waste material, demonstrating that a minimum of 75 percent of construction wastes were recycled or salvaged and diverted from landfill. The remaining construction solid waste would be taken to a nearby landfill to the proposed project site area to be determined by the construction contractor. The closest municipal solid waste landfill to the proposed project area would be the City of Burbank Landfill Site No. 3, in the city of Burbank, approximately 7 miles east of the proposed project area. Burbank Landfill Site No. 3 has a permitted throughput of 240 tons per day and a remaining capacity of 5.1 tons (CalRecycle 2020). The site accepts all forms of waste, such as mixed-municipal, construction/demolition, industrial, and inert waste. The landfill's cease-operations date is anticipated to be January 2053, and it would have sufficient capacity to accommodate the proposed Project's disposal needs. Therefore, the proposed Project's impact on solid-waste capacity of local infrastructure or solid-waste reduction goals would be considered less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less-than-Significant Impact.

The proposed Project would comply with all federal, state, and local construction requirements during construction of underground pretreatment and infiltration facilities. The proposed Project would be required to comply with project General Requirements Section 01 74 19, Waste Management and Disposal, including procedural requirements for salvaging, recycling, and disposing of non-hazardous demolition and construction waste. Under Section 01 74 19, Waste Management and Disposal, the proposed Project would maintain records to document the quantity of waste generated, maintain lists of each material and quantity to be salvaged, recycled, and reused, and provide all necessary containers, bins, and storage areas to facilitate effective waste management (Environmental Protection Agency 2007). Overall, operations of the proposed Project would not generate solid waste. Any impacts related to potential noncompliance with solid-waste reduction statutes and regulations are less than significant.

2.19.2 References Cited

California Department of Resources Recycling and Recovery (CalRecycle). 2020. Solid Waste Information Management System (SWIS) Facility/Site Summary Detail: Burbank Landfill Site No. 3. Available: SWIS Facility/Site Summary (ca.gov) Accessed: March 2022.

Environmental Protection Agency (EPA). 2007. Construction Waste Management Section 01 74 19. Available: Construction Waste Management (epa.gov). Accessed: March 2022.

This page was intentionally left blank.

2.20 Wildfire

	Issues (and Supporting Information Sources):	Potentially Significant Impact	Less than Significant 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 of, 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 on 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?	☐	☐	☐	☒

2.20.1 Discussion

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact.

According to the City of Los Angeles's *2018 Local Hazard Mitigation Plan*, the City is susceptible to wildland fires due to hilly terrain, dry weather conditions, and the generally flammable vegetation that covers much of the terrain in hillside communities.

CAL FIRE has designated large areas of the City of Los Angeles as VHFHSZs in Local Responsibility Areas (LRA). Within LRAs, the local government is responsible for fire protection. In contrast, within designated State Responsibility Areas, the state is financially responsible for the prevention and suppression of wildfire. The project site is not within a local VHFHSZ or a state responsibility area. The nearest VHFHSZs is approximately 2 miles south of the project site.

The majority of construction associated with the proposed Project would occur within Metro-owned ROW and would not include any characteristics (e.g., permanent road closures, long-term blocking of road access) that would physically impair or otherwise interfere with emergency response or evacuation in the proposed Project's vicinity. If lane closures are required, then they would be performed on a temporary basis. In addition, construction activities would comply with any applicable General Plan, Hazard Mitigation Plan, Response Plan, EOP, and fire department or police department emergency response requirements, by providing adequate emergency access, minimizing temporary impacts on local evacuation routes, and not permanently affecting major arterials surrounding the proposed Project. Therefore, impacts would be less than significant.

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

Less-than-Significant Impact.

The proposed Project would be within a highly urbanized area and would continue to be served by the Los Angeles Fire Department. According to the CAL FIRE, the proposed Project would be entirely within the LRA of the City of Los Angeles. Within the LRA, the proposed Project does not occur within a VHFHSZ (CAL FIRE 2011). Furthermore, the proposed project area does not include factors such as slopes, prevailing winds, or other conditions that could exacerbate wildfire risks. Additionally, during construction, all contractors would be required to comply with PRC Sections 4427, 4428, 4431, and 4442. Therefore, impacts would be less than significant.

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 on the environment?

Less-than-Significant Impact.

The proposed Project is entirely within a non-VHFHSZ and does not include the installation or maintenance of associated infrastructure that could exacerbate fire risk because it includes installation of underground stormwater infiltration facilities and would be mainly underground. Furthermore, all construction must comply with fire protection and prevention requirements specified by the California Code of Regulations and the California Division of Occupational Safety and Health. This includes various measures such as easy accessibility of firefighting equipment, proper storage of combustible liquids, no smoking in service and refueling areas, and worker training for fire extinguisher use. With adherence to applicable local and state regulations, impacts would be less than significant.

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?

No Impact.

The proposed Project is in a relatively urbanized area with minimal slope. Once construction of the proposed Project is complete, the proposed BMP project sites would be similar to existing conditions. The proposed Project would not change the drainage patterns of the surrounding area, but instead further divert stormwater runoff from existing regional storm drains and surface flows to a network of underground pretreatment and infiltration facilities. Therefore, in the event of a fire, the proposed Project would not exacerbate downslope or downstream risk of flooding or landslides, because of runoff, post-fire slope instability, or drainage changes or slope instability. As such, no impact would occur.

2.20.2 References Cited

California Department of Forestry and Fire Protection (CAL FIRE). 2011. Very High Fire Hazard Severity Zones in LRA as Recommended by CAL FIRE. Available: osfm.fire.ca.gov/media/5830/los_angeles.pdf. Accessed: December 16, 2021.

City of Los Angeles. 2018. City of Los Angeles 2018 Local Hazard Mitigation Plan. Available: 2018_LA_HMP_Final_2018-11-30.pdf (lacity.org). Accessed: December 16, 2021.

This page was intentionally left blank.

2.21 Mandatory Findings of Significance

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

2.21.1 Discussion

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

Less-than-Significant Impact with Mitigation Incorporated.

As discussed in the analysis above, potential impacts as a result of the proposed Project would be less than significant with mitigation incorporated.

Regarding biological resources, the proposed Project would occur within an existing developed area and would not affect undisturbed natural areas. The project site and surrounding area do not contain any streams or waterbodies that may be inhabited by any native resident or migratory fish species. In addition, no migratory wildlife corridors are within or adjacent to the project site. As such, the proposed Project would not interfere with the movement of fish or wildlife, nor affect wildlife corridors. The proposed Project has the potential to result in direct permanent impacts on landscape vegetation within the project area that have the potential to house nesting birds. However, implementation of **Mitigation Measure BIO-1** would result in a less-than-significant impact on nesting birds protected under the Migratory Bird Treaty Act.

Regarding cultural resources, no historical resources have been identified within the project site as defined in State CEQA Guidelines Section 15064.5. The project site has been significantly disturbed and is currently within the active MGL transportation ROW. The cultural resource study did not identify any archaeological resources in the study area; however, the archaeological sensitivity analysis results identified an increased potential for buried deposits, which could contain intact, buried archaeological resources that qualify as historical resources deposits, if present, in the study area. Should archaeological resources qualifying as historical resources be encountered during construction, the proposed Project could cause a substantial adverse change in the significance of a historical resource. Implementation of **Mitigation Measures CR-1** through **CR-3** would reduce potential impacts on unknown archaeological resources qualifying as historical resources to less than significant.

Additionally, the proposed Project includes excavation and drilling planned to extend to a maximum allowed depth of 70 feet bgs. The planned drywell depths should not extend beyond a maximum depth of 45 feet bgs, but these depths would be finalized when the project design is complete. Excavation could potentially destroy unique paleontological resources or unique geologic features if it were to extend through fill materials. Implementation of **Mitigation Measures GEO-1** through **GEO-4** would require a qualified paleontologist to develop and execute a Paleontological Resources Monitoring and Mitigation Plan and supervise a paleontological monitor, who would monitor all ground-disturbing activities deemed potentially impactful. Therefore, impacts on paleontological resources would be reduced to a less-than-significant level.

As such, the proposed Project would not result in impacts on biological resources that would have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal, nor would the proposed Project eliminate important examples of the major periods of California history or prehistory. Therefore, impacts would be less than significant with implementation of mitigation.

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

Less-than-Significant Impact.

Cumulative impacts, as opposed to project-level impacts, are impacts on the physical environment that result from the incremental effects of the proposed Project when added to other past, present, and reasonably foreseeable future projects. The proposed Project and any projects considered potentially cumulatively considerable would be consistent with applicable federal, state, and local regulations and plans, including the General Plan (City of Los Angeles 2001*)*. Potential impacts from construction would be temporary and localized within the ROW of an existing transportation facility. Due to the minor nature of the potential impacts as a result of the proposed Project, the proposed Project would not add appreciably to impacts of any cumulative projects that could result in a significant cumulative impact. Therefore, cumulatively considerable impacts would not occur as a result of the proposed Project.

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

Less-than-Significant Impact.

As demonstrated in the discussions above within this IS/MND, the proposed Project would not have any substantial adverse effects on the environment, including human beings, either directly or indirectly. Specific environmental impacts that could have a substantial adverse effect on human beings include potential construction-related impacts due to the proximity to the project site. However, construction would be short in duration. Based on the nature of the proposed Project, impacts would be intermittent and infrequent. Furthermore, there would be no cumulative impacts associated with the proposed Project. As such, the effects on human beings as a result of the proposed Project would be less than significant.

This page was intentionally left blank.

Appendix A: Cultural Resources Report

Memorandum

To:	Los Angeles County Metropolitan Transportation Authority (LACMTA)
From:	ICF Cultural Resources Team
Date:	June 9, 2022
Re:	**Cultural Resources Technical Memorandum – Los Angeles County Metropolitan Transportation Authority (Metro) G-Line (MGL) Water Infiltration and Quality Project**

Introduction

At the request of the Los Angeles County Metropolitan Transportation Authority (LACMTA), ICF conducted a cultural resources assessment for the Metro G-Line (MGL) Water Infiltration and Quality Project (Project) study area, which includes the project footprint, located in the current LACMTA right-of-way (ROW) of the existing MGL. The purpose of this report is to document the existing setting and potential impacts to historical resources (i.e., built environment and archaeological resources) that could result from project implementation under the California Environmental Quality Act (CEQA). The report also identifies recommendations to reduce the potential for impacts to unanticipated discoveries during construction.

Project Description

Project Overview

The Project would divert stormwater runoff from existing regional storm drains and the surface to a network of infiltration drywells across seven locations along the MGL. The Project would consist of pretreatment facilities that would capture, treat, and infiltrate stormwater runoff from 2,319 acres. This would result in an estimated groundwater recharge of 890 acre-feet/year. The primary objective of the Project is to achieve water supply benefits through capture and infiltration. A secondary objective is to reduce the pollutant load on the Los Angeles River and reduce the risk of potential localized flooding by attenuating peak flows.

Project Location

The Project is located within the Upper Los Angeles River (ULAR) Watershed, within the County of Los Angeles (County). The Project travels along the MGL through the San Fernando Valley area of the City of Los Angeles (City), as shown in the Project Location and Project Vicinity figures (Figures 1 and 2 in Appendix A).

Proposed Improvement and Construction

The Project aims to divert stormwater runoff from existing regional storm drains and surface flows to a network of underground pretreatment and infiltration facilities across seven stormwater Best Management Practice (BMP) clusters within LACMTA-owned properties (Table 1). The maximum diversion rates range between 10 to 32 cubic feet per second (cfs) to match the maximum capacity of each infiltration BMP cluster. The capture facility would consist in either gravity-based diversion structures or pump stations, depending on gradient. Potential pretreatment facilities include hydrodynamic separators, trash nets, underground sedimentation basins, and proprietary filtration devices. The average storage capacity of each dry well is 322 cubic feet. The infiltration rate is expected to average 0.8 cfs, per well. As proposed, the Project would disturb approximately 3 acres of ground during construction.

Table 1. Summary of Proposed Facilities

Stormwater BMP Cluster	Infiltration Facility	Location	Construction Disturbance (acres)
MGL-1: Kester Ave	Either an array of drywells or a single infiltration gallery	Underneath the MGL ROW, extending to approximately 500 feet west of Kester Ave.	0.43
MGL-2: Cedros Ave	Drywells or an infiltration gallery	Within the MGL ROW, 800 feet west of Cedros Ave	0.97
MGL-3: Van Nuys Ave	Drywells or an infiltration gallery	Underneath the existing LACMTA-owned parking lot east of Van Nuys Blvd	0.26
MGL-4: Hazeltine Ave	Drywells or an infiltration gallery	Underneath the existing LACMTA-owned parking lot west of Hazeltine Ave	0.59
MGL-5: Hazeltine Ave	Drywells or an infiltration gallery	Within the MGL ROW, extending to approximately 300 feet east of Ranchito Ave	0.25
MGL-6: Woodman Ave	Drywells or an infiltration gallery	Within the MGL ROW extending to approximately 200 feet east of Woodman Ave	0.10

Stormwater BMP Cluster	Infiltration Facility	Location	Construction Disturbance (acres)
MGL-7: Fulton Ave	Drywells or an infiltration gallery	Within the MGL ROW, extending to approximately 400 feet southeast and northwest of the Fulton Ave/G Line Busway intersection	0.44

LACMTA = Los Angeles County Metropolitan Transportation Authority; MGL = Metro G-Line; ROW = right-of-way

Operations and Maintenance

When the maximum capacity of each infiltration BMP cluster is reached, the pump station would turn off, allowing stormwater to continue flowing in the storm drain. If a hazardous material spill were to occur upstream, the pump station would be shut down to prevent diverting the spill into the infiltration BMPs.

Once operational, the pretreatment facilities and the diversion structures would be inspected four times per year, with maintenance performed twice per year, utilizing vacuum trucks. The infiltration facilities would be inspected twice per year and maintained once every 5 years.

The maintenance operation involves removing and disposing of trash and debris from drywell chambers. If sediment accumulation is greater than 15 percent of the chamber's capacity, a truck-mounted hydrovactor, which applies air and high-pressure water to dislodge built-up silt and sediment, would be used to remove the sediment. The dislodged material is suctioned through a piping system into the hydrovactor truck and disposed of offsite. Jet-rodding is used to remove obstructions or accumulated debris in remote inlets and connecting piping. The maintenance operation may involve replacement of the floating absorbent pillows and changing out the filter fabric.

Regulatory Background

State

California Environmental Quality Act

Guidelines for the implementation of CEQA define procedures, types of activities, persons, and public agencies required to comply with CEQA. Section 15064.5(b) prescribes that project effects that would "cause a substantial adverse change in the significance of an historical resource" are significant effects on the environment. Substantial adverse changes include physical changes to both the historical resource and its immediate surroundings. CEQA Guidelines Section 15064.5 provides specific guidance for determining the significance of impacts on historical resources (CEQA Guidelines § 15064.5(b)). Under CEQA, these resources are called *historical resources*, whether they are of historic or prehistoric age.

The California Public Resources Code (PRC) (§ 21084.1) defines *historical resources* as those listed, or eligible for listing, in the California Register of Historical Resources (CRHR) or those listed in the historical register of a local jurisdiction (county or city), unless the preponderance of the evidence demonstrate that the resource is not historically or culturally significant. National Register of Historic Places (NRHP)-listed historic properties in California are considered historical resources for the purposes of CEQA and are also listed in the CRHR. The CRHR criteria for listing such resources are based on, and are very similar to, the NRHP criteria.

Historical Resources

The term *historical resources* includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript that is historically or archaeologically significant or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of the PRC (§ 5020.1(j)). Historical resources may be designated as such through three different processes:

1. Official designation or recognition by a local government pursuant to local ordinance or resolution (PRC § 5020.1(k)).
2. A local survey conducted pursuant to PRC Section 5024.1(g).
3. The property is listed in or eligible for listing in the NRHP (PRC § 5024.1(d)(1)).

California Register of Historical Resources

PRC Section 5024.1 establishes the CRHR, which lists all California properties considered to be significant historical resources. The CRHR also automatically includes all properties listed or determined eligible for listing in the NRHP, including properties evaluated under Section 106, and California Historical Landmarks No. 770 and higher.

The CRHR regulations govern the nomination of resources to the CRHR (California Code of Regulations [CCR] Title 14 § 4850). The regulations set forth the criteria for eligibility, as well as guidelines for assessing historical integrity and resources that have special considerations. A resource must be determined to be significant at the local, state, or national level under one or more of the four criteria (paraphrased below) in order to be eligible:

- **Criterion 1**: Resources associated with important events that have made a significant contribution to the broad patterns of our history
- **Criterion 2**: Resources associated with the lives of persons important to our past
- **Criterion 3**: Resources that embody the distinctive characteristics of a type, period, or method of construction or represents the work of a master
- **Criterion 4**: Resources that have yielded, or may be likely to yield, information important in prehistory or history

The CRHR definition of *integrity* and its special considerations for certain properties is "the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance." The CRHR further states that eligible resources must "retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance" and lists seven aspects of integrity.

Unique Archaeological Resources

A *unique archaeological* resource is defined in PRC Section 21083.2 an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and for which there is a demonstrable public interest
- Has a special and particular quality such as being the oldest of its type or the best available example of its type
- Is directly associated with a scientifically recognized important prehistoric or historic event or person

In most situations, resources that meet the definition of a *unique archaeological resource* also meet the definition of *historical resource*. As a result, it is current professional practice to evaluate cultural resources for significance based on their eligibility for listing in the CRHR. For the purposes of this CEQA cultural resources report, a resource is considered significant if it meets the CRHR eligibility (i.e., significance and integrity) criteria. Individual resource assessments of eligibility are provided in this report.

Even without a formal determination of significance and nomination for listing in the CRHR, the lead agency can determine that a resource is potentially eligible for such listing to aid in determining whether a significant impact would occur. The fact that a resource is not listed in the CRHR, or has not been determined eligible for such listing, and is not included in a local register of historic resources, does not preclude an agency from determining that a resource may be a historical resource for the purposes of CEQA.

Thresholds of Significance

According to CEQA, a project that causes a substantial adverse change in the significance of a historical resource or a unique archaeological resource has a *significant effect* on the environment (CCR Title 14 § 15064.5; PRC Section 21083.2). CEQA defines a *substantial adverse change* as (CCR Title 14 § 15064.5(b)):

- Physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired; or

- Demolition or material alteration in an adverse manner of those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR; or
- Demolition or material alteration in an adverse manner of those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolition or material alteration in an adverse manner of those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by the lead agency.

Discovery of Human Remains

With respect to the potential discovery of human remains, Section 7050.5 of the California Health and Human Safety Code states the following:

a. Every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. The provisions of this subdivision shall not apply to any person carrying out an agreement developed pursuant to subdivision (l) of Section 5097.94 of the PRC or to any person authorized to implement Section 5097.98 of the PRC.

b. In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the PRC. The coroner shall make his or her determination within two working days from the time the person responsible for the excavation, or his or her authorized representative, notifies the coroner of the discovery or recognition of the human remains.

c. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission (NAHC) (California Health and Human Safety Code Section 7050.5).

d. Of particular note to cultural resources is subsection (c), requiring the coroner to contact the NAHC within 24 hours if discovered human remains are thought to potentially be those of Native American origin. After notification, NAHC will follow the procedures outlined in PRC Section 5097.98, which include notification of most likely descendants, if possible, and recommendations for treatment of the remains. Also, knowing or willful possession of Native American human remains or artifacts taken from a grave or cairn is a felony under state law (PRC Section 5097.99).

Assembly Bill 52 and Tribal Cultural Resources

In September 2014, the California Legislature passed Assembly Bill (AB) 52, which added provisions to the PRC regarding the evaluation of impacts on Tribal Cultural Resources (TCRs) under CEQA and consultation requirements with California Native American Tribes. AB 52 requires lead agencies to analyze project impacts on TCRs (PRC §§ 21074 and 21083.09). The bill added a definition of *tribal cultural resources* in PRC Section 21074 (presented above) and added requirements for lead agencies to engage in additional consultation procedures with respect to California Native American Tribes (PRC §§ 21080.3.1, 21080.3.2, and 21082.3). Also, as required by AB 52, the Governor's Office of Planning and Research updated Appendix G of the State CEQA Guidelines to provide sample questions regarding impacts on TCRs (PRC § 21083.09).

Under AB 52, lead agencies must consult with Tribes that have requested consultation and have a traditional and cultural affiliation with the geographic area of a proposed project (PRC § 21080.3.1). To trigger the requirement to consult, a tribe must first send the lead agency a written request for formal notification of any proposed projects within the geographic area with which they are affiliated traditionally and culturally. If such a request is received, the lead agency must provide that Tribe(s) notice within 14 days of either deciding to undertake a project or determining a project's application is complete (PRC § 21080.3.1(d)). If the Tribe responds within 30 days with a request for consultation, the lead agency must begin the consultation process within 30 days receiving the request (PRC § 21080.3.1(d)).

Regarding the consultation topics, the Tribe can request to be consulted on the type of environmental review necessary, the significance of TCRs, the significance of the project's impacts on TCRs, and, if necessary, project alternatives or the appropriate measures for preservation or mitigation that the California Native American Tribe may recommend to the lead agency (PRC § 21080.3.2(a)).

Regarding mitigation measures, AB 52 provides that if the tribal consultation process results in agreed-upon mitigation measures, then such measures must be recommended for inclusion in the environmental document if determined to avoid or lessen a significant impact on a TCR (PRC § 21082.3(a)). However, pursuant to PRC Section 21082.3(e), if the mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document, or if there are no agreed upon mitigation measures at the conclusion of the consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a TCR, then the lead agency will consider feasible mitigation pursuant to subdivision (b) of Section 21084.3. LACMTA is the CEQA lead agency for this Project. LACMTA sent out AB 52 request for consultation letters to all Native American Tribes provided in the list requested through the Native American Heritage Commission (NAHC).

Local

California Environmental Quality Act

City of Los Angeles

The City of Los Angeles provides for the protection and preservation of recognized cultural resources, including designated buildings, sites, objects, and districts, through two programs administered by the Los Angeles Department of City Planning. The City of Los Angeles designates local landmarks, which it calls *Historic–Cultural Monuments* (HCMs), according to the Chapter 9, Division 22 (Cultural Heritage Ordinance) of the Los Angeles Municipal Code, and recognizes local historic districts, which are referred to as *Historic Preservation Overlay Zones* (HPOZs) codified in Section 12.20.3 of the Los Angeles Municipal Code.

Historic-Cultural Monuments

The criteria for designation as an HCM are codified in Chapter 9, Section 22 of the City of Los Angeles Administrative Code. A HCM is any site (including significant trees or other plant life located thereon), building, or structure of particular historic or cultural significance to the City of Los Angeles. Designated resources may include historic structures or sites:

1. In which the broad cultural, political, economic, or social history of the nation, state, or community is reflected or exemplified; or
2. That are identified with historic personages or with important events in the main currents of national, state, or local history; or
3. That embody the distinguishing characteristics or an architectural-type specimen, inherently valuable for a study or a period style or method of construction; or
4. That represent notable work of a master builder, designer, or architect whose individual genius influenced his age.

HCMs are historical resources for the purposes of CEQA pursuant to State CEQA Guidelines Section 15064.5(2). Alterations or demolitions to sites that have been designated as HCMs are subject to review by the City of Los Angeles Cultural Heritage Commission.

Historic Preservation Overlay Zones

The procedures for designating a HPOZ are found in Section 12.20.3 of the Los Angeles Municipal Code. HPOZs are historical resources for the purposes of CEQA pursuant to State CEQA Guidelines Section 15064.5(2). Alterations or demolitions to properties included in an HPOZ are subject to review by the City of Los Angeles Department of City Planning.

Environmental and Cultural Setting

General

The Project is in the north–northwest portion of Los Angeles and in the larger San Fernando Valley, a 345 square mile urbanized lowland in the northwestern section of Los Angeles County, California. The San Fernando Valley is bordered by the Santa Susana Mountains on the north, the Verdugo Mountains on the east, The Santa Monica Mountains on the south, and Simi Hills on the west. The specific project area is approximately 950 feet above sea level. One-hundred percent of the project study area has been developed, through transportation infrastructure (i.e., rail, bus, and road development) or commercial and residential development.

Cultural Setting

Prehistoric Setting

Two formative regional chronologies are widely cited in the archaeological literature for the prehistory of the coastal regions of southern California (Wallace 1955, 1978; Warren 1968). These chronologies are generalized temporal schemes based on the presence or absence of certain artifact types. Koerper and Drover (1983) have provided a more recent chronological synthesis for coastal southern California. This synthesis employs Wallace's (1955) horizon terminology, but uses radiometric data to identify the sequence of stylistic change observed in the artifact assemblages, which are interpreted as temporal indications of cultural change. Sutton (2010) has proposed the most recent cultural sequence for southern California and the Los Angeles Basin. This sequence is largely a revision of the chronology Wallace (1955) initially proposed in light of efforts by Erlandson et al. (2007) and Sutton and Gardner (2010). The following discussion is divided into five major cultural intervals occurring over the following timespans: >12,000 before the present (B.P.); 12,000–7500 B.P.; 7500–5000 B.P.; 5000–1500 B.P.; and Post 1500 B.P.

The >12,000 B.P Interval (Pleistocene)

Evidence of ancient human activity is widespread in the midwestern and far western United States, including localities where mammoths were killed and butchered by humans 18,500–14,000 years ago (Joyce 2013); the Paisley Five Mile Point Caves in Oregon, inhabited not less than 14,600 years ago (Jenkins et al. 2013); the Debra L. Friedkin site in Texas, which yielded thousands of pre-Clovis artifacts dated 16,200–14,400 years B.P.(Jennings and Waters 2014); and the Manis site in Washington, where hunters dispatched a mastodon with a bone-tipped projectile some 13,800 years ago (Waters et al. 2011). Although it seems probable that people occupied California more than 13,500 years ago, and possibly as early as 18,000–20,000 B.P., no definite and reliably datable evidence of such early human activity in the state has been reported.

A few archaeological sites have been purported to be of great antiquity and offer evidence of human occupation in southern California during the Pleistocene. These cultures have been designated, depending on geography, as Paleoindian or Paleocoastal Traditions (Sutton 2010, 2011). These sites are centered in the Mojave and Colorado deserts or along the coast of southern California. Human femora from the Arlington Spring site on Santa Rosa Island have been dated to approximately 13,000 ± 200 years B.P., and midden from the Daisy Cave site on San Miguel Island dates to approximately 11,500 ± 200 years B.P. (Erlandson et al. 2011). Perhaps the most widely publicized of these sites is the long debated Calico Early Man Site in the desert of San Bernardino County (Schuiling 1979; Simpson 1980).

The 12,000–7500 B.P. Interval (Terminal Pleistocene/Early Holocene Period)

Warren's (1968, 1980 earliest interval for southern California prehistory is the San Dieguito Tradition, beginning about 10,000 B.P. and best defined in the coastal San Diego area (True 1958). Wallace (1978 calls this interval *Period I: Hunting* and considers it to begin about 12,000 B.P. In Sutton's more recent proposed cultural sequence for the Los Angeles region of southern California (Sutton 2010), this interval includes both terminal Paleocoastal and, later, San Dieguito "phases" of an undefined tradition.

This interval is characterized by a long period of human adaptation to environmental changes brought about by the transition from the late Pleistocene to the early Holocene geologic epochs. Between 13,000 and 10,000 B.P., climatic conditions became warmer and more arid, and Pleistocene megafauna gradually disappeared. The early occupants of southern California initially were believed to have been nomadic large-game hunters who avoided the Los Angeles Basin. Tool assemblages included percussion-flaked scrapers and knives, large, well-made stemmed, fluted, or leaf-shaped projectile points (e.g., Lake Mojave, Silver Lake), crescentics, heavy core/cobble tools, hammerstones, bifacial cores, and choppers and scraper planes.

Although intact stratified sites dating to this period are scarce, the limited data do suggest that the prehistoric populations of this period moved about the region in small, highly mobile groups, with a wetland-focused subsistence strategy based on hunting and foraging. Perhaps the earliest evidence of human occupation in the Los Angeles region is represented at the tar pits of Rancho La Brea (CA-LAN-159). The La Brea Skeleton yielded a date of 10,300 B.P. (Erlandson et al. 2007: Table 4.1). In Orange County, further south, the Irvine site (CA-ORA-64) was occupied around 9400 B.P. (Drover et al. 1983; Erlandson et al. 2005: Table 1). The Malaga Cove site, infamous for its contentious stratigraphy (Wallace 1955, 1978; Warren 1968), has been proposed as the earliest site of continued human habitation in the Los Angeles Basin. Malaga Cove, in combination with the Irvine site and the inland Lake Elsinore site (CA-RIV-2798) (Grenda 1997), demonstrate that the Los Angeles Basin was occupied during the San Dieguito phase, constituents of which have been dated to earlier than 9000 B.P. (Fitzgerald et al. 2005:Table 2).

The interval between the Terminal Pleistocene/Early Holocene is the Encinitas Tradition, which spans the years 8500 to 2600 B.P. Its initial phase, Topanga I, dates to no earlier than 8500 B.P. (e.g., CA-LAN-958 [Porcasi and Porcasi 2002:24] and CA-LAN-64 [Douglass et al. 2005]). Assemblages of this phase typically include abundant manos and metates, many core tools and scraper planes/scrapers, charmstones, cogged stones, early discoidals, but few large points or faunal remains

(Sutton and Gardner 2010). Secondary inhumation placed under cairns was a common mortuary practice (Johnson 1966:19), but southerly-oriented extended inhumations are also present.

The 7500 to 5000 B.P. Interval (Middle Holocene Period)

In the coastal regions of southern California during this period, the Topanga I Phase of the Encinitas cultural tradition continued. Overall, the general settlement–subsistence patterns of the Middle Holocene Period were exemplified by a greater emphasis on seed gathering. Adaptation to various ecological niches, further population growth, and an increase in sedentism typify the subsequent periods of cultural history in southern California. This subsistence orientation, characterized by a heavy dependence on both hunting and plant gathering, continued into historic times, resulting in greater local dependency. The artifact assemblage of this period is similar to that of the previous period, but was augmented to include specialized tools, including crude hammerstones, scraper planes, choppers, large drills, crescents, and large flake tools. This assemblage also includes large, leaf-shaped points and knives, manos and milling stones used for grinding hard seeds, and nonutilitarian artifacts, such as beads, pendants, charmstones, discoidals, and cogged stones (Kowta 1969; True 1958; Warren et al. 1961).

The Topanga I Phase is perhaps the best-known component of the Millingstone Horizon near the project region. Goldberg and Arnold (1988: 12–13, 46–50) reviewed sites assignable to the Millingstone Horizon. In their discussion, the presence of a single artifact class (i.e., the milling stone and mano) to define a temporally meaningful analytic unit of cultural development is seen to be problematic and does not explain the variability in site assemblages and dates of this period. They argue that to assign all sites that contain millingstones and manos to the period from 8000 to 2000 B.P. implies a “cultural unity” among the peoples who deposited these artifacts. However, decades of research have documented significant variability in subsistence emphasis, mortuary practices, and nonutilitarian artifacts (e.g., cogged stones, discoidals, beads), notwithstanding great similarities in one element of the tool kit—the milling stone/mano. Aside from the sites in Topanga Canyon, the only evidence of prehistoric occupation of the Los Angeles Basin dating to this interval is an occasional discoidal or cogged stone recovered from sites dating to more recent periods of prehistory. None of these sites have been found in or near the project study area.

The 5000–1500 B.P. Interval (Middle to Late Holocene)

In general, cultural patterns remained similar in character to those of the preceding horizon. However, the cultural material at many coastal sites became more elaborate, reflecting an increase in sociopolitical complexity and efficiency in subsistence strategies (e.g., the introduction of the bow and arrow for hunting). The components at site CA-LAN-2 in Topanga Canyon are dated to this period. In addition, several sites south of Ballona Lagoon on the Del Rey bluffs contain a well-developed Intermediate Horizon, defined by Wallace and others as a period of diversified subsistence (Van Horn 1987; Van Horn and Murray 1985; Wallace 1978). Projectile points from the Ballona Bluffs sites are, in some cases, similar to those found at sites in the southeastern California deserts, specifically in the Pinto Basin and at Gypsum Cave. This suggests that the coastal occupants of this period were in close contact with cultures occupying the eastern deserts.

The Post 1500 B.P. Interval (Late Holocene)

During the Late Holocene, reliance on the bow and arrow for hunting, along with the use of bedrock mortars and milling slicks, mark the beginning of the subtradition that Wallace (1955) referred to as the *Late Prehistoric Horizon* and Warren (1968) called the *Shoshonean Tradition,* dating from about 1500 B.P. (A.D. 500) to the time of Spanish contact (approximately A.D. 1769). Late prehistoric coastal sites are numerous. Diagnostic artifacts include small triangular projectile points, mortars and pestles, steatite ornaments and containers, perforated stones, circular shell fishhooks, and numerous and varied bone tools, as well as bone and shell ornamentation. Elaborate mortuary customs, along with generous use of asphaltum and the development of extensive trade networks, also characterize this period. Populations during the Late Prehistoric Horizon experienced increases in size, economic and social complexity, and the appearance of social ranking.

Ethnohistoric Setting

Gabrielino

During the prehistoric period, the San Fernando Valley was inhabited by the Gabrielino people. Gabrielino, as used in this report, includes the Fernandeño. The terms *Fernandeño* and *Gabrielino* are direct references to the associations between the Native American population of the San Fernando and San Gabriel Valleys and the Mission San Fernando and Mission San Gabriel de Arcángel, respectively.

The Fernandeño are associated with the Mission San Fernando and are related culturally to the Gabrielino. The ethnographic boundaries for the Fernandeño/Gabrielino are described by Bean and Smith (1978:538) and refined by McCawley (1996).

The Gabrielino are associated with the San Gabriel Mission. The Gabrielino consist of a number of small bands, some of whom refer to themselves as *Tongva*, and others who refer to themselves as *Kizh*. Gabrielino speaker Mrs. James Rosemyre told anthropologist C. Hart Merriam that Gabrielino speakers referred to themselves as *Tongva*, and Merriam recorded the name (Heizer 1968; King 2011:5). McCawley (1996:9) states that *Tongva* was the term used by the Gabrielino living near Tejon; however, it also referred to a *ranchería* (i.e., rancho) in the San Gabriel area. Today, some Gabrielino have chosen to be known as Tongva (McCawley 1996:10). Yet another name that has been reported for the Gabrielino is *Kizh* or *Kij,* perhaps derived from the word meaning “houses” (McCawley 1996:10; Stickel 2016). The latter term may refer specifically to Gabrielino living in the Whittier Narrows (McCawley 1996:10).

The Gabrielino are characterized as one of the most complex societies in native southern California. This complexity derives from their overall economic, ritual, and social organization (Bean and Smith 1978; Kroeber 1925). The Gabrielino language was one of a group of Californian Uto-Aztecan languages designated as Takic (Bean and Smith 1978:538).

Two theories prevail about how and when the Gabrielino may have entered the Los Angeles Basin: they arrived from the southern Great Basin or interior California deserts as recently as 2500 B.P.; or they migrated into the region in successive waves over a lengthy period of time beginning as early as 4000 B.P. (Kroeber 1925).

In early protohistoric times, the Gabrielino occupied a large territory that included the coast from Malibu to Aliso Creek, parts of the Santa Monica Mountains, the San Fernando Valley, and the San Gabriel Valley (McCawley 1996). They also occupied the islands of Santa Catalina, San Clemente, and San Nicolas. Within this large territory were more than 50 residential communities with populations ranging from 50 to 150 individuals. From this broad and diverse resource base, the Gabrielino developed an effective subsistence technology, a well-developed trade network, and a ritual system, such that they were among the most materially wealthy and culturally sophisticated cultural native groups in California at the time of European contact.

Gabrielino culture was characterized by an active and elaborate system of rituals and ceremonies. Rituals included individual rites of passage, village rites, seasonal ceremonies, and participation in the widespread Chinigchinich cult. Franciscan Friar Gerónimo Boscana observed and recorded the cult of the culture hero Chinigchinich during his residences at Missions San Juan Capistrano and San Luis Rey (Harrington 1933; Boscana 1978).

Tataviam

The Tataviam lived primarily on the upper reaches of the Santa Clara River drainage system, east of Piru Creek, but they also inhabited the upper San Fernando Valley, including the present-day city of San Fernando and neighborhood of Sylmar (which they shared with their inland Gabrielino neighbors). Their territory also may have extended over the Sawmill Mountains to include at least the southwestern fringes of the Antelope Valley (King and Blackburn 1978).

The Tataviam lived in small villages and were seminomadic when food was scarce. They were hunter-gatherers who were organized into a series of clans throughout the region. Jimsonweed, native tobacco, and other plants found along the local rivers and streams provided raw materials for baskets, cordage, and netting. Larger game generally was hunted with the bow and arrow, whereas snares, traps, and pits were used for capturing smaller game.

At certain times of the year, communal hunting and gathering expeditions were held. Faunal resources available to the desert-dwelling Tataviam included deer, mountain sheep, antelope, rabbit, small rodents, and several species of birds. Meat was generally prepared by cooking in earthen ovens, boiling, or sun-drying. Cooking and food preparation utensils consisted primarily of lithic (i.e., stone) knives and scrapers, mortars and metates, pottery, and bone or horn utensils. Resources available to the desert-dwelling Tataviam included honey mesquite, piñon nuts, yucca roots, mesquite, and cacti fruits (Solis 2008). These resources were supplemented with roots, bulbs, shoots, and seeds that, if not available locally, were obtained in trade with other groups.

Labor was divided between the sexes. Men carried out most of the heavy, but short-term, labor, such as hunting and fishing, conducted most trading ventures, and had as their central concerns the well-being of the village and the family. Women were involved in collecting and processing most of the plant materials and basket production. The elderly of both sexes instructed children and cared for the young (Solis 2008). Like their Chumash neighbors, the Tataviam practiced an annual mourning ceremony in late summer or early fall, which would have been conducted in a circular structure made of reeds or branches.

At first contact with the Spanish in the late eighteenth century, the population of this group was estimated at less than 1,000 persons. By 1810, nearly all of the Tataviam population had been baptized at San Fernando Mission (King and Blackburn 1978).

Historic Setting

Spanish and Mexican Periods

The early history of the San Fernando Valley was characterized by Native American settlement, Spanish and Mexican colonization during the late eighteenth century and first part of the nineteenth century, and agricultural development under U.S. governance in the late nineteenth century.

The San Fernando Valley was mentioned under various names by the Portolá and Anza expeditions (Gudde 1998). In 1769, Juan Crespí, the spiritual advisor to the Portolá expedition, referred to the San Fernando Valley as *de Valle de Santa Catalina de Bonónia de los Encinos* (Jorgensen 1982). The Spanish recorded the Native American name of the valley as *Achois Comihabit* (Jorgensen 1982). In 1769, the San Fernando Valley had a native population of 3,500–5,000 people, making it one of the more densely populated valleys in California (Jorgensen 1982).

In the 1770s, the Catholic Church and Junípero Serra began the process of establishing a series of missions throughout Alta California, as California was then known.

Mexican Period

Mexico's independence from Spain in 1821, communicated to and accepted by California in 1822, brought individuals to power who were less sympathetic to the Franciscan missions than the Spanish government. The ultimate result was the "secularization" of the San Fernando and other missions in 1835, thus stripping the missions of their statuses (Roderick 2001:24).

By 1833–1834, the majority of mission lands were taken from the Catholic Church and reissued to individuals who had served as either Spanish or Mexican soldiers, settlers, or financiers. The Mexican government hoped to initiate a pattern of settlement in Alta California by relocating populations from other Mexican settlements to recently established Alta California settlements.

The project alignment is within the Ex-Mission San Fernando Rancho, the largest Mexican Period land grant in California. The territorial government appointed Don Pedro López majordomo of the secularized Mission San Fernando lands in 1837. At that time, a thousand Native Americans continued to inhabit mission lands and nearby foothills and mountains.

In 1845, Andrés Pico, Governor Pío Pico's brother, leased the rancho. In 1846, with the coming of the Mexican–American War, Governor Pico sold the rancho to Eugenio de Celís to raise funds for Californio defenses, and Andrés Pico subsequently purchased a 50-percent interest in the rancho, where he continued to reside and graze cattle (Robinson 1956:225; Roderick 2001; Hoover et al. 2002:160).

American Period

Mexico ceded California to the United States on February 2, 1848, with the signing of the Treaty of Guadalupe Hidalgo, and California became a state on September 9, 1850. Cattle, sheep, and horse ranching dominated economic activity across the ex-Mission San Fernando Rancho throughout the 1850s.

The first American settlers in the San Fernando Valley were Alexander Bell and David Alexander, who arrived in 1851. The horse path through Cahuenga pass also opened in that year, and the old El Camino Real trail west past Las Encinas was declared a public highway, Camino de las Virgenes. In 1858, Butterfield Overland Mail began stage service across the San Fernando Valley from Los Angeles three times a week. The stages climbed up Newhall Pass and followed a circuitous route to San Francisco via Elizabeth Lake and Fort Tejon. At the northern end of the valley, Lopez Station hosted the first public school in the San Fernando Valley, with classes taught for the first time in English.

After Eulogio De Celís died in 1869, his son, Eulogio F. de Celís, returned from Spain to Los Angeles. In 1874, the heirs of Eulogio de Celís sold their northern half of Rancho Ex-Mission San Fernando to northern Californians—California State Senator Charles Maclay and his partners George K. Porter, a San Francisco shoe manufacturer, and his brother Benjamin F. Porter. The Porters' land was west of present-day Sepulveda Boulevard, and the Maclay land was east of Sepulveda Boulevard.

Former California governor and railroad baron Leland Stanford was eager to extend his Southern Pacific Railroad (SPRR) line to new towns (Roderick 2001:34). In 1872, when Stanford learned that the northern half of the San Fernando Valley was for sale, he contacted a state senator from the San Francisco Bay area, who he knew was looking to purchase land. Stanford made Senator Charles Maclay a pledge: if he would erect a town, Stanford would lay a railroad across the San Fernando Valley. Maclay, who already had founded the Bay Area town of Saratoga, vowed to name his new town's widest and longest street after his benefactor; then he traveled south to negotiate a price. He paid $117,500 for 56,000 acres, just over $2 an acre. Maclay picked a flat spot about a mile northeast of the crumbling mission to lay out his town. He considered giving it the name Pico, after the area's most famous family, but he opted for San Fernando (Roderick 2001).

San Fernando Valley and Van Nuys Development

SPRR began service through the San Fernando Valley in January 1874, "after Chinese track layers scribed a nearly straight line across the virgin grassland at the foot of the Verdugo Mountains" (Roderick 2001:37). In a larger context, SPRR's Coast Line connected Los Angeles to San Francisco, so its arrival, along with the establishment of San Fernando, inspired major investments into the San Fernando Valley and the arrival of key pioneers Isaac Newton Van Nuys, Isaac Lankershim, and his son, James B. Lankershim. In 1882, the younger Lankershim and Van Nuys platted the town of Toluca, which later took on the name Lankershim, and then North Hollywood.

Construction of the Los Angeles Aqueduct commenced in 1908, prompting key real estate developments in the San Fernando Valley including the Los Angeles Suburban Home Company syndicate's $2.5 million land purchase of 47,500 acres in 1909, the largest land transaction ever recorded in Los Angeles County. In 1911, the Los Angeles Suburban Home Company developed the town of Van Nuys, widely promoted real estate through *Los Angeles Times* publications, and hired William Paul Whitsett, who prepared the town for its grand opening with the construction of sidewalks, wells, and 10 residences. SPRR's new 1911 branch route brought prospective homeowners directly to Van Nuys (Architectural Resources Group 2015:7–13).

Two years later, the Los Angeles Aqueduct opened. In order to gain access to the municipal water system, residents of Van Nuys and Marian (later Reseda) voted in favor of annexation to the City of Los Angeles in 1915, followed by the communities of Owensmouth (later Canoga Park), Lankershim, and Chatsworth over the next decade. Van Nuys would become the institutional heart of the San Fernando Valley, with the 1928 construction of the Metropolitan Airport, the Works Progress Administration's 1932 construction of the Valley Municipal Building, and the construction of the San Fernando Valley Administrative Center (comprising the Valley Police Headquarters, the Van Nuys Branch of the Los Angeles Public Library, and other federal, state, and local governmental buildings) through the 1960s and 1970s (Architectural Resources Group 2015:9–10).

The San Fernando Valley hosted numerous automobile-oriented suburban community with the major arterials Van Nuys Boulevard and Sepulveda Boulevard. These communities remained largely agricultural and disparate until after World War II (Roderick 2001:113). In the 5 years following the end of the war, the population of the San Fernando Valley more than doubled, from 176,000 to 402,538 (Roderick 2001:113, 123). The landscape of the San Fernando Valley changed rapidly. Residential neighborhoods replaced agricultural land, and home construction could not keep up with demand.

In addition to increased consumer demand after World War II, the country was entering the Cold War. Governments were investing hundreds of millions of dollars into research, development, and manufacture of new aircraft and aerospace technologies, such as navigation, propulsion, and missiles. The most significant postwar industrial development in the San Fernando Valley was in the aerospace and defense industries. The field was so prevalent that, by the 1960s, it comprised more than half of the jobs in Los Angeles. The majority of these jobs were concentrated in the San Fernando Valley, at firms such as Rocketdyne, Northrop Grumman, and Lockheed Corporation (LSA Associates et al. 2011).

The unprecedented growth of the San Fernando Valley—the population again doubled in the 1950s—caused congestion of its now outdated streets. In the late 1950s and 1960s, the construction of freeways through the San Fernando Valley helped alleviate traffic congestion. During this period, a shift toward the development of multiple-family housing resulted.

Summary of Identification Efforts and Methods

This section describes the background literature search, records search, and framework for identifying archaeological and historical resources in the project study area, defined as the existing MGL ROW and additional LACMTA-owned parking lots and adjacent parcels that would be utilized as part of the project footprint.

On January 26, 2022, ICF was provided the records search results from the South Central Coastal Information Center (SCCIC) at California State University, Fullerton. The SCCIC is a branch of the California Historical Resources Information Center, which maintains the State of California's official records of previously recorded cultural resource studies, recorded archaeological sites, and built environment resources. SCCIC maintains the records for Los Angeles, San Bernardino, Ventura, and Orange counties. The SCCIC records search included the project study area and a 0.5-mile buffer surrounding it.

Sacred Lands File Search

A request for a check of the Sacred Lands File (SLF) was made to the NAHC. A response from the NAHC was received on January 27, 2022. The results of the Sacred Lands File search were positive. The NAHC recommended outreach to the Fernandeño Tataviam Band of Mission Indians (FTBMI) for more information on the SLF search results.

Record Search Results

A review of SCCIC's records indicated that 32 previous cultural resource studies have been conducted within a 0.5-mile radius of the project study area (Table 2). The entire project study area has been previously surveyed. The previous archaeological surveys in the study area did not include any subsurface investigations, nor were the depths of previous development disturbance or overlying artificial fill deposits identified or visible during the fieldwork. In addition, the project study area was partially covered with rail ballast and overlying vegetation, which obscured portions of the immediate ground surface. These previous cultural resource studies and archaeological pedestrian surveys identified no archaeological sites within the project study area. No new archaeological sites were recorded in the current project study area during the construction of the Orange Line.

Table 2. Previous Cultural Studies

Report No.	Date	Title	Author
LA-00384	1977	*Description and Evaluation of the Cultural Resources Within Haines Debris Basin, Hansen Dam, Lopez Dam, and Sepulveda Dam, Los Angeles County, Los Angeles County*	Martz, Patricia
LA-01037	1976	*Assessment of the Archaeological Impact by the Proposed Development of the East Valley Interceptor Sewer-unit 1*	McIntyre, Michael J.

Report No.	Date	Title	Author
LA-02908	1990	*Draft Environmental Assessment Tillman Reclamation Plant Flood Protection Project*	Anonymous
LA-03289	1990	*Mobil M-70 Pipeline Replacement Project Cultural Resource Survey Report for Mobil Corporation*	Davis, Gene
LA-03721	1976	*Historic Property Survey Kester Between Burbank Boulevard and Magnolia Boulevard W.O. 21118*	Anonymous
LA-03763	1977	*Historic Property Survey Hazeltine Avenue – Vanowen Street to Magnolia Boulevard*	Anonymous
LA-03789	1996	*Phase 1 Archaeological Survey/Class III Inventory, San Fernando Valley East–West Transportation Corridor Study Area, Los Angeles, California*	Anonymous
LA-03900	1998	*Cultural Resource Record Search and Archival Research Report for a Single Parcel Located on Haynes Street Between Van Nuys Boulevard and Sylmar Avenue, City of Van Nuys, Los Angeles County, California*	Jertberg, Patricia R.
LA-03902	1998	*Cultural Resource Record Search and Archival Research Report for a Single Parcel Located on Cedros Avenue Between Oxnard and Aetna Street, City of Van Nuys, Los Angeles County, California*	Jertberg, Patricia R.
LA-03975	1998	*Archaeological Assessment for Pacific Bell Mobile Services Telecommunications Facility La 134-21, 13717 Victory Boulevard, Van Nuys, City and County of Los Angeles, California*	McLean, Deborah K.
LA-04563	1999	*Cultural Resource Assessment for Pacific Bell Mobile Services Facility LA 675-11, in the County of Los Angeles, California*	Duke, Curt
LA-05599	1999	*Cultural Resource Assessment for Pacific Bell Mobile Services Facility LA 698-02, County of Los Angeles, California*	Duke, Curt
LA-05608	2001	*Cultural Resource Assessment Cingular Wireless Facility No. VY 065-02 Los Angeles County, California*	Duke, Curt
LA-05609	2001	*Cultural Resource Assessment: Cingular Wireless Facility No. VY 100-01 Los Angeles County, California*	Duke, Curt
LA-05753	No date	*Nextel Communications CA-7880A/Gilmore 13746 Victory Boulevard, Van Nuys California*	Anonymous
LA-07776	2002	*Cultural Resources Records Survey Report for the City Magnolia Trunk Line Project, City of Los Angeles Department of Water and Power, Los Angeles County, California*	Mason, Roger D., and Mark L. Peterson
LA-07777	2002	*Cultural Resources Records Search and Literature Review Report for the City Trunk Line South Project City of Los Angeles Department of Water and Power, Los Angeles County, California*	Mason, Roger D., and Patricia A. Peterson

Report No.	Date	Title	Author
LA-07784	2003	*Archaeological Survey Report Los Angeles Valley College, Los Angeles County, California*	Horne, Melinda C.
LA-07801	2005	*Cultural Resources Records Search Results and Site Visit for Cingular Wireless Site Nl-047-02 (Sawyer Petroleum), 14117 Aetna Street, Van Nuys, Los Angeles County, California*	Bonner, Wayne H.
LA-07812	2005	*Cultural Resource Records Search and Site Visit Results for Cingular Telecommunications Facility Candidate LA-698-01 (NL-074-01) Karsten Imports, 55338 Fulton Avenue, Van Nuys, Los Angeles County, California*	Bonner, Wayne H.
LA-07818	2006	*Cultural Resources Records Search Results and Site Visit for T-Mobile USA Candidate SV00614E (Kafco Center II), 14900 Burbank Boulevard, Sherman Oaks, Los Angeles County, California*	Bonner, Wayne H.
LA-07835	2000	*Phase I Archaeological Survey/Class III Inventory, San Fernando Valley East–West Transit Corridor, BRT Alternative, Study Area, Los Angeles, California*	Whitley, David S., and Joseph M. Simon
LA-08876	2006	*Cultural Resources Records Search and Site Visit Results for Royal Street Communications, LLC Candidate LA0061b (Burbank Blvd. - Nextel Palm), 13222 Burbank Boulevard, Sherman Oaks, Los Angeles County, California*	Bonner, Wayne H.
LA-08953	2007	*Historic Property Survey Report for the Southbound Interstate 405 (San Diego Fwy) to Us Highway 101 (Ventura Fwy) Connector Improvement Project, Los Angeles County, California*	Ewing-Toledo, Kelly
LA-09307	2008	*Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate SV01484F(R) (13709 Burbank Building), 13709 Burbank Boulevard, Van Nuys, Los Angeles County, California*	Bonner, Wayne H.
LA-09312	2008	*Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate SV01484F (13709 Burbank Building), 13709 Burbank Boulevard, Van Nuys, Los Angeles County, California*	Bonner, Wayne H.
LA-09454	2008	*Direct APE Historic Architectural Assessment for T-Mobile Candidate SV01484F (13709 Burbank Building), 13709 Burbank Blvd., Van Nuys, Los Angeles County, CA*	Crawford, Kathleen
LA-09594	2008	*Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate SV11818A (Kester Blooper), 5616 Kester Avenue, Van Nuys, Los Angeles County, California*	Bonner, Wayne H., and Kathleen A. Crawford
LA-09598	2008	*Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate SV00614J (15020 Oxnard Monopole), 15020 Oxnard St., Van Nuys, Los Angeles County, California*	Bonner, Wayne H.

Report No.	Date	Title	Author
LA-12261	2013	*Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate SV00913A (VY385 California National) 14545 Victory Boulevard, Los Angeles, Los Angeles County, California*	Bonner, Wayne and Crawford, Kathleen
LA-12505	2012	*Draft Phase I Cultural Resources Assessment San Fernando Valley Water Recycling Project, City of Los Angeles, California*	Wallace, James, Dietler, Sara, and Kry, Linda
LA-12798	2014	*Los Angeles Unified School District Five Campus Building Inventory, City of Los Angeles, California*	Anderson, Katherine

Previous cultural resource studies identified 10 built environment resources within the 0.5-mile radius of the project study area, but only one resource, P-19-191858, is located immediately adjacent to the project study area. P 19-191858 is a City of Los Angeles Department of Water & Power Substation Building built in 1937 which was determined CRHR- and NRHP-eligible in 2001. Although P-19-191858 is adjacent to the project study area, it is more than 500 feet distant from the nearest project footprint and the Project would not impact it.

Table 3. List of Resources in 0.50-Mile Buffer of Project Study Area

Primary No.	Description	Name of Resource	Property Type	Date Recorded	Status Code	In Project Study Area?
P-19-150382	Single-family Property	14104 Gilmore St (no longer extant)	Building	No date	6Z	No
P-19-150383	Single-family Property	14101 Calvert St	Building	No date	6Z	No
P-19-150384	Single-family Property	14108 Calvert St (no longer extant)	Building	No date	6Z	No
P-19-150385	Single-family Property	6209 Hazeltine Ave	Building	No date	6Z	No
P-19-150386	Single-family Property	6311 and 6315 Hazeltine Ave	Building	No date	6Z	No
P-19-167292	Library	Van Nuys Branch Library	Building	1987	1D, 5S1	No
P-19-188472	Industrial Building	Kester Blooper	Building	2008	6Y, 6Z	No
P-19-190650	Commercial Building	California National Bank	Building	2013	6Y, 6Z	No
P-19-190951	School	Van Nuys Elementary School	Building, District, Element of District	2014	6Z	No

Primary No.	Description	Name of Resource	Property Type	Date Recorded	Status Code	In Project Study Area?
P-19-191858	Public Utility Building	Los Angeles Department of Water and Power, 14601 Aetna St	Building	2001	2S2	Yes

Survey Methodology and Results

The project study area and eight project footprint areas are fully developed, and the existing infrastructure of concrete and asphalt prevented a pedestrian survey from being an effective method for identifying archaeological resources. Given the reduced visibility of the ground surface of the project area, the ICF archaeological team conducted an archaeological sensitivity analysis of the project study area to assess the Project's potential for archaeological sensitivity. The archaeological sensitivity analysis methods and results are provided below.

Archaeological Resources

The project study area has been previously surveyed for archaeological resources, and no previously recorded archaeological resources have been identified either within the project study area or in the 0.5-mile records search radius. This is largely due to the dense urban development of the current project study and the resulting disturbance of the native ground surface through the construction of roads, railroads, and residential/commercial development.

Historical Resources

ICF architectural historians reviewed the project description and records search results and determined that a survey for built environment resources would not be necessary given the subsurface footprint of the project. The proposed project footprint areas were reviewed via current aerial imagery to confirm that they are all located within the current MGL ROW and adjacent vacant LACMTA parcels and parking lots. One footprint, MGL-4, contains two metal shed outbuildings that are located within the footprint boundary, but are not 45 years of age or older, and thus were not inventoried as part of this project nor considered to be historical resources under CEQA.

No HCMs or HPOZs are located within the proposed project footprint. According to records search results, the Van Nuys Branch Library (P-19-167292) is 0.25 mile north of the proposed project footprint. One NRHP-eligible resource, the Los Angeles Department of Water and Power Building, 14601 Aetna St (P-19-192858), is located immediately adjacent to the project study area, but is approximately 600 feet away from proposed project activities between MGL-2 and MGL-3. In 2001, the *Draft Environmental Impact Statement/Environmental Impact Report for The San Fernando Valley East/West Transit Corridor Project* concluded that the project, which would route directly adjacent to the resource, would result in no changes in visual character or noise levels (Myra Frank and Associates, Inc. 2001:4–303).

Archaeological Sensitivity Analysis

The purpose of this analysis is to consider the Project's potential for encountering as-yet undocumented precontact archaeological sites based on physical environmental attributes. It is not designed to consider the potential for encountering historical archaeological sites because this function is better served through historic documentary research. This analysis uses geologic, hydrologic, and slope data to consider two distinct classes of *archaeological sensitivity*, defined in this analysis as an area's likelihood for containing archaeological sites. These classes of archaeological sensitivity include whether portions of the study area have the capacity to contain buried archaeological sites (i.e., *buried site sensitivity*) and whether portions of the study area have elevated potential to contain archaeological sites in general (i.e., *general site sensitivity*).

Buried Site Sensitivity

For the purposes of this analysis, the phrase *buried site sensitivity* refers to a given area's potential to contain buried archaeological sites. This concept differs slightly from the more general concept of general archaeological sensitivity, discussed below, in that a landform may have high archaeological sensitivity, but limited buried-site potential, if the landform developed prior to the period in which humans have occupied North America.

The age and environment in which a landform is created has direct bearing on when it becomes accessible for human use, how humans interact with it once it becomes accessible, and how the material remains of these activities are preserved. Landforms tend to be useful analytical units for archaeological sensitivity analyses because each type has a unique set of physical attributes and can be recognized and contrasted at the macroscopic scale. The age and depositional environment of a landform can also provide insight into whether buried archaeological resources are likely to be present.

The study area includes three geologic units that date to the current Quaternary Period and the recent Holocene Epoch (2.58 million to present). Of these, only those that formed around or after 13,000 years ago (Holocene-aged) (Meltzer 2004; Rick et al. 2001) or later have the potential to contain buried archaeological sites. The major Holocene-aged geologic units across the study area include alluvium, alluvial fan deposits, and modern fill (mostly associated with elevated road prisms).

As a result, for the purposes of this study, the geologic units were divided into two groups: 1) those that formed naturally during the period in which humans occupied North America (human occupation); and 2) those that formed artificially during the recent modern period. The modern fill would be considered to have low buried site sensitivity, whereas the naturally formed deposits would be considered to have high buried site sensitivity.

General Archaeological Sensitivity

Regarding general archaeological sensitivity, this analysis relies on two well-studied and ubiquitous environmental factors—proximity to permanent water sources and topographic slope—to consider general archaeological sensitivity. The following briefly describes each of the attributes that were considered, the sources used, and how they influence archaeological sensitivity.

Proximity to Water

Proximity to a fresh water source is a particularly important consideration for precontact peoples because there was no infrastructure to transport water in the region, other than by carrying it manually, during the precontact period. In recognition of the logistical considerations associated with this condition throughout much of North America, numerous researchers have studied the spatial relationship between archaeological resources and fresh water sources (including, but not limited to, Christenson 1990; Robbins-Wade 1990; Lothrop et al. 1987; Ingbar and Hall 2014 and Elder et al. 2015). These studies have generally observed that as distance to freshwater decreases, the frequency of archaeological sites and range of archaeological site types increases. In San Diego, for example, Christenson (1990) observed that most habitation and resource-processing sites tend to be located less than 200 meters from a water source, particularly major permanent water sources, whereas lithic scatters and rock alignments—sites typically associated with upland resource collection and travel—tend to be located more than 200 meters from water sources. A more recent study performed by Ingbar and Hall (2014) in the Willamette Valley revealed that the vast majority of both prehistoric and historical archaeological sites are located within 1,000 meters of water.

Although archaeological site frequency and distance to water appear to be strongly related, some archaeological site types may be less likely to be associated spatially with water. Examples of these site types may include those associated with upland resource collection (e.g., lithic scatters, hunting blinds, isolated projectile points or knives, quarries) or overland travel (i.e., isolates). Of these, sparse lithic scatters and isolates are usually considered not to retain sufficient data value to be eligible for listing in the CRHR or NRHP.

One key factor, channel migration, may alter the present-day distance between archaeological resources and fresh water sources and is likely to have occurred in portions of the study area. *Channel migration* results in a stream channel moving closer or further away from a fixed point on the landscape over time. In order to account partially for this factor, this study considers all areas within 0.25 miles (402 meters) of a historically documented water source (e.g., lakes, streams, rivers, springs, dry lakes/playas). It is acknowledged that the size of this buffer is somewhat arbitrary, but this was considered to be an adequate solution in the absence of a practical method for precisely delineating the extent of channel migration in the study area vicinity during the period that humans have occupied North America.

Topographic Slope

The slope, or *gradient*, can be an important logistical factor that affects how humans navigate and settle on the landscape. This is because as slope increases, the level of effort required to traverse the area, process resources, and construct habitations increases accordingly. In recognition of this, several studies have considered how slope affects the distribution of archaeological sites, including, but not limited to, Howey (2007), Ingbar and Hall (2014), and Elder et. al (2015). For example, Ingbar and Hall's (2014) analysis of archaeological sites in the Willamette Valley revealed that as slope increased, the frequency of archaeological sites and range of archaeological site types decreased. Some sites in the study were identified on slopes of 6 degrees or less, but the vast majority were identified on slopes of 12 degrees or less. The same was true of the analysis that ICF (2015) performed on archaeological sites in the Powder River basin in eastern Montana. This analysis revealed that 92 percent of the archaeological sites in this region were located on slopes of 15 degrees or less.

Although a fairly consistent spatial relationship between many archaeological site types and flat or gradually sloping topography has been observed repeatedly, a few prehistoric site types may be exceptions to this relationship. For example, hunting blinds, rock art, rock shelters, and caves are likely to occur in areas with bedrock outcrops and steep slopes. Additionally, items dropped during overland transport (i.e., isolates) or left behind at temporary resting or tool manufacture/retouching locations (i.e., sparse lithic scatters), may occur on steeper slopes, but are usually considered not to retain sufficient data value to be eligible for CRHR- or NRHP-listing. With these potential exceptions in mind, this study would consider the upper threshold for slopes that are suitable for long-term human use to be 15 degrees.

Defining Sensitivity

Using the two attributes described above, the study area was divided into two classes of general archaeological sensitivity. Areas considered to have reduced sensitivity would be more than 0.25 miles (402 meters) from a fresh water source and/or located on a landform with a slope greater than 15 degrees. Areas considered to have high sensitivity would be less than 0.25 miles (402 meters) from a historic fresh water source and on a slope less than 15 degrees.

Sensitivity Assessment Methods

This section summarizes the data sources and methods used to perform the buried site and general site sensitivity analyses. It also characterizes the level of error and limitations associated with the datasets used. In order to account for the possibility of future project design changes, both models were developed for an area that includes the project footprint, plus a 0.5-mile buffer, for the Archaeological Sensitivity Study Area (ASSA).

Buried Site Sensitivity

Unlike other regions of California, such as the Sacramento and San Joaquin Valleys, there is no available literature that links Natural Resources Conservation Service soil types with landform age in Los Angeles County. As an alternative to this approach, ICF staff obtained geodatabase files of the highest-resolution and most recently updated geologic maps of the study area vicinity. The United States Geological Survey (USGS) provided data from one comprehensive geologic map and a special geologic study report from California.

- *Preliminary Geologic Map of the Los Angeles 30' by 60' Quadrangle, Southern California, 1:100,000 scale* (Yerkes et al. 2006).

- *Geologic Compilation of Quaternary Surficial Deposits in Southern California, Special Report 217, 1:100,000 scale (Bedrossian et al. 2012).*

ICF archaeologists and geographic information system specialists sorted the geologic units identified in the geodatabase into two categories: 1) those that formed prior to human occupation of North America; and 2) those that formed during the period of human occupation of North America.

Geotechnical bores and utility locate potholes have been conducted for other LACMTA projects that overlap the project study area. The sediment description and depth logs for these geotechnical investigations were reviewed and compared with the surface geologic unit data potentially to identify the thickness and potential depths of deposits across the project (Hong 2020; Mott MacDonald 2020; Ponnaboyina and Martin 2018). The geotechnical bores, which were drilled either within or near the project study area, identified concrete, pavement, and overlying artificial-mechanical fill deposits at the surface with average thickness (i.e., depths) of 11 inches to 42 inches (i.e., 3.5 feet) below surface. The utility pothole logs documented utility depths and disturbance from 1.26 feet to 11 feet below surface for larger drainage features (Hong 2020; Mott MacDonald 2020; Ponnaboyina and Martin 2018). These artificial fill deposits and disturbed areas are not considered sensitive for containing intact archaeological materials. The bore logs did not differentiate between age and geologic origin of sediments; however, the descriptions of the sediments are consistent with the alluvial fan deposits identified for this area as part of the archaeological sensitivity analysis.

The sediment descriptions provided in the geotechnical reports correlate with the alluvial fan geologic unit descriptions identified for the archaeological sensitivity analysis, which are considered to have potential for containing buried deposits. The basal depths of the Holocene-aged alluvial deposits have not been identified in the geologic data or in the geotechnical reports, so it is assumed that the Holocene-aged sediments extend to the maximum depths of proposed project activities (i.e., maximum allowed depth is 70 feet below surface). Additional focused geotechnical and geoarchaeological studies would need to be conducted within the project study area to determine the depth of Holocene-aged deposits in the study area and the local depths where possible transitions to Pre-Holocene aged deposits occur.

Error/Limitations

The map and data used for the buried site sensitivity analysis range from 1:100,000 to 1:250,000 in scale. The error associated with the horizontal accuracy of this scale is approximately 51 meters.

General Site Sensitivity

In order to perform the general site sensitivity analysis, ICF staff obtained two types of data, hydrologic and slope. The sources for these data are provided below:

- Hydrologic Data
  - USGS National Hydrogeography Dataset (NHD) High Resolution (nhd.usgs.gov) maps that included perennial streams, intermittent streams, springs, and washes

    - Historical USGS topographic quadrangles to confirm historic alignments of the current NHD stream alignments
- Slope Data
    - USGS National Elevation Dataset (ned.usgs.gov), which used a 10-meter digital elevation model (DEM) data

To account for the effects of historic and modern-era modifications to stream channels in developed areas, georeferenced images of historical USGS topographic quadrangles were used to confirm visible stream alignments from the NHD data in or within 0.25 mile (402 meters) of the study area. Slope was calculated using the 10-meter DEM data obtained from the USGS National Elevation Dataset. Once all of the data was compiled, all areas within the study area and a 0.25-mile (402 meters) buffer that were less than 0.25 mile (402 meters) from a historic fresh water source and on a slope that was less than 15 degrees were defined as having increased general site sensitivity.

Error/Limitations

- The NHD dataset provides the latest dataset for streams, lakes, playas, springs, and water features. These were checked against historic topographic quadrangle maps to ensure accuracy of the historic alignment.
- The nature and extent of historic channel modifications that predate the historical topographic maps or NHD dataset is unknown. For the purposes of this study, both were assumed to be minimal.
- The highest resolution elevation data that was available for the entire study area was 10-meter DEM data. At this resolution, it is possible that some instances of small-scale topographic variations may be missed by the analysis.

Results

The following are the results of the buried site and general sensitivity models. Figure 3 in Appendix A depicts the results of both sensitivity models.

Buried Site Sensitivity

The buried site sensitivity analysis indicates that all 2,085 acres (100 percent) of the ASSA contain sediments with the potential to contain buried archaeological sites (Table 4 and Figure 3). The reason that such a large percentage of the study area maintains increased potential for buried archaeological sites is that the entire study area is located on alluvial and alluvial fan deposits that comprise the larger San Fernando Valley. The Los Angeles River is to the south, and smaller washes and drainages, which have deposited alluvium across the valley during the Holocene period, are to the east and west. The geologic data and resulting sediment origins could be further refined through geotechnical bore results which could increase resolution on the extent and depths of Holocene-aged sediment accumulation in the study area. The development of the project area, specifically the rail ROW and surrounding areas, likely resulted in the grading, removal, and disturbance of surface and buried deposits within the project footprints. The previous archaeological surveys examined the existing surface of the project alignment, but did not include subsurface investigations, nor did these studies identify the extent of previous ground disturbance or depth of imported fill in the study area vicinity. The previous pedestrian surveys included an intensive inspection of the ground surface for intact and scattered cultural materials, which often indicate the presence of buried archaeological components. The surveys identified the visual presence of transportation development for the rail line and rail infrastructure, which included grading and ground disturbance for installation. The previous cultural surveys and previous Orange Line construction activities did not identify any cultural materials, archaeological sites, or isolated finds in the project study area.

The geotechnical bore data, which was conducted as part of other LACMTA projects, confirms that the overlying concrete, gravel, and imported fill deposits extend from approximately 22 inches to 46 inches (i.e., 3.5 feet) below surface across the majority of the project study area. These depths are approximate because only 10 bore locations and 28 pothole locations were sampled in the existing study area. The geotechnical data confirms the presence of extensive surficial disturbance and imported, mechanical fill deposits across the project study area. As stated previously, imported fill deposits are not considered sensitive for containing intact buried archaeological deposits.

Table 4. Summary of the Results of the Buried Site and General Site Sensitivity Analysis

	Buried Sensitivity			General Sensitivity				
	Total Acres	Geologic Suitable Acreage	Percent of Geologic Acreage	Slope and H_2O Suitable Acreage	Percent of Slope/ H_2O Acreage	Slope-only Acreage/ Percentage	# of Sites in Project Area	# of Sites Within Suitable Slope/ H_2O
Project Study Area	48	48	100%	4	8%	48/100%	0	0
ASSA	2,085	2,085	100%	359	18%	2,083/99.9%	0	0

ASSA = Archaeological Sensitivity Study Area; H_2O = water

General Site Sensitivity

The general site sensitivity analysis indicates that 359 acres (18 percent) of the study area has increased sensitivity to contain archaeological sites. Because there are no previously recorded archaeological resources in the ASSA, the general sensitivity model cannot be confirmed statistically.

For the purposes of the model, areas with increased sensitivity for significant prehistoric archaeological resources are considered to be as such because they would have been suitable for persistent and long-term human use, such as habitations and resource-processing areas. As a result, because there are no existing sites recorded in the ASSA, the general site sensitivity results cannot be tested statistically.

Archaeological Sensitivity Model Summary and Conclusions

Overall, the model indicates that 100 percent of the ASSA has the capacity to contain buried archaeological sites, and 18 percent of the study area has elevated potential to contain archaeological sites, regardless of whether they are surface-exposed or buried. Not enough information is available to analyze the effectiveness of the buried site sensitivity model statistically, and additional site distribution information for the ASSA would be needed to accurately test the general sensitivity model.

As indicated previously, the known development history and geotechnical bore data indicate that the project study area has been disturbed through previous construction grading, trenching and excavations related to utility and infrastructure installation. These activities have resulted in the disturbance of the native sediments in the project study area, resulting in a typical profile that includes asphalt concrete or imported mechanical fill that extends from 22 to 42 inches (i.e., 3.5 feet) below the existing ground surface. The imported fill deposits are not considered sensitive for containing intact buried deposits. If Holocene-aged deposits are intact below the overlying fill materials, it has increased sensitivity for containing buried deposits.

AB 52 Consultation

On February 1, 2022, LACMTA sent out AB 52 request for consultation letters, which included the project description, location, and information, to 10 Native American Tribes culturally and geographically affiliated with the project area, based on the NAHC-provided Native American Tribe. The SLF search conducted for the project was positive for Native American cultural resources in the project vicinity, and outreach letters were sent to update the Tribes and request the sharing of any information regarding the resource at the Tribe's discretion. The Fernando Tataviam Band of Mission Indians responded to LACMTA on February 1, 2022, requesting consultation under AB 52 and additional geotechnical information concerning the project. LACMTA responded to FTBMI on February 7, 2022, providing links to available geotechnical data. Mr. Jairo from FTBMI replied to LACMTA via email on February 8, 2022, expressing continued interest in consultation, and requested to review the cultural resources report, when available. FTBMI stated that they would follow up to provide potential days for a consultation meeting. LACMTA responded via email on February 15, 2022, with a follow-up message about scheduling an initial consultation meeting. FTBMI responded on February 15, 2022, with available dates for meetings. LACMTA replied back on February 16, 2022, and scheduled the FTBMI consultation meeting for February 22, 2022. The initial consultation meeting between LACMTA and FTBMI was conducted on February 22, 2022. Meeting notes were recorded and provided to FTBMI with the draft cultural resources technical memorandum for review on April 29, 2022. LACMTA followed up by email on May 10, 2022, to remind the Tribe about the requested comment response date of May 13, 2022. FTBMI replied on via email on May 17, 2022, indicating that the Tribe had reviewed the technical memo and had concerns. FTBI requested to schedule an additional consultation meeting to discuss the report and mitigation measures. In addition, FTBMI requested to keep AB 52 consultation open until all concerns were addressed. LACMTA responded to FTBMI on May 18, 2022, with available meeting dates and times, and FTBMI responded on May 20, 2022, agreeing to conduct the additional consultation meeting on May 25, 2022. The additional consultation meeting was conducted on May 25, 2022, and FTBMI discussed their concerns with the technical memorandum and proposed mitigation measures. LACTMA will provide meeting notes to the Tribe when they have been compiled. As a result of the meeting, FTBMI agreed to provide revised mitigation measure text to LACMTA for review and inclusion in the technical memorandum and the environmental documents. LACTMA followed up with an email on June 1, 2022, reminding FTBMI about revisions to mitigation measure text. FTBMI responded on June 6, 2022, with text revisions for the proposed mitigation measure. LACMTA responded via email on June 6, 2022, thanking the Tribe for providing the proposed revisions. FTBMI agreed that AB 52 consultation could be concluded after LACMTA made the mitigation measure revisions.

The Gabrieleno Band of Mission Indians – Kizh Nation (GBMI – Kizh Nation) responded to LACMTA on February 18, 2022, requesting consultation under AB 52. LACMTA responded via email on February 22, 2022, with available meetings times. The GBMI – Kizh Nation replied on February 23, 2022, providing their next availability dates for the consultation meeting. LACMTA replied on February 23, 2022, and scheduled the consultation meeting for March 17, 2022. The consultation meeting was conducted with the GBMI – Kizh Nation on March 17, 2022. Chairman Salas emailed background and reference materials to LACMTA during the consultation call. Meeting notes were recorded and were provided to GBMI – Kizh Nation, along with the draft cultural resources technical memorandum for review and comment on April 29, 2022. GBMI – Kizh Nation sent a letter on May 4, 2022, outlining the Tribe's comments on the technical memorandum and preferred mitigation measure revisions. LACMTA's sent a response letter on May 18, 2022, that provided background for slight modifications to the proposed mitigation measures. The Tribe sent a follow-up letter on May 24, 2022, reiterating the same mitigation measure revisions proposed in the May 4, 2022, letter. LACMTA responded to the letter and reiterated that LACMTA thanks them for their participation and that LACTMA had responded to the concerns through slight modifications to the proposed mitigation measures. AB 52 consultation with both Tribes was considered concluded after LACMTA reviewed and revised the mitigation measures based on Tribal input.

LACMTA sent follow-up emails to all of the Tribes who were sent letters for AB 52 consultation on February 15 and February 16, 2022. The NAHC specifically requests that the lead agency for AB 52 consultation follow up with the Tribes to confirm receipt of the original communication within 2 weeks of the initial notification, which LACMTA has completed. The SLF and Tribal list provided by the NAHC and a summary of AB 52 Consultation outreach and nonconfidential meeting information to date is provided in Appendix B.

Impacts Analysis

Archaeological Resources

The results of the records search were negative for any archaeological resources within the project study area, and the entire project study area has been surveyed for archaeological resources on at least two separate occasions. No archaeological resources have been recorded in the project study area during the previous surveys or encountered and recorded during previous construction activities. Previous geotechnical investigations in the project study area confirmed that the current ground surface of the project study area has overlying asphalt, concrete, and pavement underlain by artificial mechanical fill deposits, which extend to an average thickness of 11 to 42 inches (i.e., 3.5 feet) below surface documented in bores and up to 11 feet below surface for utilities and drainage infrastructure. This level of surface disturbance suggests that the project study area has undergone previous grading, trenching for utilities, and other activities that have resulted in the disturbance and/or removal of the original native ground surface. These disturbance activities have reduced potential for the project study area to contain intact archaeological deposits on what would have been the native ground surface. The archaeological sensitivity analysis identified that the project study area has increased potential for containing buried deposits that could contain archaeological materials, if present. The proposed project ground disturbance will involve limited backhoe trenches, which will be excavated to limited depths, and oscillating drilled holes for the infiltration wells, which are planned to be drilled to a maximum depth of approximately 45 feet below surface. The actual depths of the drywells will be determined once project design is complete. The drywell drill method will produce limited sediments for visual inspection.

Given the lack of resources present in the project study area and the documented level of previously developed disturbance, the project has limited potential for intact archaeological resources at the surface or within any artificial fill deposits identified across the project study area. The project study area does maintain an increased potential for intact buried deposits, below any disturbance or artificial fill deposits; therefore, LACMTA has identified that incorporating Mitigation Measures CR-1 through CR-4 would reduce the risk of significant impacts to any archaeological resources which might be encountered during project construction. The Mitigation Measures are listed below and described in detail under the following Mitigation Measures heading.

- **MM CR-1**: Retain a Qualified Archaeologist.
- **MM CR-2**: Develop Worker Environmental Awareness Program (WEAP) Training and Deliver to Construction Crews.
- **MM CR-3**: Prepare a Detailed Unanticipated Discovery Plan (UDP).
- **MM CR-4**: Implement Procedures for Discovery of Human Remains and Associated or Unassociated Funerary Objects.

Historical Resources

Due to the subsurface nature of the proposed project footprint, ICF conducted desktop review of the proposed project footprint and reviewed records search results to identify historical resources in lieu of a built environment resources study. The records search identified one historical resource: the Los Angeles Department of Water and Power Building, 14601 Aetna St (P-19-192858). Although located adjacent to the project study area, the resource is approximately 600 feet, and one city block, away from any project-related activities. In addition to this distance, the proposed project would have no above-ground expressions and, therefore, would not result in visual or noise impacts to the resource. Therefore, no impact would occur.

Mitigation Measures

Although no documented archaeological resources are located in the project study area, the project study area has increased potential for containing buried deposits, which could contain archaeological materials, if present. Mitigation Measures CR-1 through CR-4 would be implemented to ensure that potential significant impacts to any unanticipated discoveries would not occur.

CR-1: Retain a Qualified Archaeologist.

Prior to the start of ground-disturbing activities, LACMTA will retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (36 Code of Federal Regulations, Part 61) to carry out the following cultural resources mitigation measures.

CR-2: Develop Worker Environmental Awareness Program (WEAP) Training and Deliver to Construction Crews.

Prior to start of ground-disturbing activities, the qualified archaeologist will prepare a cultural resources sensitivity training module to be used as part of the construction operations Worker Environmental Awareness Program (WEAP) training. As part of the WEAP training development, LACMTA will retain a tribe-approved representative from each Consulting Tribe to develop tribal cultural resources sensitivity information pertinent to each Tribe and present this information during the WEAP trainings. All construction personnel will receive sensitivity training prior to beginning work onsite. Construction personnel will be informed about the types of archaeological resources and tribal cultural resources that may be encountered and the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources, tribal archaeological resources, or human remains. LACMTA and the lead construction firm will ensure that construction personnel are made available for and attend the training and will retain documentation demonstrating attendance.

CR-3: Prepare a Detailed Unanticipated Discovery Plan (UDP).

Prior to the start of any project-related ground-disturbing activities, the qualified archaeologist will prepare a detailed Unanticipated Discovery Plan (UDP) for the project, the drafts of which shall be provided to the Consulting Tribes for review and comments. The UDP will outline the appropriate measures to be followed in the event of unanticipated discovery of cultural resources during project implementation, including that all ground disturbance within 50 to 100 feet, or an appropriately sized buffer area depending on site conditions, of an unanticipated discovery will cease until a qualified archaeologist evaluates it. Project construction within the buffer area surrounding the unanticipated discovery, will not continue until the qualified archaeologist has coordinated with LACMTA. LACMTA will coordinate with Consulting Tribes and retain a Native

American monitor from the Consulting Tribes to respond to discoveries for the project if Native American resources or tribal cultural resources are identified (e.g., prehistoric site, ethnographic sites, native American resources).

CR-4: Implement Procedures for Discovery of Human Remains and Associated or Unassociated Funerary Objects

If human remains are encountered, then all work will halt in the vicinity (i.e., within 50 to 100 feet) of the find, and the Los Angeles County Coroner will be contacted in accordance with PRC Section 5097.98 and Health and Safety Code Section 7050.5. If the County Coroner determines that the remains are Native American, then the NAHC will be notified in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC Section 5097.98 (as amended by AB 2641). The NAHC will designate a Most Likely Descendant (MLD) for the remains, per PRC Section 5097.98. LACMTA will consult with the MLD regarding the final disposition of any human remains that are determined to be Native American in origin. The treatment of any human remains determined to be Native American in origin and all subsequent actions to be taken will be described in the UDP.

Conclusions

No known archaeological resources are within or near the project study area, and the Project is not anticipated to result in significant impacts on archaeological resources. Implementation of Mitigation Measures CR-1 through CR-4 would reduce any significant impacts to unanticipated archaeological discoveries to less than significant. The single built environment historical resource is adjacent to the project study area and more than 500 feet away from any project-related activities; therefore, no impact would occur.

References

Architectural Resources Group, Inc.
2015 *SurveyLA Historic Resources Survey Report Draft, Van Nuys–North Sherman Oaks Community Plan Area*. July.

Bean, Lowell J., and C. R. Smith
1978 Gabrielino. In *California*, edited by R. F. Heizer, pp. 538–549. Handbook of North American Indians, Vol. 8, W.C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Bedrossian, T. L, P. Roffers, C. A. Hayhurst, J. T. Lancaster, and W. R. Short
2012 Geologic Compilation of Quaternary Surficial Deposits in Southern California. Digital GIS Dataset prepared by the California Department of Conservation and the California Geological Survey. Data scale 1:100,000.

Boscana, Gerónimo
1978 *Chinigchinich: A Revised and Annotated Version of Alfred Robinson's Translation of Father Geronimo Boscana's Historical Account of the Beliefs, Usages, Customs and Extravagancies of the Indians of this Mission San Juan Capistrano Called the Acagchemen Tribe [1846].* Edited by P. T. Hanna. Reprinted Annotations by John P. Harrington. Banning, CA: Malki Museum Press.

Christenson, L. E.
1990 The Late Prehistoric Yuman People of San Diego County California: Their Settlement and Subsistence System. Unpublished PhD Dissertation. Phoenix, AZ: Department of Anthropology, Arizona State University.

Douglass, Jon G., Jeffrey H. Altschul, and Richard Ciolek-Torrello (editors)
2005 *Overlooking the Wetlands: Archaeological Investigations at the West Bluffs Project CA-LAN-63, CA-LAN-64, and CA-LAN-206A, Playa del Rey, California*. Technical Report 05-93. Tucson, AZ: Statistical Research, Inc.

Drover, Chris E., Henry C. Koerper, and Paul Langenwalter, II
1983 Early Holocene human adaptation on the southern California coast: A summary report of investigations at the Irvine Site (CA-ORA-64), Newport Bay, Orange County, California. *Pacific Coast Archaeological Society Quarterly* 19(3 & 4):1–84.

Elder, J. T., P. Reed, A. E. Stevenson, and M. S. Sparks
2015 Archaeological feature preservation in active fluvial environments: an experimental case study from the Snoqualmie River, King County, Washington State. *Journal of Northwest Anthropology* 49(2):167–178.

Erlandson, Jon M., Todd J. Braje, Torben C. Rick, and Jenna Peterson
2005 Beads, bifaces, and boats: an early maritime adaptation on the south coast of San Miguel Island, California. *American Anthropologist* 107(4):677–683.

Erlandson, J. M., M. H. Graham, B. J. Bourque, D. Corbett, J. A. Estes, and R. S. Steneck
2007 The Kelp Highway Hypothesis: marine ecology, the coastal migration theory, and the peopling of the Americas. *Journal of Island and Coastal Archaeology* 2:161–74.

Erlandson, Jon M., Torben C. Rick, Todd J. Braje, Molly Casperson, Brendan Culleton, Brian Fulfrost, Tracy Garcia, Daniel A. Guthrie, Nicolas Jew, Douglas J. Kennett, Madonna L. Moss, Leslie Reeder, Craig Skinner, Jack Watts, and Lauren Willis
2011 Paleoindian seafaring, maritime technologies, and coastal foraging on California's Channel Islands. *Science* 331:1,181–1,185.

Fitzgerald, Richard T., Terry L. Jones, and Adella Schroth
2005 Ancient long-distance trade in western north America: new AMS radiocarbon dates from southern California. *Journal of Archaeological Science* 32:423–434.

Goldberg, S. K., and J. E. Arnold
1988 *Prehistoric Sites in the Prado Basin, California: Regional Context and Significance Evaluation*. Submitted to the U.S. Army Corps of Engineers, Los Angeles District. Sonora, CA: INFOTEC Research, Inc.

Grenda, Donn R.
1997 *Continuity & Change: 8,500 Years of Lacustrine Adaptation on the Shores of Lake Elsinore. Technical Series 59.* Submitted to the U. S. Army Corps of Engineers, Los Angeles District, Los Angeles, California. Tucson, AZ: Statistical Research, Inc.

Gudde, Erwin G.
1998 *California Place Names: the Origin and Etymology of Current Geographical Names*. Berkeley, CA: University of California Press.

Harrington, John P.
1933 A new original version of Boscana's historical account of the San Juan Capistrano Indians of southwest California. *Smithsonian Miscellaneous Collections* 92 (4):1–62. Washington, D.C.: Smithsonian Institution.

Hong, Larry
2020 *30% Geotechnical Data Report: Proposed Metro Orange Line Grade Separation Project, Sepulveda Segment, Van Nuys District, Los Angeles County, California*. Reviewed by Perry A. Maljian, P.E. Prepared for Mott MacDonald, LLC, by Wood Environment & Infrastructure Solutions, Inc., Los Angeles, California.

Hoover, Mildred B., Hero E. Rensch, Ethel G. Rensch, and William M. Abeloe
2002 *Historic Spots in California.* Fifth edition revised by Douglas E. Kyle. Stanford, CA: Stanford University Press.

Howey, M. C. L.
2007 Using multi-criteria cost surface analysis to explore past regional landscapes: a case study of ritual activity and social interaction in Michigan, AD 1200–1600. *Journal of Archaeological Science* 34(11):1,830–1,846.

ICF
2015 *Cultural Resources Survey Report for the Proposed Tongue River Railroad Docket No. FD30186.* Prepared for the Office of Environmental Analysis, Surface Transportation Board.

Heizer, Robert E. (editor)
1968 The Indians of Los Angeles County Hugo Reid's letters of 1852. *Southwest Museum Papers* 21. Edited and annotated by Robert F. Heizer. Los Angeles, CA: Southwest Museum,.
1977 *A Collection of Ethnographical Articles on the California Indians.* Ramona, CA: Ballena Press.

Ingbar, E. and J. Hall
2014 *A Western Oregon Cultural Resource Forecast Model for USDI Bureau of Land Management.* Prepared for Bureau of Land Management.

Jenkins, Dennis L., Loren G. Davis, Thomas W. Stafford, Jr., Paula F. Campos, Thomas J. Connolly, Linda Scott Cummings, Michael Hofreiter, Brian Hockett, Katelyn MacDonough, Mark E. Swisher, Frances White, Bonnie Yates, Robert M. Yohe II, Chad Yost, and Eske Willerslev
2013 Geochronology, Archaeological Context, and DNA at the Paisley Caves. In *Paleoamerican Odyssey*, edited by Kelley E. Graff, Carolyn V. Ketron, and Michael R. Waters, pp. 485–510. College Station, TX: Center for the Study of the First Americans.

Jennings, Thomas A., and Michael R. Waters
2014 Pre-Clovis lithic technology at the Debra L. Friedkin Site, Texas: comparisons to Clovis through site-level behavior, technological trait-list, and cladistic analyses. *American Antiquity* 79(1):25–44.

Johnson, J. J.
1966 *A Preliminary Survey of the Archaeological Resources of Lower Mill Creek*. Davis, CA: Department of Anthropology, University of California.

Jorgensen, Lawrence C.
1982 *The San Fernando Valley: Past and Present*. Los Angeles, CA: Pacific Rim Research.

Joyce, Daniel J.
2013 Pre-Clovis Megafauna Butchery Sites in the Western Great Lakes Region, USA. In *Paleoamerican Odyssey*, edited by Kelly E. Graff, Carolyn V. Ketron, and Michael R. Waters, pp. 467–484. College Station, TX: Center for the Study of the First Americans.

King, C. D.
2011 *Overview of the History of American Indians in the Santa Monica Mountains. Report prepared for the National Park Service Pacific West Region and Santa Monica Mountains National Recreation Area.* Topanga, CA: Topanga Anthropological Consultants.

King, C., and T. Blackburn.
1978 Tataviam. In *Handbook of North American Indians*, Vol. 8, California, R.F. Heizer (ed.), pp. 535–537. Washington D.C.: Smithsonian Institution.

Koerper, Henry C., and Chris E. Drover
1983 Chronology building for coastal Orange County, the case from CA-ORA-119A. *Pacific Coast Archaeological Society Quarterly* 19(2):1–34.

Kowta, M.
1969 The Sayles Complex: a late milling stone assemblage from Cajon Pass and the ecological implications of its scraper planes. *University of California Publications in Archaeology* (6).

Kroeber, A. L.
1925 Handbook of the Indians of California. *Bureau of American Ethnology Bulletin* 78. Washington, D.C.

Lothrop, J. C., J. F. Custer and C. De Santis
1987 *Phase I & II Archaeological Investigations of the Route 896 Corridor, Route 4 – West Chestnut Hill Road to Summit Bridge Approach, NW Castle County, Delaware.* Prepared for the Delaware Department of Transportation.

LSA Associates
2011 *Draft Historic Context Statement: Survey of LA Industrial Development, City of Los Angeles, Los Angeles County, California*. August.

Mott MacDonald
2020 *Metro Orange Line Improvement Gated Intersections Preliminary (65% Design) Geotechnical Report.* Document reference 381630-WEI-01-XX-RP-GE-0004. Prepared by Mott MacDonald for Los Angeles Metro, Los Angeles, California.

McCawley, W.
1996 *The First Angelinos*. Banning, CA: Malki Museum Press/Ballena Press Cooperative Publication.

Meltzer, D.J.
2004 Peopling of North America. In (Ed. A. R. Gillespie, S. C. Porter, and B. F. Atwater) *Developments in Quaternary Science Volume 1: The Quaternary Period in the United States*. Elsiever, Amsterdam, The Netherlands.

Myra Frank and Associates, Inc.
2001 *Draft Environmental Impact Statement/Environmental Impact Report for The San Fernando Valley East/West Transit Corridor Project*. Prepared for the Federal Transit Administration U.S. Department of Transportation and the Los Angeles County Metropolitan Transportation Authority.

Ponnaboyina, Hari, and B. H. Martin
2018 *30% Geotechnical Data Report: Proposed Metro Orange Line Grade Separation Project, Sepulveda Segment, Van Nuys District, Los Angeles County, California.* Reviewed by Perry A. Maljian, P.E. Prepared for Mott MacDonald, LLC by Wood Environment & Infrastructure Solutions, Inc., Los Angeles, California.

Porcasi, Judith F., and Paul Porcasi
2002 New dates and data from archaic Malibu with some regional considerations. *Pacific Coast Archaeological Society Quarterly* 38(4):21–43.

Rick, T.C., J. M. Erlandson, and R. L. Vellanoweth
2001 Paleocoastal marine fishing on the Pacific coast of the Americas: perspectives from Daisy Cave, California. *American Antiquity* 66:595–613.

Robbins-Wade, M.
1990 Prehistoric Settlement Pattern of Otay Mesa, San Diego County, California. Unpublished Master's thesis. San Diego, CA: Department of Anthropology, San Diego State University.

Robinson, W. W.
1956 The rancho story of San Fernando Valley. *Historical Society of Southern California Quarterly* 38(3):225–234.

Roderick, Kevin
2001 *The San Fernando Valley: America's Suburb*. Los Angeles, CA: Los Angeles Times Books.

Schuiling, W. C. (editor)
1979 *Pleistocene Man at Calico* (2nd Edition). Redlands, CA: San Bernardino County Museum Association.

Simpson, R. D.
1980 The Calico Mountains site (oldest known early man site in America). *ASA Journal* 4(2):8–25. Redlands, CA: Archaeological Survey Association of Southern California.

Solis, L.
2008 *People Who Face the Sun*. Bloomington, IN: Xlibris Publishing.

Stickel, Gary
2016 *Why the Original Tribe of the Greater Los Angeles Area is Called Kizh Nation Not Tongva*. San Gabriel, CA: Kizh Tribal Press.

Sutton, Mark Q.
2010 A reevaluation of early northern Uto-Aztecan prehistory in Alta California. *California Archaeology* 2:1, 3–30.
2011 The Palomar tradition and its place in the prehistory of southern California. *Pacific Coast Archaeological Society Quarterly* 44(4):1–74.

Sutton, Mark Q., and Jill K. Gardner
2010 Reconceptualizing the Encinitas tradition of southern California. *Pacific Coast Archaeological Society Quarterly* 42(4):1–64.

True, D. L.
1958 An early gathering complex in San Diego County, California. *American Antiquity* 23:255–263.

Van Horn, D. M.
1987 *Excavations at the Del Rey Site (LAN-63) & Bluff Site (LAN-64), City of Los Angeles*. Sun City, CA: Archaeological Associates, Inc.

Van Horn, D. M., and J. R. Murray
1985 *The Loyola Marymount Archaeological Project: Salvage Excavations at LAN-61A-C.* Environmental Impact Report. July 30.

Wallace, W. J.
1955 A suggested chronology for southern California coastal archaeology. *Southwestern Journal of Anthropology* 11:214–230.
1978 Post-Pleistocene archaeology, 9000 to 2000 B.C. In *California*, edited by R. F. Heizer, pp. 25–36. *Handbook of North American Indians*, Vol. 8, W. C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Warren, C. N.
1968 Cultural Tradition and ecological adaptation on the southern California coast. *Eastern New Mexico University Contributions in Anthropology* 1(3):1–15.
1980 Part I: The Archaeology and Archaeological Resources of the Amargosa–Mojave Basin Planning Units. In *A Cultural Resource Overview for the Amargosa-Mojave Basin Planning Units*, by C. N. Warren, M. Knack, and E. T. Warren. Riverside, CA: Bureau of Land Management, Desert Planning Program.

Warren, C. N., D. L. True, and A. A. Eudey
1961 Early gathering complexes of western San Diego County: Results of interpretation of an archaeological survey. *Archaeological Survey Annual Report 1960–1961*:1–106. Los Angeles, CA: Institute of Archaeology, University of California.

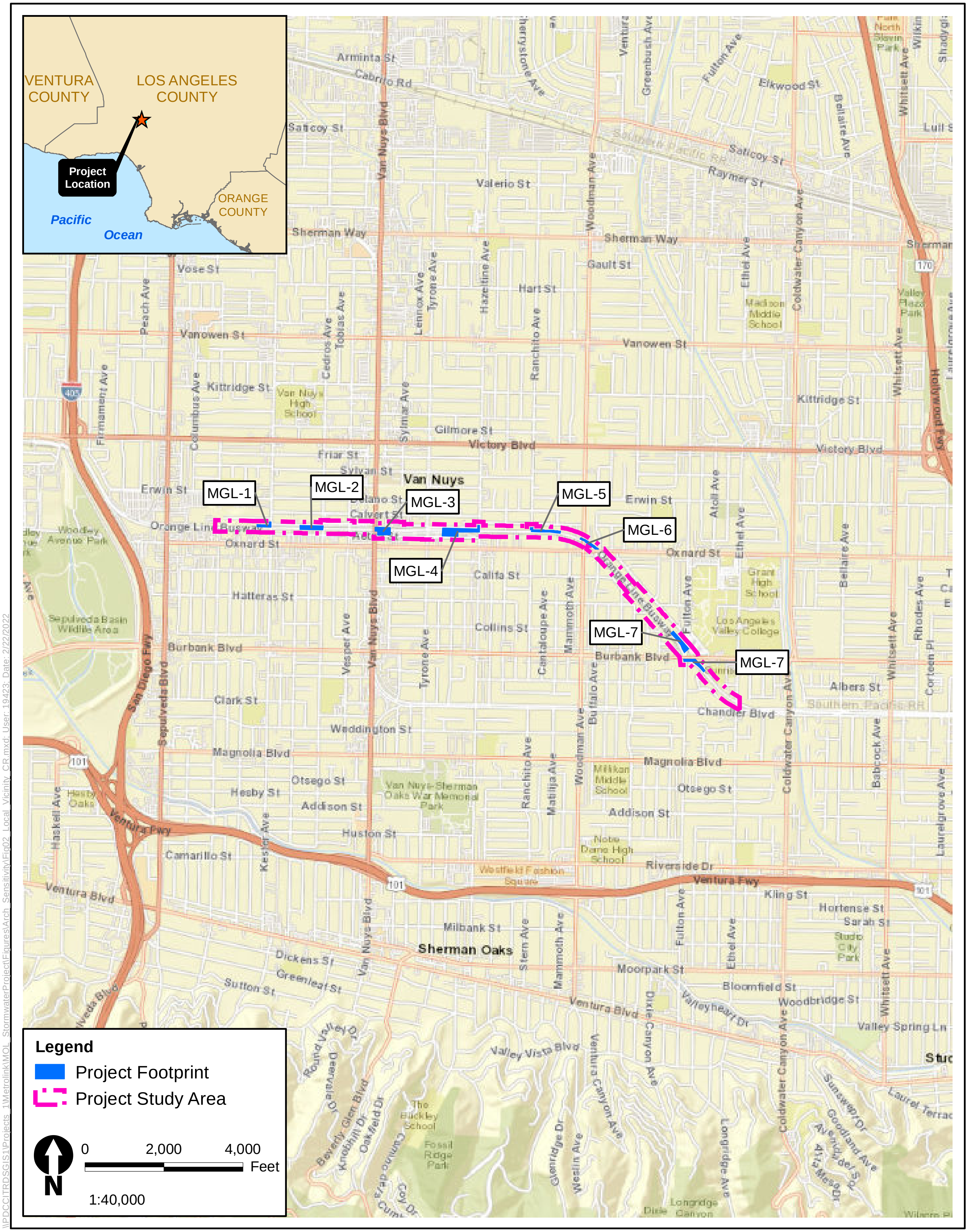
Waters, Michael R., Steven L. Forman, Thomas A. Jennings, Lee C. Nordt, Steven G. Driese, Joshua M. Feinberg, Joshua L. Keene, Jessi Halligan, Anna Lindquist, James Pierson, Charles T. Hallmark, Michael B. Collings, and James E. Wiederhold
2011 The Buttermilk Creek Complex and the origins of Clovis at the Debra L. Friedkin Site, Texas. *Science* 331:1, 599–1,603.

Weber, F. H. Jr.
1963 *Geology and Mineral Resources of San Diego County, California*. California Division of Mines and Geology County Report 3. San Francisco, CA.

Yerkes R. F., R. H. Campbell, R. Alvarez, K. Bovard, and M. McMackin
2006 Preliminary Geologic Map of the Los Angeles 30’ by 60’ Quadrangle, Southern California, 1:100,000 scale. Open File Report 2005-1019. U.S. Geological Survey.

Appendix A
Figures

Regional Vicinity
Metro G Line Water Infiltration and Quality Project



Local Vicinity
Metro G Line Water Infiltration and Quality Project

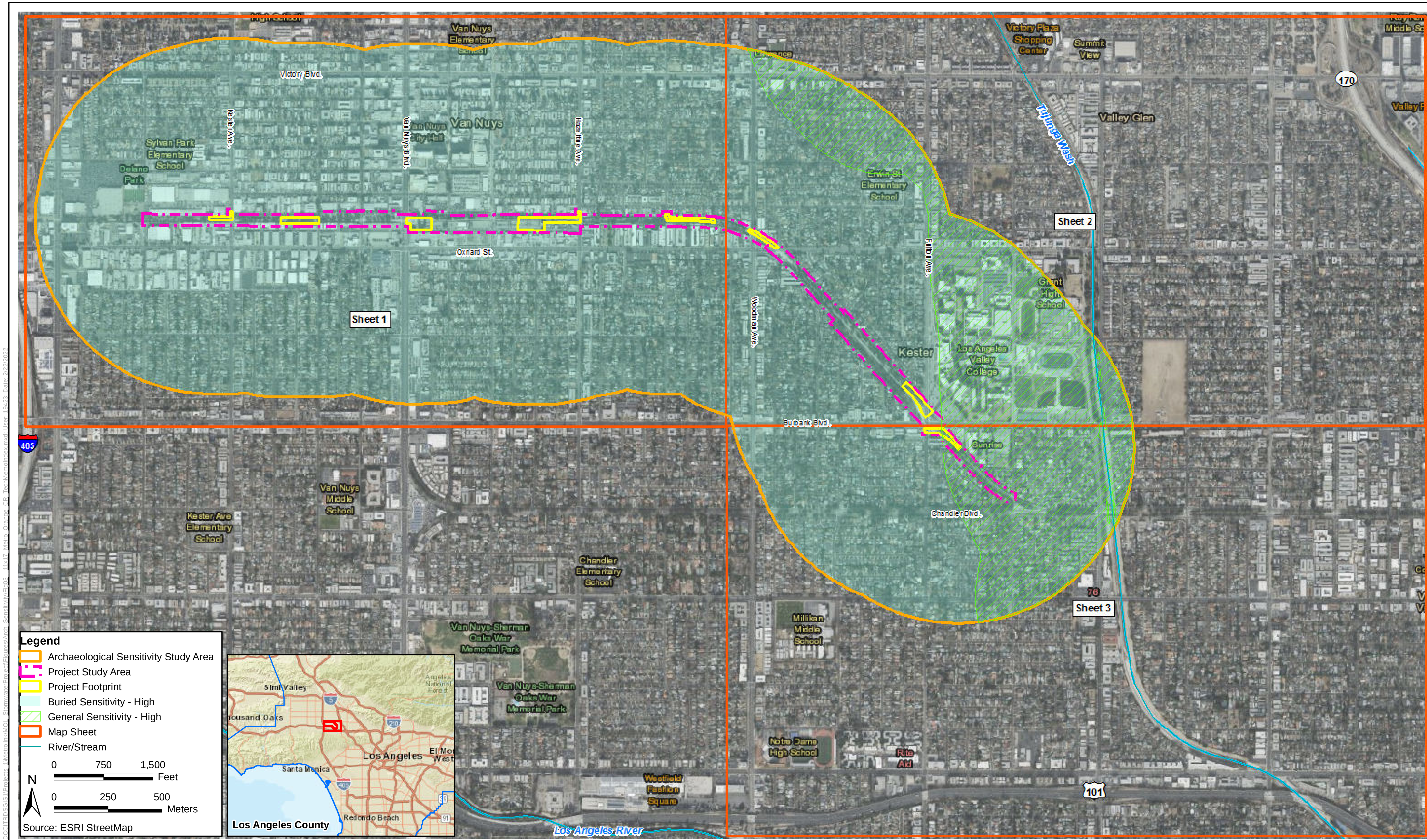
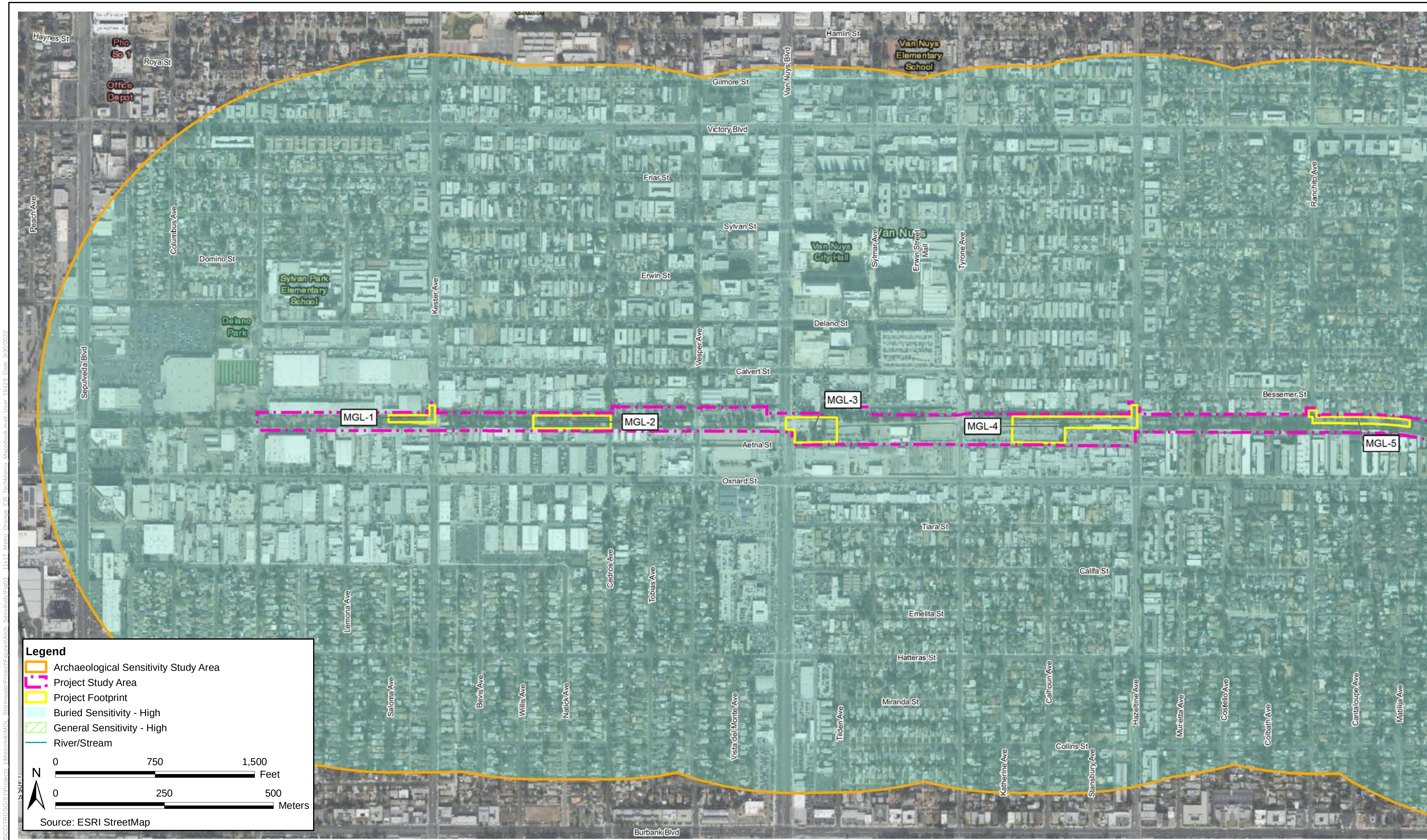


Figure 3, Index
Archaeological Sensitivity Analysis
LACMTA G-Line (MGL) Water Infiltration and Quality Project



ICF

Figure 3, Sheet 1 of 3
Archaeological Sensitivity Analysis
LACMTA G-Line (MGL) Water Infiltration and Quality Project

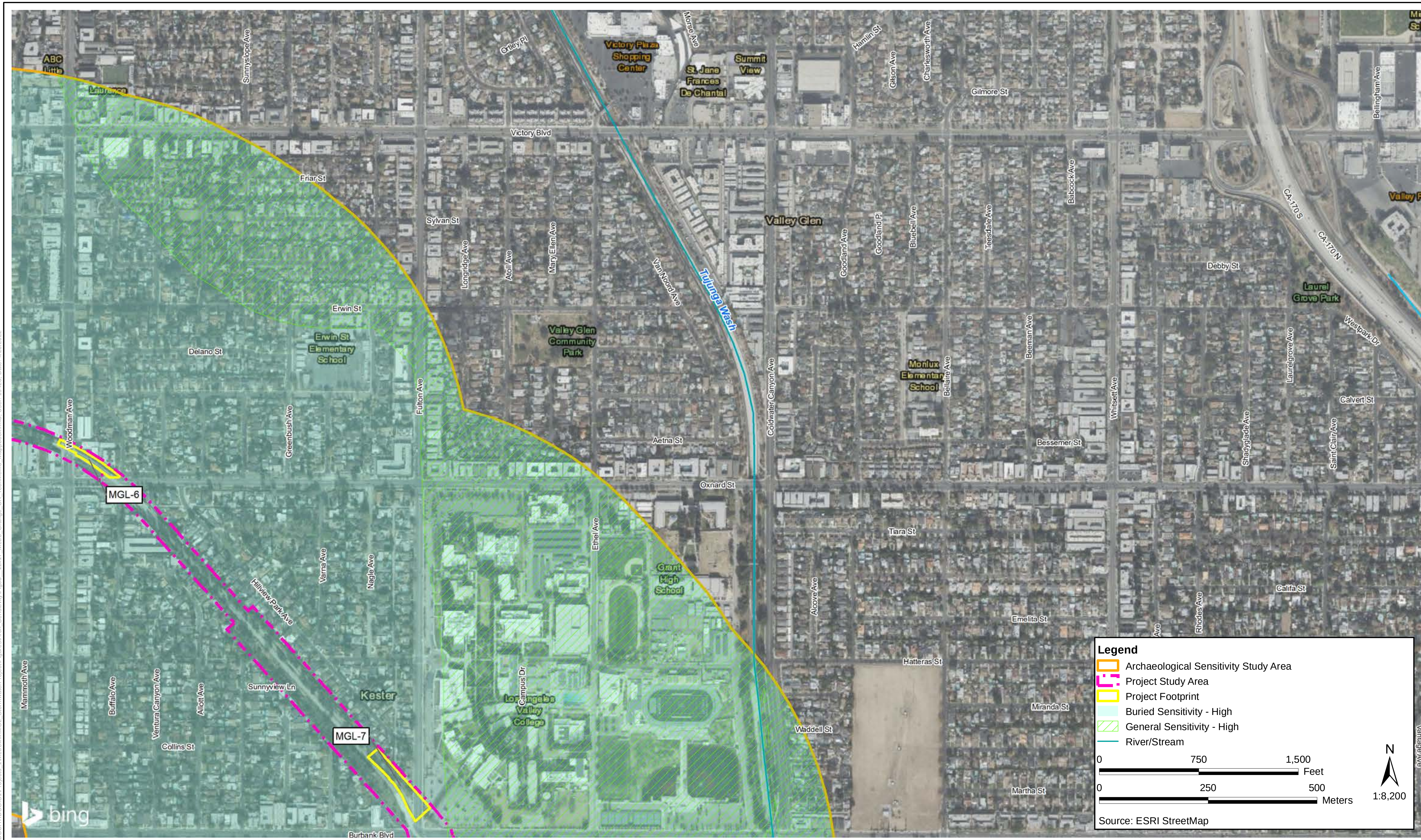


Figure 3, Sheet 2 of 3
Archaeological Sensitivity Analysis
LACMTA G-Line (MGL) Water Infiltration and Quality Project

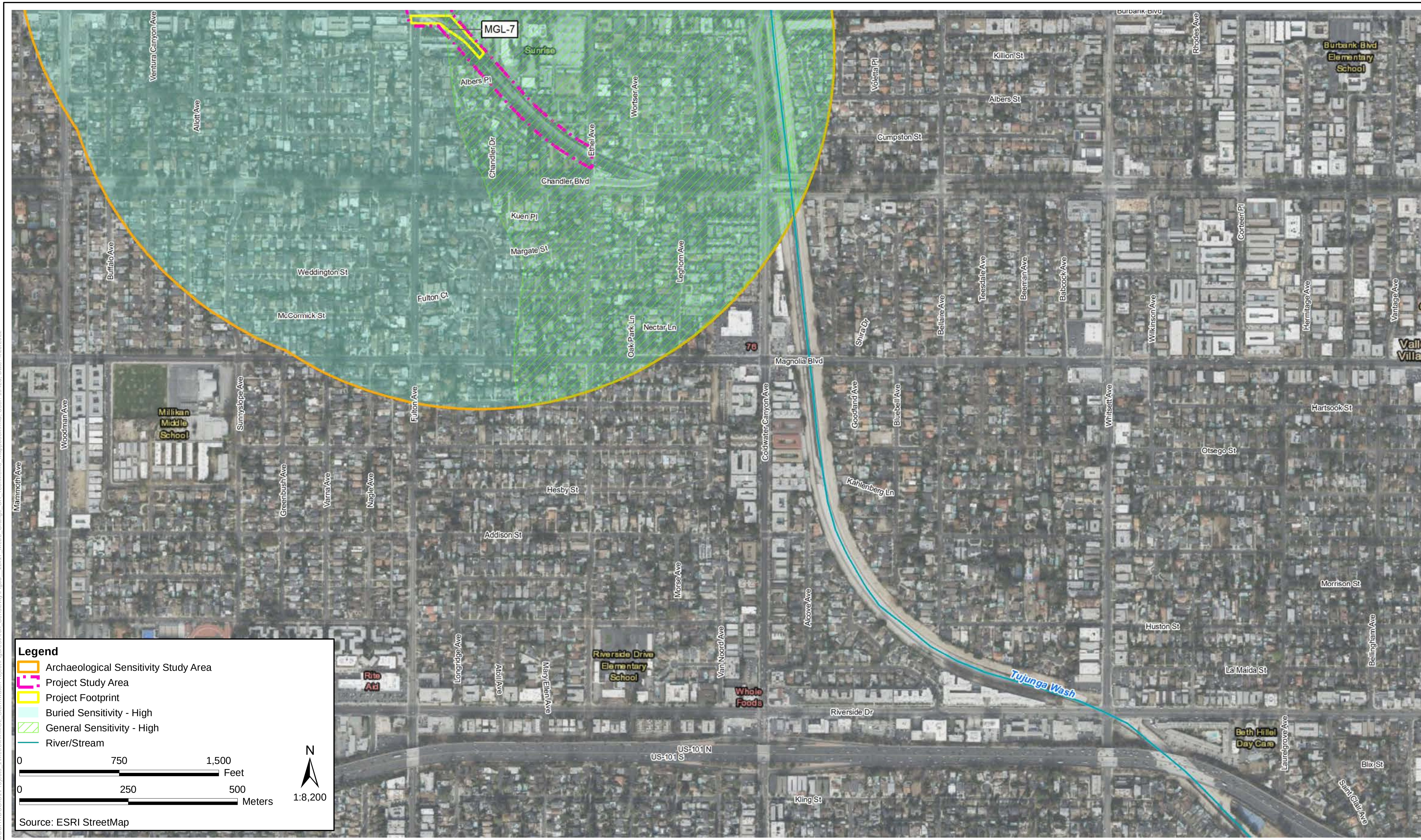


Figure 3, Sheet 3 of 3
Archaeological Sensitivity Analysis
LACMTA G-Line (MGL) Water Infiltration and Quality Project

Appendix B
Native American Consultation

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Metro Orange Line Water Infiltration and Quality Project/00630.21

County: Los Angeles County

USGS Quadrangle Name: Van Nuys

Township: N/A **Range:** N/A **Section(s):** N/A

Company/Firm/Agency: ICF

Street Address: Multiple locations along the Orange Line Busway in Van Nuys (see map)

City: Los Angeles **Zip:** 91401

Phone: 619-213-7747

Fax: 844-545-2301

Email: Lauren.Downs@icf.om

Project Description:

The project is located on former Rancho Ex-Mission San Fernando land. Los Angeles County Metropolitan Transportation Authority (LA Metro) proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of 168 infiltration drywells across seven locations within LA Metro properties along the Metro Orange Line, with pretreatment facilities to capture, treat, and infiltrate stormwater runoff from 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin.

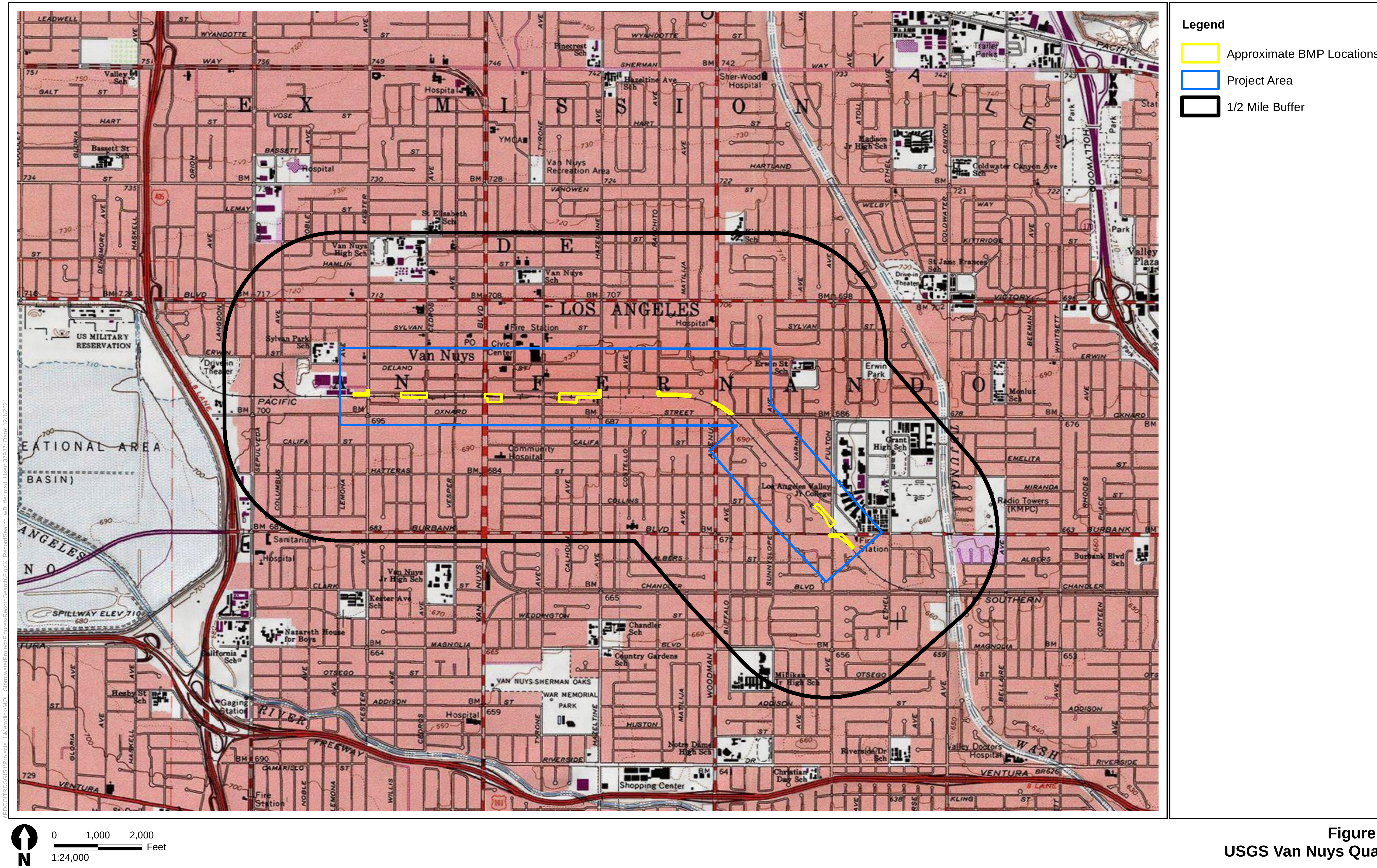


Figure 1
USGS Van Nuys Quad

NATIVE AMERICAN HERITAGE COMMISSION

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

January 27, 2022

Lauren Downs
ICF

Via Email to: Lauren.Downs@ifc.com

Re: Metro Orange Line Water Infiltration and Quality Project, Los Angeles County

Dear Ms. Downs:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information submitted for the above referenced project. The results were positive. Please contact the Fernandeno Tataviam Band of Mission Indians on the attached list for information. Please note that tribes do not always record their sacred sites in the SLF, nor are they required to do so. A SLF search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with a project's geographic area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites, such as the appropriate regional California Historical Research Information System (CHRIS) archaeological Information Center for the presence of recorded archaeological 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. Please contact all of those listed; if they cannot supply information, they may 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 the NAHC. 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
Los Angeles County
1/27/2022

Fernandeno Tataviam Band of Mission Indians
Jairo Avila, Tribal Historic and Cultural Preservation Officer
1019 Second Street, Suite 1
San Fernando, CA, 91340
Phone: (818) 837 - 0794
Fax: (818) 837-0796
jairo.avila@tataviam-nsn.us
Tataviam

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393
Covina, CA, 91723
Phone: (626) 926 - 4131
admin@gabrielenoindians.org
Gabrieleno

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693
San Gabriel, CA, 91778
Phone: (626) 483 - 3564
Fax: (626) 286-1262
GTTribalcouncil@aol.com
Gabrieleno

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231
Los Angeles, CA, 90012
Phone: (951) 807 - 0479
sgoad@gabrielino-tongva.com
Gabrielino

Gabrielino Tongva Indians of California Tribal Council
Christina Conley, Tribal Consultant and Administrator
P.O. Box 941078
Simi Valley, CA, 93094
Phone: (626) 407 - 8761
christina.marsden@alumni.usc.edu
Gabrielino

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490
Bellflower, CA, 90707
Phone: (562) 761 - 6417
Fax: (562) 761-6417
gtongva@gmail.com
Gabrielino

Gabrielino-Tongva Tribe
Charles Alvarez,
23454 Vanowen Street
West Hills, CA, 91307
Phone: (310) 403 - 6048
roadkingcharles@aol.com
Gabrielino

Santa Rosa Band of Cahuilla Indians
Lovina Redner, Tribal Chair
P.O. Box 391820
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
lsaul@santarosa-nsn.gov
Cahuilla

Soboba Band of Luiseno Indians
Isaiah Vivanco, Chairperson
P. O. Box 487
San Jacinto, CA, 92581
Phone: (951) 654 - 5544
Fax: (951) 654-4198
ivivanco@soboba-nsn.gov
Cahuilla
Luiseno

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487
San Jacinto, CA, 92581
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov
Cahuilla
Luiseno

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 Metro Orange Line Water Infiltration and Quality Project, Los Angeles County.

Los Angeles County
Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Tel
metro.net

Metro

January 31, 2022

Gabrielino-Tongva Tribe
Charles Alvarez, Tribal Chairman
23454 Vanowen Street
West Hills, CA, 91307

Subject: Tribal Consultation for the Metro G (Orange) Line Stormwater Infiltration and Quality Project pursuant to Public Resources Code PRC§21080.3.1(d)

Dear Chairman Alverez,

The Los Angeles County Metropolitan Transportation Authority (Metro) is conducting CEQA environmental review for the Metro G (Orange) Line (MGL) Stormwater Infiltration and Quality Project. The proposed Project is located in the city of Los Angeles in the San Fernando Valley, on ex Mission de Los Angeles lands (see attached figure). This letter serves to notify and invite you to consult on the MGL Stormwater Infiltration and Quality Project, in accordance with PRC§21080.3.1(d).

Project Description

The Project proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of underground pretreatment and infiltration stormwater facilities across seven locations within Metro-owned parcels and right-of-way adjacent to the active busway along the MGL. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed Project has the potential to include active diversion structures (pump stations) or gravity-driven diversion structures and pretreatment facilities to capture, treat, and infiltrate stormwater runoff from over 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin. Metro's extensive land holdings and fortuitous siting within the highest value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro's total potable water consumption was 772 and 673 acre-feet respectively. The Project has the potential to capture enough stormwater to allow Metro to become Net Water Positive, contributing more water to regional groundwater recharge than it uses to support all of its operations. This Project would be built utilizing the construction mobilization and resources of the MGL Bus Rapid Transit Improvements Project, to save construction cost and expedite implementation of the Project.

The Project area is completely urbanized and covered with buildings, heavily trafficked roadways, paving, hardscaping, and landscaping. Metro is preparing a Cultural Resources Technical Memorandum for the Project to include the results of records searches, research, consultation, and an archaeological sensitivity analysis. Metro has requested a Sacred Lands File

Metro

Los Angeles County
Metropolitan Transportation Authority

One Gateway Plaza
Los Angeles, CA 90012-2952

213.922.2000 Tel
metro.net

Search from the Native American Heritage Commission (NAHC), and has requested a cultural resources records search from the South Central Coastal Information Center (SCCIC). Results of those records requests are pending. Additionally, the archaeological sensitivity analysis is in development.

Metro acknowledges that some areas may contain resources not readily available from the NAHC or the SCCIC, or through background research or a sensitivity assessment and would appreciate any information you can provide on potential or known cultural or Tribal resources within the Project area.

Metro is interested in receiving input from your community regarding and concern related to the proposed Project. If you know of any cultural or Tribal resources that may be of religious or cultural significance to your community, or if you would like more information please contact:

Melissa Levitt, Sr Environmental Specialist
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza (Mail Stop 99-16-9)
Los Angeles, California 90012
Email: levittm@metro.net

In return correspondence, please refer to this project as the Metro G Line Stormwater Infiltration and Quality Project.

Please respond within 30 days, pursuant to PRC§21080.3.1(d), if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.

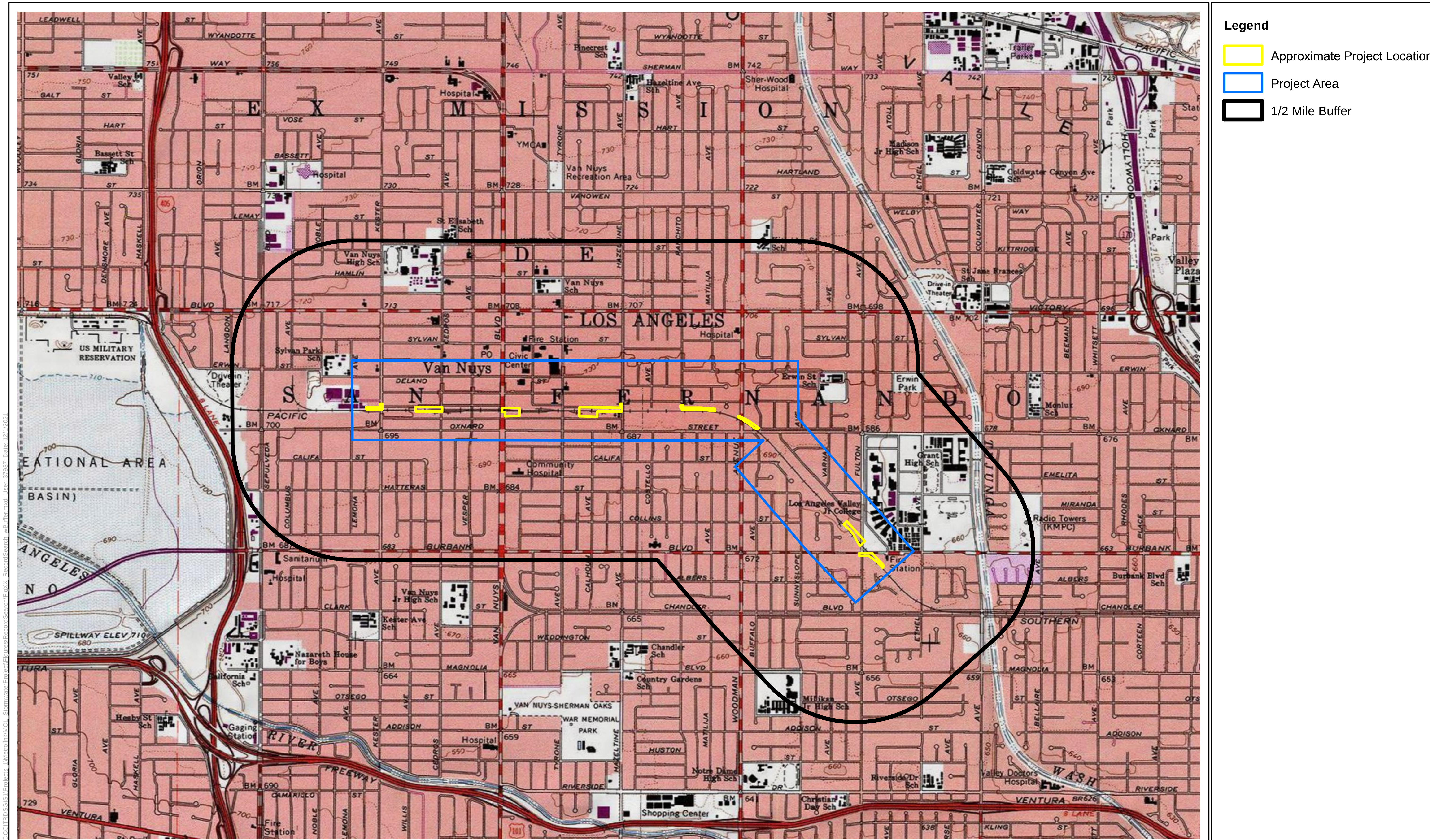
Sincerely,

Melissa Levitt

Melissa Levitt
Senior Environmental Specialist
Los Angeles County Metropolitan Transportation Authority

Enclosure: Project Area Map

cc: Annalisa Murphy, Director, Metro
Melissa Lai, Senior Engineer, Metro
Sarah Baker, Senior Environmental Planning Principal, ICF



N

0 1,000 2,000
Feet
1:24,000

USGS 7.5 Minute Van Nuys Quadrangle

Orange Line Water Infiltration and Quality Project

Metro
Los Angeles County
Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Tel
metro.net

January 31, 2022

Fernandeno Tataviam Band of Mission Indians
Jairo Avila, Tribal Historic and
Cultural Preservation Officer
1019 Second Street, Suite 1
San Fernando, CA, 91340

Subject: Tribal Consultation for the Metro G (Orange) Line Stormwater Infiltration and Quality Project pursuant to Public Resources Code PRC§21080.3.1(d)

Dear Mr. Avila,

The Los Angeles County Metropolitan Transportation Authority (Metro) is conducting CEQA environmental review for the Metro G (Orange) Line (MGL) Stormwater Infiltration and Quality Project. The proposed Project is located in the city of Los Angeles in the San Fernando Valley, on ex Mission de Los Angeles lands (see attached figure). This letter serves to notify and invite you to consult on the MGL Stormwater Infiltration and Quality Project, in accordance with PRC§21080.3.1(d).

Project Description

The Project proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of underground pretreatment and infiltration stormwater facilities across seven locations within Metro-owned parcels and right-of-way adjacent to the active busway along the MGL. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed Project has the potential to include active diversion structures (pump stations) or gravity-driven diversion structures and pretreatment facilities to capture, treat, and infiltrate stormwater runoff from over 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin. Metro’s extensive land holdings and fortuitous siting within the highest value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro’s total potable water consumption was 772 and 673 acre-feet respectively. The Project has the potential to capture enough stormwater to allow Metro to become Net Water Positive, contributing more water to regional groundwater recharge than it uses to support all of its operations. This Project would be built utilizing the construction mobilization and resources of the MGL Bus Rapid Transit Improvements Project, to save construction cost and expedite implementation of the Project.

The Project area is completely urbanized and covered with buildings, heavily trafficked roadways, paving, hardscaping, and landscaping. Metro is preparing a Cultural Resources

Technical Memorandum for the Project to include the results of records searches, research, consultation, and an archaeological sensitivity analysis. Metro has requested a Sacred Lands File Search from the Native American Heritage Commission (NAHC), and has requested a cultural resources records search from the South Central Coastal Information Center (SCCIC). Results of those records requests are pending. Additionally, the archaeological sensitivity analysis is in development.

Metro acknowledges that some areas may contain resources not readily available from the NAHC or the SCCIC, or through background research or a sensitivity assessment and would appreciate any information you can provide on potential or known cultural or Tribal resources within the Project area.

Metro is interested in receiving input from your community regarding and concern related to the proposed Project. If you know of any cultural or Tribal resources that may be of religious or cultural significance to your community, or if you would like more information please contact:

Melissa Levitt, Sr Environmental Specialist
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza (Mail Stop 99-16-9)
Los Angeles, California 90012
Email: levittm@metro.net

In return correspondence, please refer to this project as the Metro G Line Stormwater Infiltration and Quality Project.

Please respond within 30 days, pursuant to PRC§21080.3.1(d), if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.

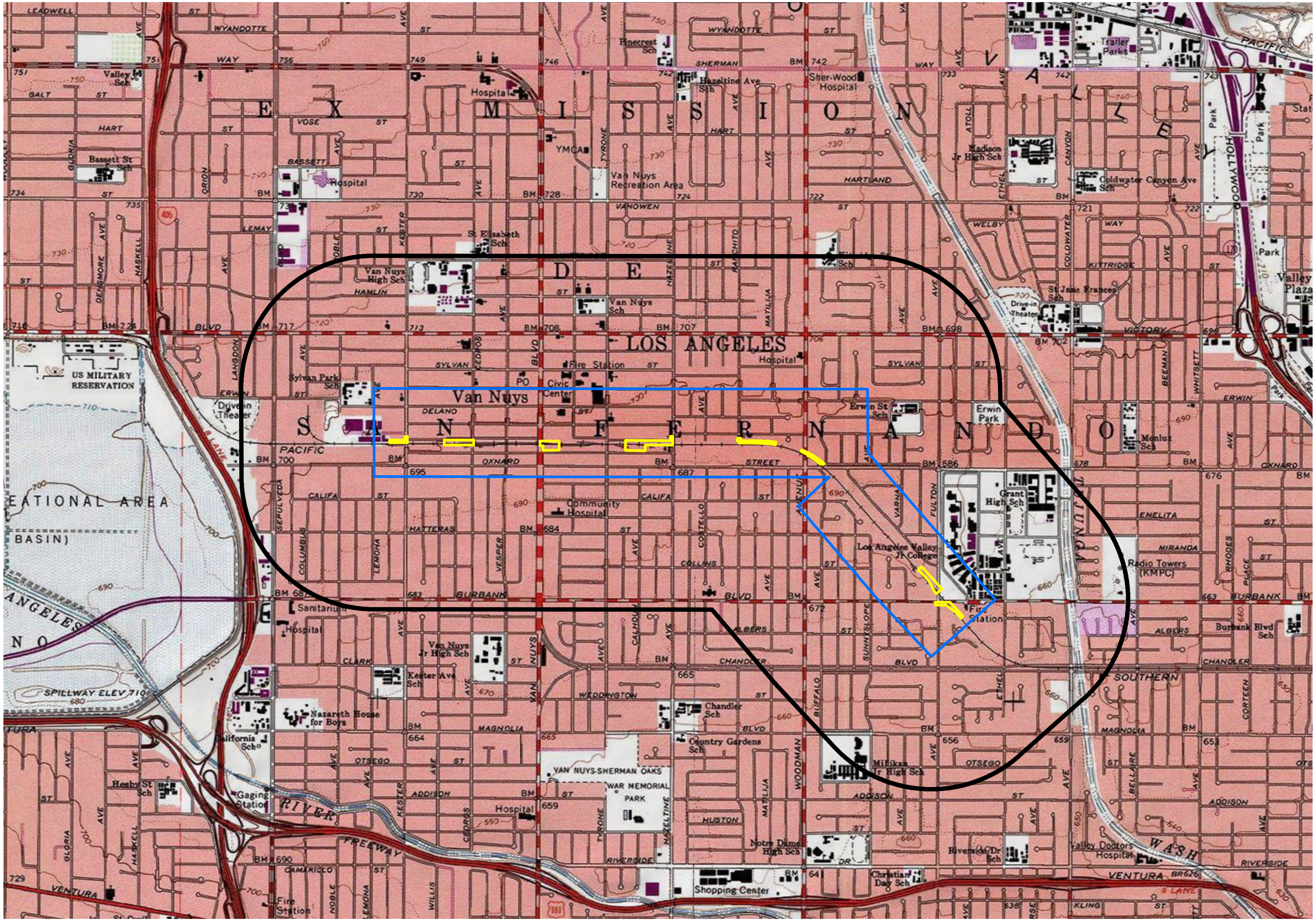
Sincerely,

Melissa Levitt

Melissa Levitt
Senior Environmental Specialist
Los Angeles County Metropolitan Transportation Authority

Enclosure: Project Area Map

cc: Annalisa Murphy, Director, Metro
Melissa Lai, Senior Engineer, Metro
Sarah Baker, Senior Environmental Planning Principal, ICF



N

0 1,000 2,000 Feet

1:24,000

USGS 7.5 Minute Van Nuys Quadrangle

Orange Line Water Infiltration and Quality Project

Los Angeles County
Metropolitan Transportation Authority

One Gateway Plaza
Los Angeles, CA 90012-2952

213.922.2000 Tel
metro.net

Metro

January 31, 2022

Gabrielino Tongva Indians of California Tribal Council
Christina Conley, Tribal Consultant and Administrator
P.O. Box 941078
Simi Valley, CA, 93094

Subject: Tribal Consultation for the Metro G (Orange) Line Stormwater Infiltration and Quality Project pursuant to Public Resources Code PRC§21080.3.1(d)

Dear Ms. Conley,

The Los Angeles County Metropolitan Transportation Authority (Metro) is conducting CEQA environmental review for the Metro G (Orange) Line (MGL) Stormwater Infiltration and Quality Project. The proposed Project is located in the city of Los Angeles in the San Fernando Valley, on ex Mission de Los Angeles lands (see attached figure). This letter serves to notify and invite you to consult on the MGL Stormwater Infiltration and Quality Project, in accordance with PRC§21080.3.1(d).

Project Description

The Project proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of underground pretreatment and infiltration stormwater facilities across seven locations within Metro-owned parcels and right-of-way adjacent to the active busway along the MGL. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed Project has the potential to include active diversion structures (pump stations) or gravity-driven diversion structures and pretreatment facilities to capture, treat, and infiltrate stormwater runoff from over 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin. Metro's extensive land holdings and fortuitous siting within the highest value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro's total potable water consumption was 772 and 673 acre-feet respectively. The Project has the potential to capture enough stormwater to allow Metro to become Net Water Positive, contributing more water to regional groundwater recharge than it uses to support all of its operations. This Project would be built utilizing the construction mobilization and resources of the MGL Bus Rapid Transit Improvements Project, to save construction cost and expedite implementation of the Project.

The Project area is completely urbanized and covered with buildings, heavily trafficked roadways, paving, hardscaping, and landscaping. Metro is preparing a Cultural Resources Technical Memorandum for the Project to include the results of records searches, research, consultation, and an archaeological sensitivity analysis. Metro has requested a Sacred Lands File

Search from the Native American Heritage Commission (NAHC), and has requested a cultural resources records search from the South Central Coastal Information Center (SCCIC). Results of those records requests are pending. Additionally, the archaeological sensitivity analysis is in development.

Metro acknowledges that some areas may contain resources not readily available from the NAHC or the SCCIC, or through background research or a sensitivity assessment and would appreciate any information you can provide on potential or known cultural or Tribal resources within the Project area.

Metro is interested in receiving input from your community regarding and concern related to the proposed Project. If you know of any cultural or Tribal resources that may be of religious or cultural significance to your community, or if you would like more information please contact:

Melissa Levitt, Sr Environmental Specialist
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza (Mail Stop 99-16-9)
Los Angeles, California 90012
Email: levittm@metro.net

In return correspondence, please refer to this project as the Metro G Line Stormwater Infiltration and Quality Project.

Please respond within 30 days, pursuant to PRC§21080.3.1(d), if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.

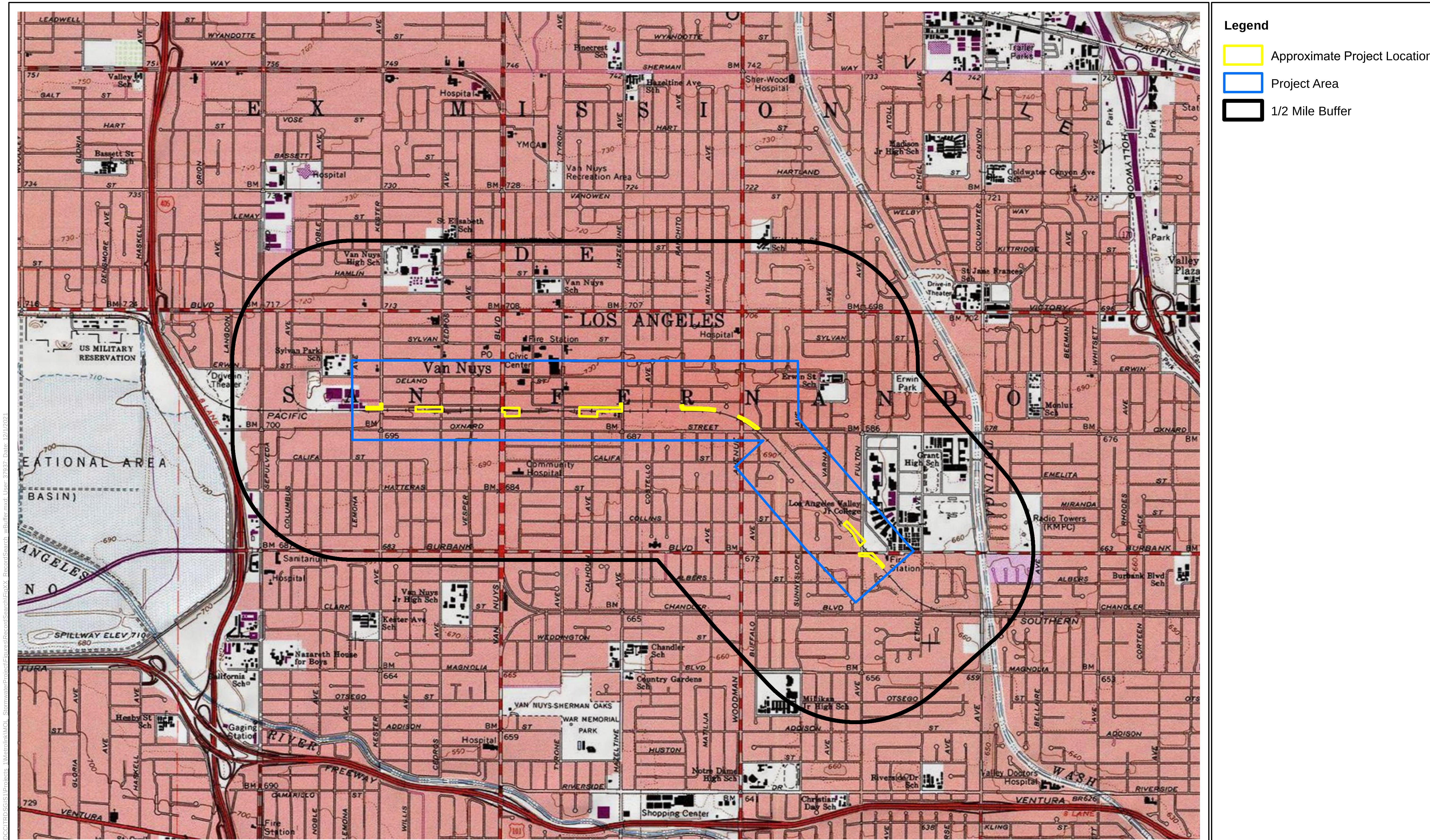
Sincerely,

Melissa Levitt

Melissa Levitt
Senior Environmental Specialist
Los Angeles County Metropolitan Transportation Authority

Enclosure: Project Area Map

cc: Annalisa Murphy, Director, Metro
Melissa Lai, Senior Engineer, Metro
Sarah Baker, Senior Environmental Planning Principal, ICF



0 1,000 2,000 Feet
1:24,000

USGS 7.5 Minute Van Nuys Quadrangle

Orange Line Water Infiltration and Quality Project

Los Angeles County
Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Tel
metro.net

Metro

January 31, 2022

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490
Bellflower, CA, 90707

Subject: Tribal Consultation for the Metro G (Orange) Line Stormwater Infiltration and Quality Project pursuant to Public Resources Code PRC§21080.3.1(d)

Dear Chairperson Dorame,

The Los Angeles County Metropolitan Transportation Authority (Metro) is conducting CEQA environmental review for the Metro G (Orange) Line (MGL) Stormwater Infiltration and Quality Project. The proposed Project is located in the city of Los Angeles in the San Fernando Valley, on ex Mission de Los Angeles lands (see attached figure). This letter serves to notify and invite you to consult on the MGL Stormwater Infiltration and Quality Project, in accordance with PRC§21080.3.1(d).

Project Description

The Project proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of underground pretreatment and infiltration stormwater facilities across seven locations within Metro-owned parcels and right-of-way adjacent to the active busway along the MGL. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed Project has the potential to include active diversion structures (pump stations) or gravity-driven diversion structures and pretreatment facilities to capture, treat, and infiltrate stormwater runoff from over 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin. Metro's extensive land holdings and fortuitous siting within the highest value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro's total potable water consumption was 772 and 673 acre-feet respectively. The Project has the potential to capture enough stormwater to allow Metro to become Net Water Positive, contributing more water to regional groundwater recharge than it uses to support all of its operations. This Project would be built utilizing the construction mobilization and resources of the MGL Bus Rapid Transit Improvements Project, to save construction cost and expedite implementation of the Project.

The Project area is completely urbanized and covered with buildings, heavily trafficked roadways, paving, hardscaping, and landscaping. Metro is preparing a Cultural Resources Technical Memorandum for the Project to include the results of records searches, research, consultation, and an archaeological sensitivity analysis. Metro has requested a Sacred Lands File

Search from the Native American Heritage Commission (NAHC), and has requested a cultural resources records search from the South Central Coastal Information Center (SCCIC). Results of those records requests are pending. Additionally, the archaeological sensitivity analysis is in development.

Metro acknowledges that some areas may contain resources not readily available from the NAHC or the SCCIC, or through background research or a sensitivity assessment and would appreciate any information you can provide on potential or known cultural or Tribal resources within the Project area.

Metro is interested in receiving input from your community regarding and concern related to the proposed Project. If you know of any cultural or Tribal resources that may be of religious or cultural significance to your community, or if you would like more information please contact:

Melissa Levitt, Sr Environmental Specialist
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza (Mail Stop 99-16-9)
Los Angeles, California 90012
Email: levittm@metro.net

In return correspondence, please refer to this project as the Metro G Line Stormwater Infiltration and Quality Project.

Please respond within 30 days, pursuant to PRC§21080.3.1(d), if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.

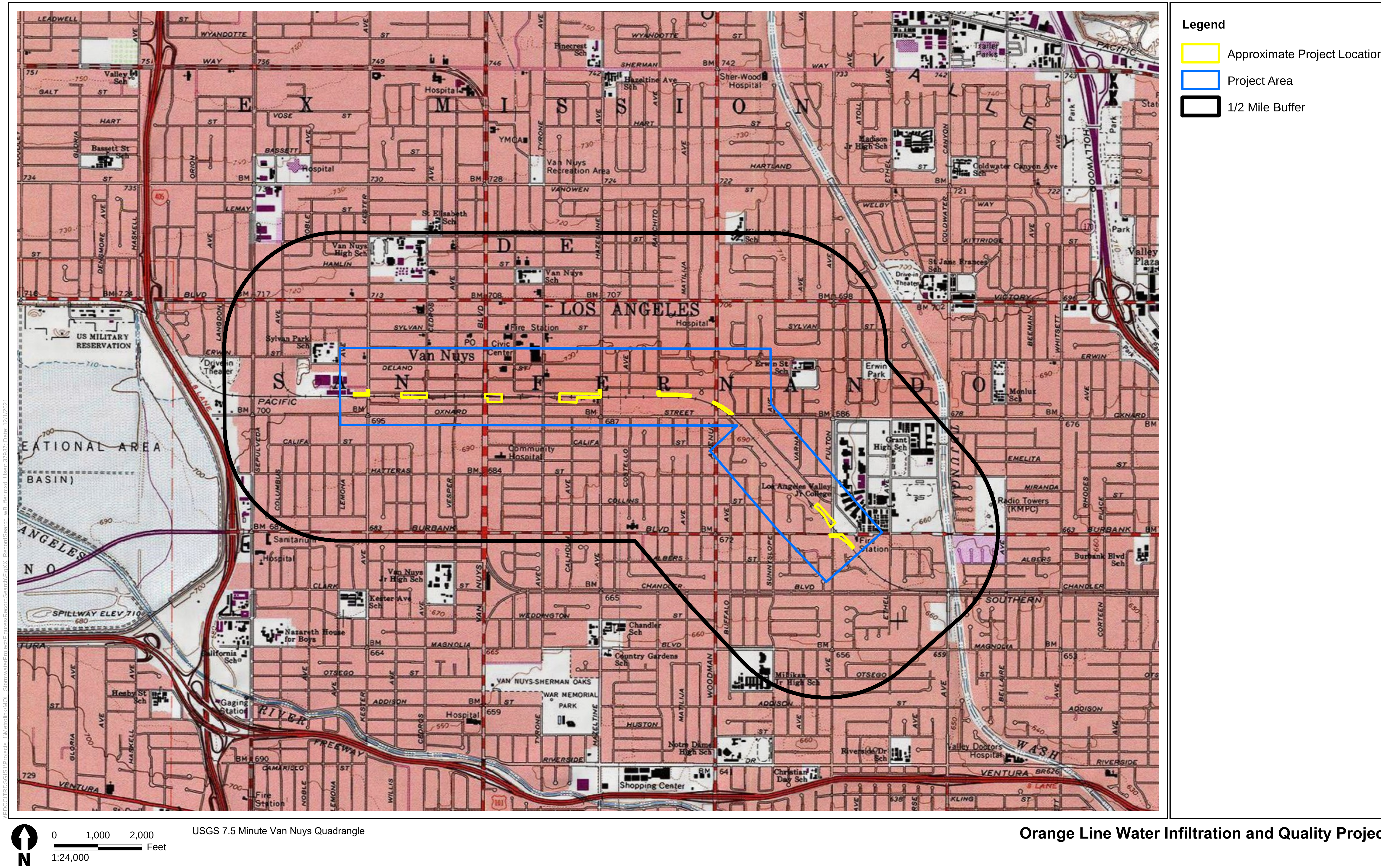
Sincerely,

Melissa Levitt

Melissa Levitt
Senior Environmental Specialist
Los Angeles County Metropolitan Transportation Authority

Enclosure: Project Area Map

cc: Annalisa Murphy, Director, Metro
Melissa Lai, Senior Engineer, Metro
Sarah Baker, Senior Environmental Planning Principal, ICF



Orange Line Water Infiltration and Quality Project

Los Angeles County
Metropolitan Transportation Authority
Metro

One Gateway Plaza
Los Angeles, CA 90012-2952

213.922.2000 Tel
metro.net

January 31, 2022

Gabrieleno/Tongva Nations
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231
Los Angeles, CA, 90012

Subject: Tribal Consultation for the Metro G (Orange) Line Stormwater Infiltration and Quality Project pursuant to Public Resources Code PRC§21080.3.1(d)

Dear Chairperson Goad,

The Los Angeles County Metropolitan Transportation Authority (Metro) is conducting CEQA environmental review for the Metro G (Orange) Line (MGL) Stormwater Infiltration and Quality Project. The proposed Project is located in the city of Los Angeles in the San Fernando Valley, on ex Mission de Los Angeles lands (see attached figure). This letter serves to notify and invite you to consult on the MGL Stormwater Infiltration and Quality Project, in accordance with PRC§21080.3.1(d).

Project Description

The Project proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of underground pretreatment and infiltration stormwater facilities across seven locations within Metro-owned parcels and right-of-way adjacent to the active busway along the MGL. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed Project has the potential to include active diversion structures (pump stations) or gravity-driven diversion structures and pretreatment facilities to capture, treat, and infiltrate stormwater runoff from over 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin. Metro's extensive land holdings and fortuitous siting within the highest value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro's total potable water consumption was 772 and 673 acre-feet respectively. The Project has the potential to capture enough stormwater to allow Metro to become Net Water Positive, contributing more water to regional groundwater recharge than it uses to support all of its operations. This Project would be built utilizing the construction mobilization and resources of the MGL Bus Rapid Transit Improvements Project, to save construction cost and expedite implementation of the Project.

The Project area is completely urbanized and covered with buildings, heavily trafficked roadways, paving, hardscaping, and landscaping. Metro is preparing a Cultural Resources Technical Memorandum for the Project to include the results of records searches, research, consultation, and an archaeological sensitivity analysis. Metro has requested a Sacred Lands File

Search from the Native American Heritage Commission (NAHC), and has requested a cultural resources records search from the South Central Coastal Information Center (SCCIC). Results of those records requests are pending. Additionally, the archaeological sensitivity analysis is in development.

Metro acknowledges that some areas may contain resources not readily available from the NAHC or the SCCIC, or through background research or a sensitivity assessment and would appreciate any information you can provide on potential or known cultural or Tribal resources within the Project area.

Metro is interested in receiving input from your community regarding and concern related to the proposed Project. If you know of any cultural or Tribal resources that may be of religious or cultural significance to your community, or if you would like more information please contact:

Melissa Levitt, Sr Environmental Specialist
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza (Mail Stop 99-16-9)
Los Angeles, California 90012
Email: levittm@metro.net

In return correspondence, please refer to this project as the Metro G Line Stormwater Infiltration and Quality Project.

Please respond within 30 days, pursuant to PRC§21080.3.1(d), if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.

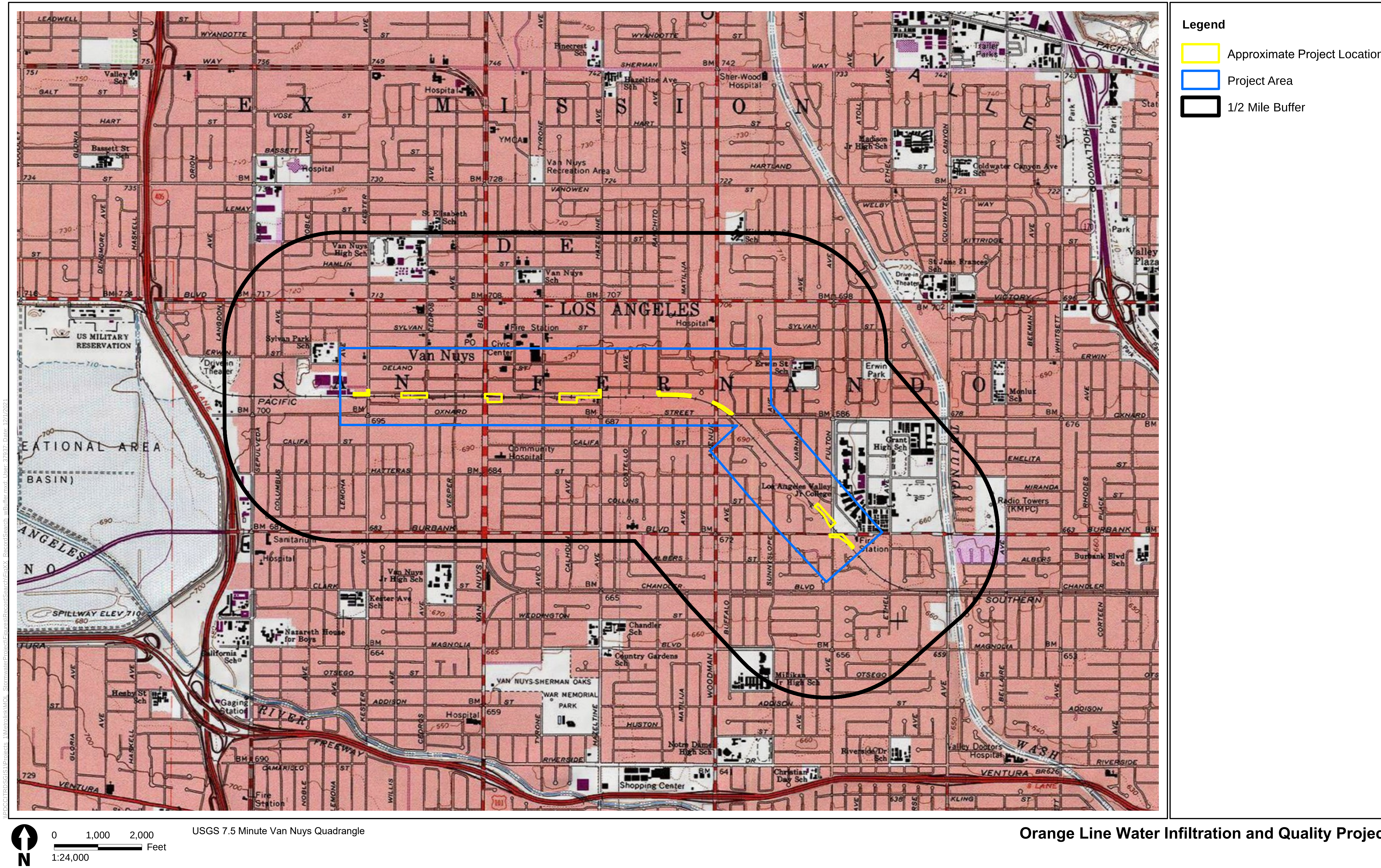
Sincerely,

Melissa Levitt

Melissa Levitt
Senior Environmental Specialist
Los Angeles County Metropolitan Transportation Authority

Enclosure: Project Area Map

cc: Annalisa Murphy, Director, Metro
Melissa Lai, Senior Engineer, Metro
Sarah Baker, Senior Environmental Planning Principal, ICF



USGS 7.5 Minute Van Nuys Quadrangle

Orange Line Water Infiltration and Quality Project

Los Angeles County
Metropolitan Transportation Authority
Metro
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Tel
metro.net

January 31, 2022

Gabrieleno/Tongva San Gabriel
Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693
San Gabriel, CA, 91778

Subject: Tribal Consultation for the Metro G (Orange) Line Stormwater Infiltration and Quality Project pursuant to Public Resources Code PRC§21080.3.1(d)

Dear Chairperson Morales,

The Los Angeles County Metropolitan Transportation Authority (Metro) is conducting CEQA environmental review for the Metro G (Orange) Line (MGL) Stormwater Infiltration and Quality Project. The proposed Project is located in the city of Los Angeles in the San Fernando Valley, on ex Mission de Los Angeles lands (see attached figure). This letter serves to notify and invite you to consult on the MGL Stormwater Infiltration and Quality Project, in accordance with PRC§21080.3.1(d).

Project Description

The Project proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of underground pretreatment and infiltration stormwater facilities across seven locations within Metro-owned parcels and right-of-way adjacent to the active busway along the MGL. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed Project has the potential to include active diversion structures (pump stations) or gravity-driven diversion structures and pretreatment facilities to capture, treat, and infiltrate stormwater runoff from over 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin. Metro's extensive land holdings and fortuitous siting within the highest value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro's total potable water consumption was 772 and 673 acre-feet respectively. The Project has the potential to capture enough stormwater to allow Metro to become Net Water Positive, contributing more water to regional groundwater recharge than it uses to support all of its operations. This Project would be built utilizing the construction mobilization and resources of the MGL Bus Rapid Transit Improvements Project, to save construction cost and expedite implementation of the Project.

The Project area is completely urbanized and covered with buildings, heavily trafficked roadways, paving, hardscaping, and landscaping. Metro is preparing a Cultural Resources Technical Memorandum for the Project to include the results of records searches, research, consultation, and an archaeological sensitivity analysis. Metro has requested a Sacred Lands File Search from the Native American Heritage Commission (NAHC), and has requested a cultural resources records search from the South Central Coastal Information Center (SCCIC). Results of those records requests are pending. Additionally, the archaeological sensitivity analysis is in development.

Metro acknowledges that some areas may contain resources not readily available from the NAHC or the SCCIC, or through background research or a sensitivity assessment and would appreciate any information you can provide on potential or known cultural or Tribal resources within the Project area.

Metro is interested in receiving input from your community regarding and concern related to the proposed Project. If you know of any cultural or Tribal resources that may be of religious or cultural significance to your community, or if you would like more information please contact:

Melissa Levitt, Sr Environmental Specialist
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza (Mail Stop 99-16-9)
Los Angeles, California 90012
Email: levittm@metro.net

In return correspondence, please refer to this project as the Metro G Line Stormwater Infiltration and Quality Project.

Please respond within 30 days, pursuant to PRC§21080.3.1(d), if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.

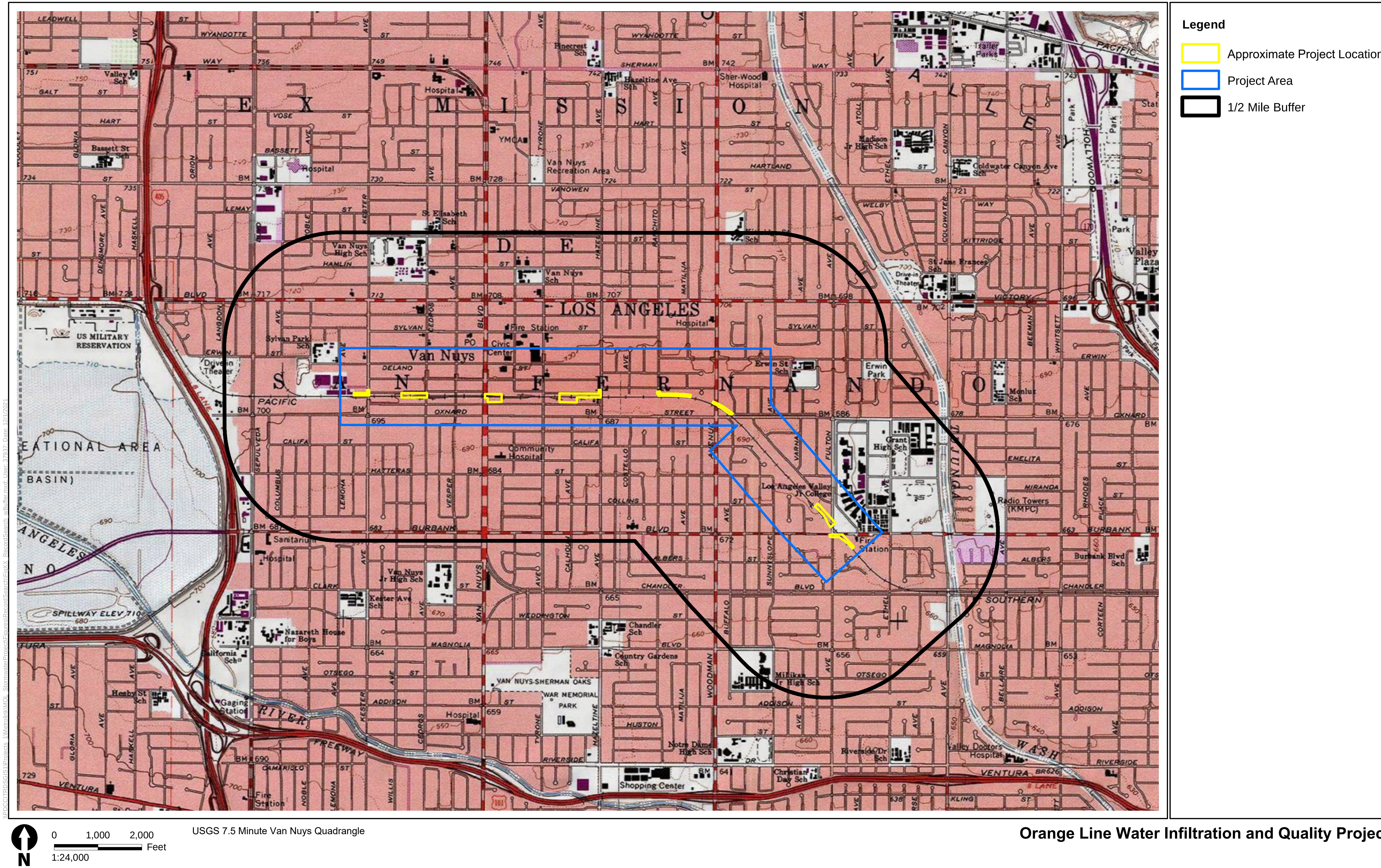
Sincerely,

Melissa Levitt

Melissa Levitt
Senior Environmental Specialist
Los Angeles County Metropolitan Transportation Authority

Enclosure: Project Area Map

cc: Annalisa Murphy, Director, Metro
Melissa Lai, Senior Engineer, Metro
Sarah Baker, Senior Environmental Planning Principal, ICF



Orange Line Water Infiltration and Quality Project

Los Angeles County
Metropolitan Transportation Authority
Metro
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Tel
metro.net

January 31, 2022

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P. O. Box 487
San Jacinto, CA, 92581

Subject: Tribal Consultation for the Metro G (Orange) Line Stormwater Infiltration and Quality Project pursuant to Public Resources Code PRC§21080.3.1(d)

Dear Mr. Ontiveros,

The Los Angeles County Metropolitan Transportation Authority (Metro) is conducting CEQA environmental review for the Metro G (Orange) Line (MGL) Stormwater Infiltration and Quality Project. The proposed Project is located in the city of Los Angeles in the San Fernando Valley, on ex Mission de Los Angeles lands (see attached figure). This letter serves to notify and invite you to consult on the MGL Stormwater Infiltration and Quality Project, in accordance with PRC§21080.3.1(d).

Project Description

The Project proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of underground pretreatment and infiltration stormwater facilities across seven locations within Metro-owned parcels and right-of-way adjacent to the active busway along the MGL. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed Project has the potential to include active diversion structures (pump stations) or gravity-driven diversion structures and pretreatment facilities to capture, treat, and infiltrate stormwater runoff from over 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin. Metro's extensive land holdings and fortuitous siting within the highest value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro's total potable water consumption was 772 and 673 acre-feet respectively. The Project has the potential to capture enough stormwater to allow Metro to become Net Water Positive, contributing more water to regional groundwater recharge than it uses to support all of its operations. This Project would be built utilizing the construction mobilization and resources of the MGL Bus Rapid Transit Improvements Project, to save construction cost and expedite implementation of the Project.

The Project area is completely urbanized and covered with buildings, heavily trafficked roadways, paving, hardscaping, and landscaping. Metro is preparing a Cultural Resources Technical Memorandum for the Project to include the results of records searches, research, consultation, and an archaeological sensitivity analysis. Metro has requested a Sacred Lands File

Search from the Native American Heritage Commission (NAHC), and has requested a cultural resources records search from the South Central Coastal Information Center (SCCIC). Results of those records requests are pending. Additionally, the archaeological sensitivity analysis is in development.

Metro acknowledges that some areas may contain resources not readily available from the NAHC or the SCCIC, or through background research or a sensitivity assessment and would appreciate any information you can provide on potential or known cultural or Tribal resources within the Project area.

Metro is interested in receiving input from your community regarding and concern related to the proposed Project. If you know of any cultural or Tribal resources that may be of religious or cultural significance to your community, or if you would like more information please contact:

Melissa Levitt, Sr Environmental Specialist
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza (Mail Stop 99-16-9)
Los Angeles, California 90012
Email: levittm@metro.net

In return correspondence, please refer to this project as the Metro G Line Stormwater Infiltration and Quality Project.

Please respond within 30 days, pursuant to PRC§21080.3.1(d), if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.

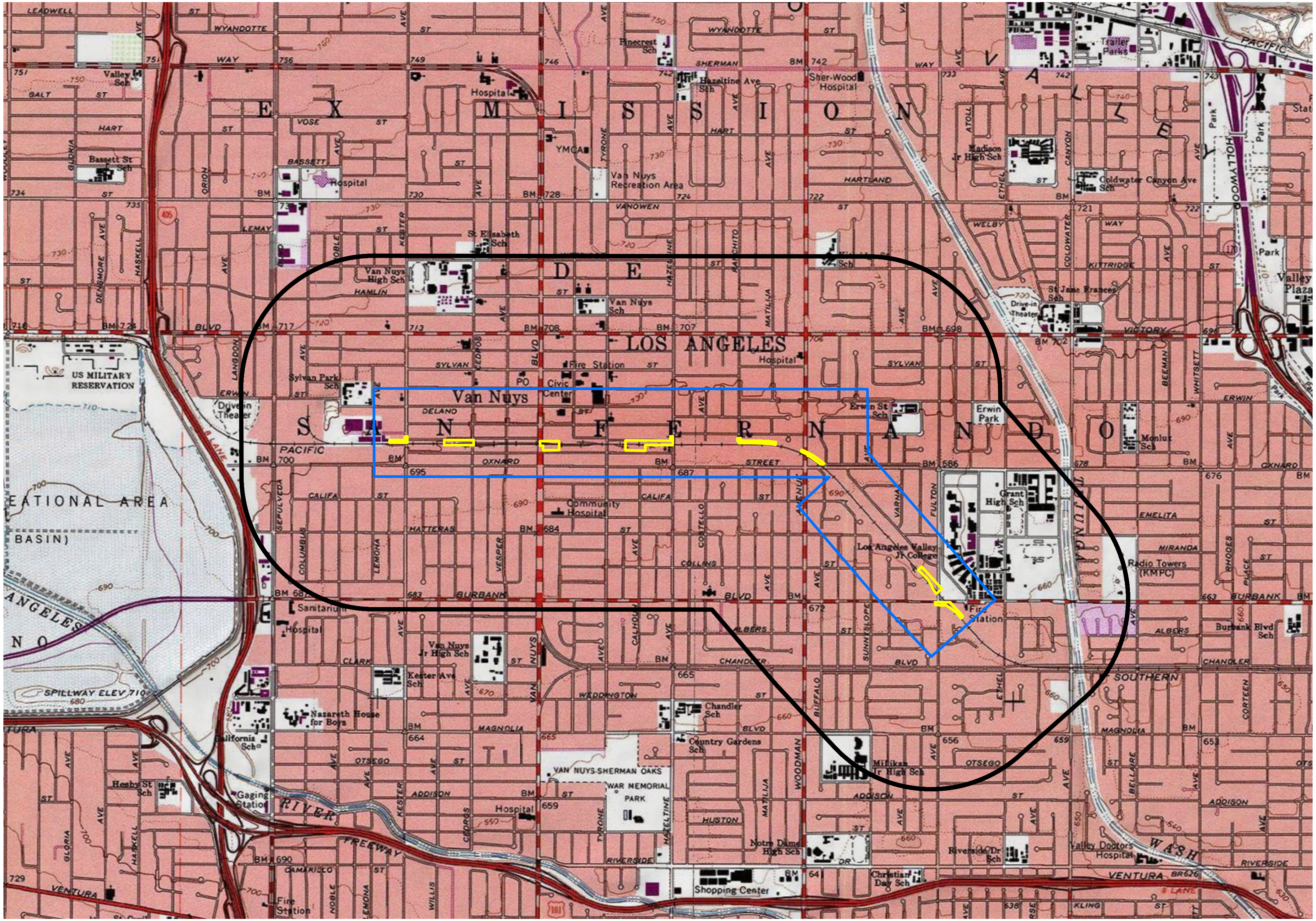
Sincerely,

Melissa Levitt

Melissa Levitt
Senior Environmental Specialist
Los Angeles County Metropolitan Transportation Authority

Enclosure: Project Area Map

cc: Annalisa Murphy, Director, Metro
Melissa Lai, Senior Engineer, Metro
Sarah Baker, Senior Environmental Planning Principal, ICF



Legend

- Approximate Project Locations
- Project Area
- 1/2 Mile Buffer

N

0 1,000 2,000 Feet

1:24,000

USGS 7.5 Minute Van Nuys Quadrangle

Orange Line Water Infiltration and Quality Project

Los Angeles County
Metropolitan Transportation Authority
Metro
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Tel
metro.net

January 31, 2022

Santa Rosa Band of Cahuilla Indians
Lovina Redner, Tribal Chair
P.O. Box 391820
Anza, CA, 92539

Subject: Tribal Consultation for the Metro G (Orange) Line Stormwater Infiltration and Quality Project pursuant to Public Resources Code PRC§21080.3.1(d)

Dear Chairperson Redner,

The Los Angeles County Metropolitan Transportation Authority (Metro) is conducting CEQA environmental review for the Metro G (Orange) Line (MGL) Stormwater Infiltration and Quality Project. The proposed Project is located in the city of Los Angeles in the San Fernando Valley, on ex Mission de Los Angeles lands (see attached figure). This letter serves to notify and invite you to consult on the MGL Stormwater Infiltration and Quality Project, in accordance with PRC§21080.3.1(d).

Project Description

The Project proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of underground pretreatment and infiltration stormwater facilities across seven locations within Metro-owned parcels and right-of-way adjacent to the active busway along the MGL. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed Project has the potential to include active diversion structures (pump stations) or gravity-driven diversion structures and pretreatment facilities to capture, treat, and infiltrate stormwater runoff from over 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin. Metro's extensive land holdings and fortuitous siting within the highest value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro's total potable water consumption was 772 and 673 acre-feet respectively. The Project has the potential to capture enough stormwater to allow Metro to become Net Water Positive, contributing more water to regional groundwater recharge than it uses to support all of its operations. This Project would be built utilizing the construction mobilization and resources of the MGL Bus Rapid Transit Improvements Project, to save construction cost and expedite implementation of the Project.

The Project area is completely urbanized and covered with buildings, heavily trafficked roadways, paving, hardscaping, and landscaping. Metro is preparing a Cultural Resources Technical Memorandum for the Project to include the results of records searches, research, consultation, and an archaeological sensitivity analysis. Metro has requested a Sacred Lands File

Search from the Native American Heritage Commission (NAHC), and has requested a cultural resources records search from the South Central Coastal Information Center (SCCIC). Results of those records requests are pending. Additionally, the archaeological sensitivity analysis is in development.

Metro acknowledges that some areas may contain resources not readily available from the NAHC or the SCCIC, or through background research or a sensitivity assessment and would appreciate any information you can provide on potential or known cultural or Tribal resources within the Project area.

Metro is interested in receiving input from your community regarding and concern related to the proposed Project. If you know of any cultural or Tribal resources that may be of religious or cultural significance to your community, or if you would like more information please contact:

Melissa Levitt, Sr Environmental Specialist
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza (Mail Stop 99-16-9)
Los Angeles, California 90012
Email: levittm@metro.net

In return correspondence, please refer to this project as the Metro G Line Stormwater Infiltration and Quality Project.

Please respond within 30 days, pursuant to PRC§21080.3.1(d), if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.

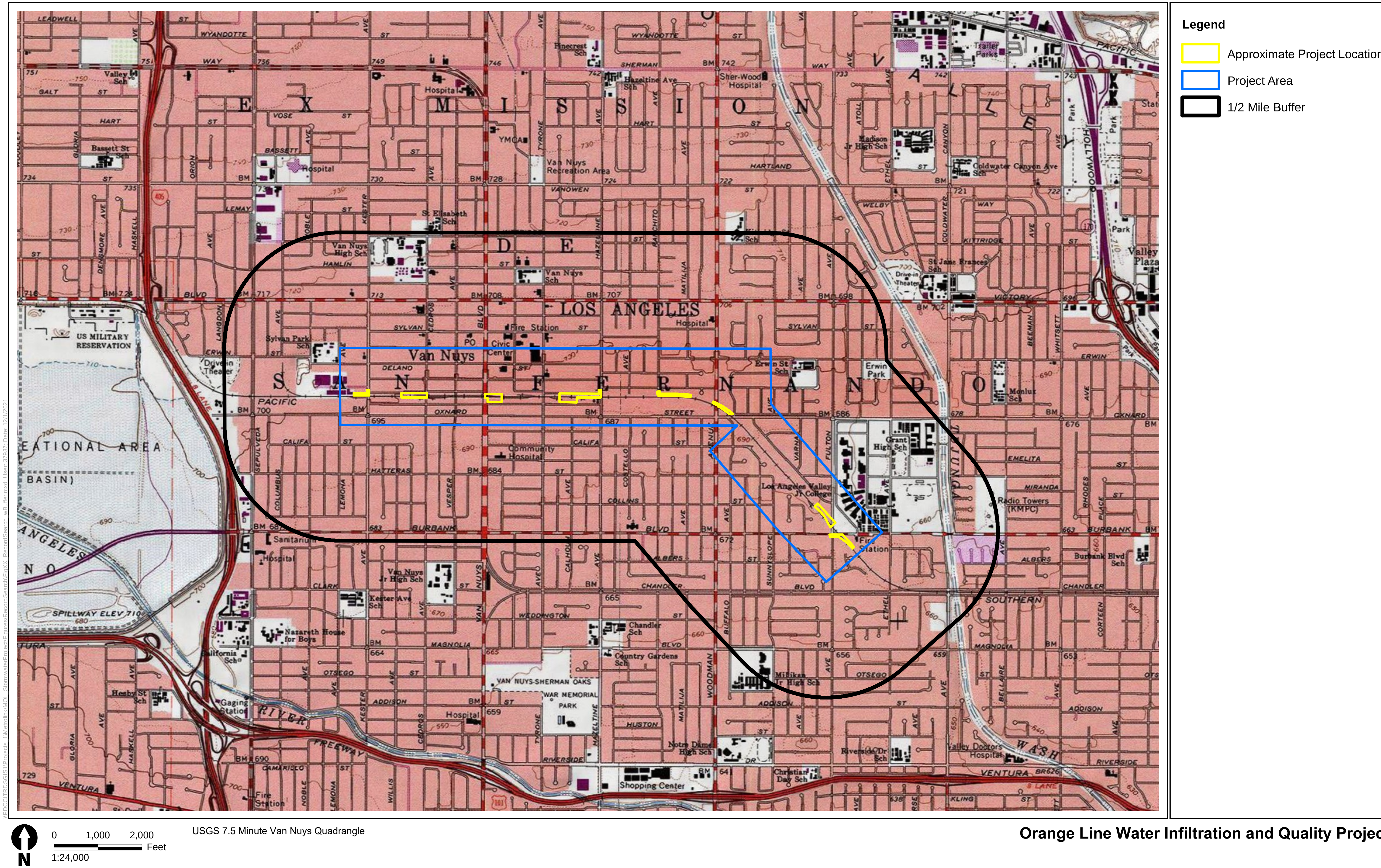
Sincerely,

Melissa Levitt

Melissa Levitt
Senior Environmental Specialist
Los Angeles County Metropolitan Transportation Authority

Enclosure: Project Area Map

cc: Annalisa Murphy, Director, Metro
Melissa Lai, Senior Engineer, Metro
Sarah Baker, Senior Environmental Planning Principal, ICF



Orange Line Water Infiltration and Quality Project

Metro
Los Angeles County
Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Tel
metro.net

January 31, 2022

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393
Covina, CA, 91723

Subject: Tribal Consultation for the Metro G (Orange) Line Stormwater Infiltration and Quality Project pursuant to Public Resources Code PRC§21080.3.1(d)

Dear Chairperson Salas,

The Los Angeles County Metropolitan Transportation Authority (Metro) is conducting CEQA environmental review for the Metro G (Orange) Line (MGL) Stormwater Infiltration and Quality Project. The proposed Project is located in the city of Los Angeles in the San Fernando Valley, on ex Mission de Los Angeles lands (see attached figure). This letter serves to notify and invite you to consult on the MGL Stormwater Infiltration and Quality Project, in accordance with PRC§21080.3.1(d).

Project Description

The Project proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of underground pretreatment and infiltration stormwater facilities across seven locations within Metro-owned parcels and right-of-way adjacent to the active busway along the MGL. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed Project has the potential to include active diversion structures (pump stations) or gravity-driven diversion structures and pretreatment facilities to capture, treat, and infiltrate stormwater runoff from over 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin. Metro's extensive land holdings and fortuitous siting within the highest value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro's total potable water consumption was 772 and 673 acre-feet respectively. The Project has the potential to capture enough stormwater to allow Metro to become Net Water Positive, contributing more water to regional groundwater recharge than it uses to support all of its operations. This Project would be built utilizing the construction mobilization and resources of the MGL Bus Rapid Transit Improvements Project, to save construction cost and expedite implementation of the Project.

The Project area is completely urbanized and covered with buildings, heavily trafficked roadways, paving, hardscaping, and landscaping. Metro is preparing a Cultural Resources Technical Memorandum for the Project to include the results of records searches, research, consultation, and an archaeological sensitivity analysis. Metro has requested a Sacred Lands File

Search from the Native American Heritage Commission (NAHC), and has requested a cultural resources records search from the South Central Coastal Information Center (SCCIC). Results of those records requests are pending. Additionally, the archaeological sensitivity analysis is in development.

Metro acknowledges that some areas may contain resources not readily available from the NAHC or the SCCIC, or through background research or a sensitivity assessment and would appreciate any information you can provide on potential or known cultural or Tribal resources within the Project area.

Metro is interested in receiving input from your community regarding and concern related to the proposed Project. If you know of any cultural or Tribal resources that may be of religious or cultural significance to your community, or if you would like more information please contact:

Melissa Levitt, Sr Environmental Specialist
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza (Mail Stop 99-16-9)
Los Angeles, California 90012
Email: levittm@metro.net

In return correspondence, please refer to this project as the Metro G Line Stormwater Infiltration and Quality Project.

Please respond within 30 days, pursuant to PRC§21080.3.1(d), if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.

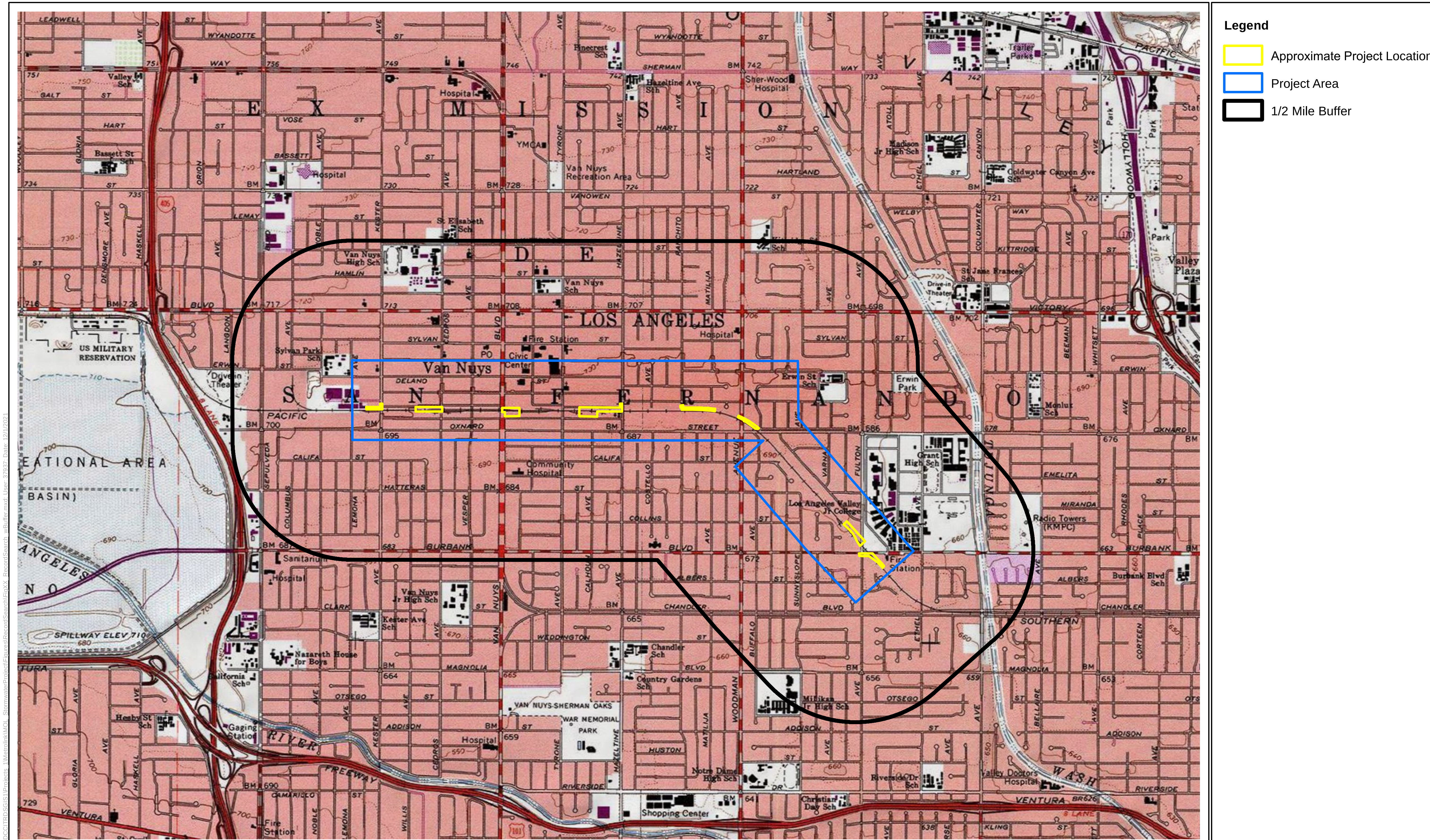
Sincerely,

Melissa Levitt

Melissa Levitt
Senior Environmental Specialist
Los Angeles County Metropolitan Transportation Authority

Enclosure: Project Area Map

cc: Annalisa Murphy, Director, Metro
Melissa Lai, Senior Engineer, Metro
Sarah Baker, Senior Environmental Planning Principal, ICF



0 1,000 2,000 Feet

1:24,000

N

USGS 7.5 Minute Van Nuys Quadrangle

Orange Line Water Infiltration and Quality Project

Los Angeles County
Metropolitan Transportation Authority

Metro

One Gateway Plaza
Los Angeles, CA 90012-2952

213.922.2000 Tel
metro.net

January 31, 2022

Soboba Band of Luiseno Indians
Isaiah Vivanco, Chairperson
P. O. Box 487
San Jacinto, CA, 92581

Subject: Tribal Consultation for the Metro G (Orange) Line Stormwater Infiltration and Quality Project pursuant to Public Resources Code PRC§21080.3.1(d)

Dear Chairman Vivanco,

The Los Angeles County Metropolitan Transportation Authority (Metro) is conducting CEQA environmental review for the Metro G (Orange) Line (MGL) Stormwater Infiltration and Quality Project. The proposed Project is located in the city of Los Angeles in the San Fernando Valley, on ex Mission de Los Angeles lands (see attached figure). This letter serves to notify and invite you to consult on the MGL Stormwater Infiltration and Quality Project, in accordance with PRC§21080.3.1(d).

Project Description

The Project proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of underground pretreatment and infiltration stormwater facilities across seven locations within Metro-owned parcels and right-of-way adjacent to the active busway along the MGL. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed Project has the potential to include active diversion structures (pump stations) or gravity-driven diversion structures and pretreatment facilities to capture, treat, and infiltrate stormwater runoff from over 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin. Metro's extensive land holdings and fortuitous siting within the highest value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro's total potable water consumption was 772 and 673 acre-feet respectively. The Project has the potential to capture enough stormwater to allow Metro to become Net Water Positive, contributing more water to regional groundwater recharge than it uses to support all of its operations. This Project would be built utilizing the construction mobilization and resources of the MGL Bus Rapid Transit Improvements Project, to save construction cost and expedite implementation of the Project.

The Project area is completely urbanized and covered with buildings, heavily trafficked roadways, paving, hardscaping, and landscaping. Metro is preparing a Cultural Resources Technical Memorandum for the Project to include the results of records searches, research, consultation, and an archaeological sensitivity analysis. Metro has requested a Sacred Lands File

Search from the Native American Heritage Commission (NAHC), and has requested a cultural resources records search from the South Central Coastal Information Center (SCCIC). Results of those records requests are pending. Additionally, the archaeological sensitivity analysis is in development.

Metro acknowledges that some areas may contain resources not readily available from the NAHC or the SCCIC, or through background research or a sensitivity assessment and would appreciate any information you can provide on potential or known cultural or Tribal resources within the Project area.

Metro is interested in receiving input from your community regarding and concern related to the proposed Project. If you know of any cultural or Tribal resources that may be of religious or cultural significance to your community, or if you would like more information please contact:

Melissa Levitt, Sr Environmental Specialist
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza (Mail Stop 99-16-9)
Los Angeles, California 90012
Email: levittm@metro.net

In return correspondence, please refer to this project as the Metro G Line Stormwater Infiltration and Quality Project.

Please respond within 30 days, pursuant to PRC§21080.3.1(d), if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.

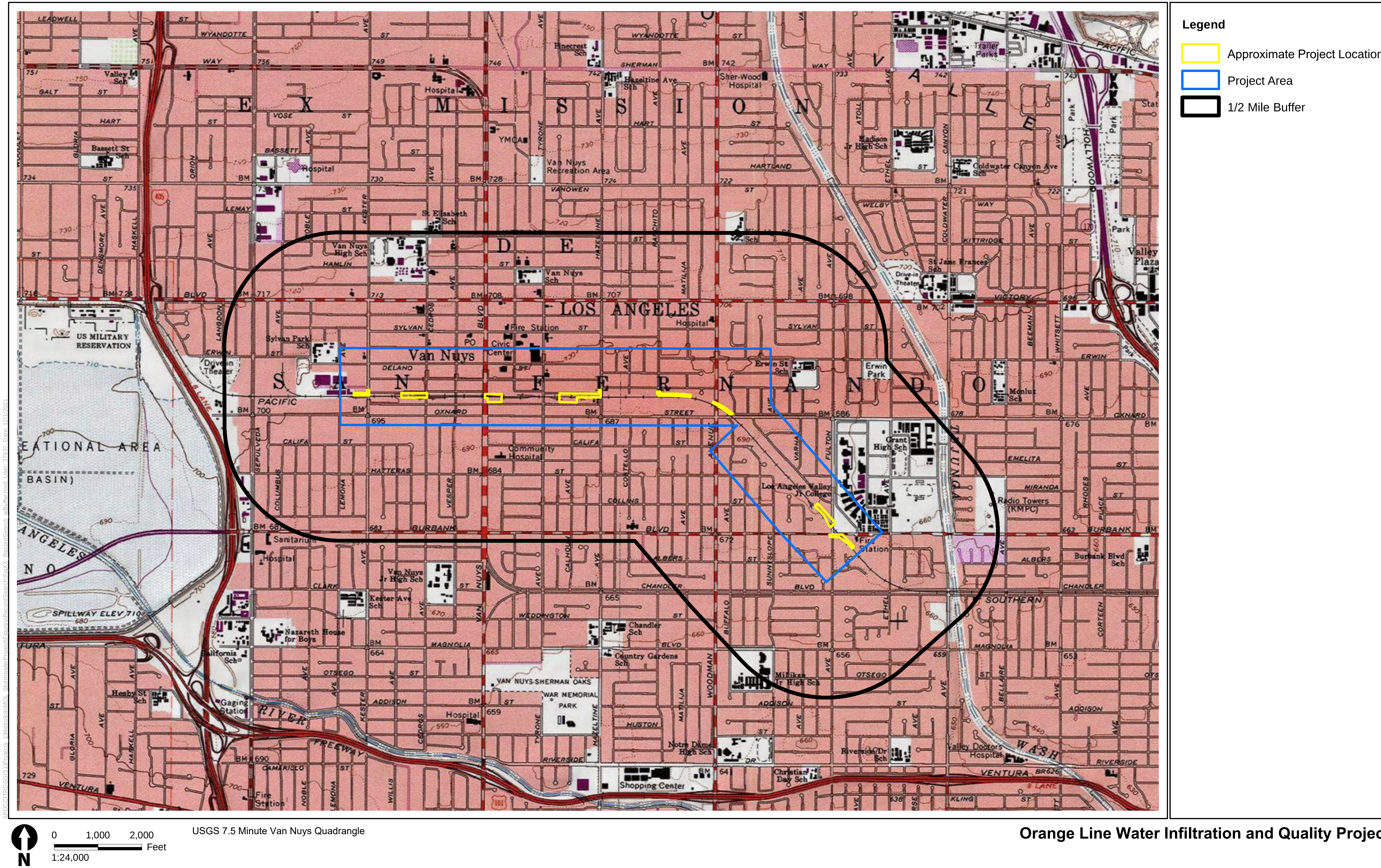
Sincerely,

Melissa Levitt

Melissa Levitt
Senior Environmental Specialist
Los Angeles County Metropolitan Transportation Authority

Enclosure: Project Area Map

cc: Annalisa Murphy, Director, Metro
Melissa Lai, Senior Engineer, Metro
Sarah Baker, Senior Environmental Planning Principal, ICF



USGS 7.5 Minute Van Nuys Quadrangle

Orange Line Water Infiltration and Quality Project

For NA Consultation Appendix.

From: Jairo Avila <jairo.avila@tataviam-nsn.us>
Sent: Tuesday, February 15, 2022 3:36 PM
To: Levitt, Melissa <LevittM@metro.net>
Cc: Baker, Sarah <Sarah.Baker@icf.com>
Subject: Re: Tribal Consultation for the Metro G Line Stormwater Infiltration and Quality Project

Hello Melissa,

I appreciate the follow up email. I am available to discuss the project on the following days/times.

2/18 10am-1pm
2/22-24 10am-4pm
I will be out of office 2/25-3/7.

Please let me know what works for you.

Thank you,

Jairo F. Avila, M.A., RPA.
Tribal Historic and Cultural Preservation Officer
Cultural Resources Management Division
Tribal Historic and Cultural Preservation Department

Fernandeño Tataviam Band of Mission Indians
1019 Second Street, Suite 1
San Fernando, California 91340
Office: (818) 837-0794
Website: http://www.tataviam-nsn.us

From: Levitt, Melissa <LevittM@metro.net>
Sent: Tuesday, February 15, 2022 2:40 PM
To: Jairo Avila <jairo.avila@tataviam-nsn.us>
Cc: Baker, Sarah <Sarah.Baker@icf.com>
Subject: RE: Tribal Consultation for the Metro G Line Stormwater Infiltration and Quality Project

[CAUTION] EXTERNAL Email. Exercise caution.

Good afternoon Mr. Avila,

I wanted to follow up to see when your government may want to schedule an initial consultation. Please let me know if you have any questions on the documents provided.

Thank you,
Melissa

Melissa Faigeles Levitt
LA Metro
Senior Environmental Specialist
Environmental Services
213.265.0774 C
Metro's mission is to provide world-class transportation for all.

From: Jairo Avila <jairo.avila@tataviam-nsn.us>
Sent: Tuesday, February 8, 2022 9:13 AM
To: Levitt, Melissa <LevittM@metro.net>
Cc: Baker, Sarah <Sarah.Baker@icf.com>
Subject: Re: Tribal Consultation for the Metro G Line Stormwater Infiltration and Quality Project

Hello Melissa,

I appreciate your response and link to the requested information. We are reviewing the project internally and will follow up in the next few days to provide potential meeting dates.

We would like to keep AB52 Consultation open until we can review the cultural resources report to provide final comments and recommendations.

Thanks again,

Jairo F. Avila, M.A., RPA.
Tribal Historic and Cultural Preservation Officer
Cultural Resources Management Division
Tribal Historic and Cultural Preservation Department

Fernandeño Tataviam Band of Mission Indians
1019 Second Street, Suite 1
San Fernando, California 91340
Office: (818) 837-0794
Website: http://www.tataviam-nsn.us

From: Levitt, Melissa <LevittM@metro.net>
Sent: Monday, February 7, 2022 4:23 PM

To: Jairo Avila <jairo.avila@tataviam-nsn.us>
Cc: Baker, Sarah <Sarah.Baker@icf.com>
Subject: RE: Tribal Consultation for the Metro G Line Stormwater Infiltration and Quality Project

[CAUTION] EXTERNAL Email. Exercise caution.

Dear Mr Avila,

Thank you for your response. My apologies for the delayed response, as I wanted to ensure I could gather the pertinent information requested. The project is currently at the conceptual design phase and in process of procuring progressive design-build services, and as such some of the information requested is not yet available. Detailed design and geotechnical investigations are not anticipated to begin until Fall 2022. Construction is anticipated to begin Summer 2024.

A Cultural Resources Assessment to support the CEQA evaluation is currently underway. Metro should have a draft version to share by mid-March.

I am providing the information that Metro currently has and as we proceed through the consultation process, we can provide the Cultural Resources Assessment as it becomes available.

- Project design/ excavation plans

Please find the current conceptual design plans and renderings. As Metro is still procuring a contractor, there are no excavation plans available yet to share. However, I have included the draft project construction narrative of the current project description for reference.

- Geotechnical Report

Metro has not yet completed geotechnical investigations for this project. Metro is planning other improvements along the G Line, which include a grade separation at Van Nuys Blvd. I have include the geotechnical report for that project

- Cultural Resources Assessment

This is currently in progress and I can share a draft copy as soon as it becomes available.

I look forward to meeting you to consult on this projects. Please provide some proposed dates and times for consultation on the project. I appreciate your time and interest in this project.

Thank you,
Melissa

Melissa Faigeles Levitt
LA Metro
Senior Environmental Specialist
Environmental Services
213.265.0774 C
Metro's mission is to provide world-class transportation for all.

From: Jairo Avila <jairo.avila@tataviam-nsn.us>
Sent: Tuesday, February 1, 2022 3:30 PM
To: Levitt, Melissa <LevittM@metro.net>
Cc: Baker, Sarah <Sarah.Baker@icf.com>
Subject: Re: Tribal Consultation for the Metro G Line Stormwater Infiltration and Quality Project

Dear Melissa Levitt,

On behalf of the Cultural Resource Management (CRM) Division of the Fernandeño Tataviam Band of Mission Indians (FTBMI), thank you for the formal notification and opportunity to consult on the Metro G Line Stormwater Infiltration and Quality Project. This message constitutes a formal request for Assembly Bill 52 (AB52) tribal consultation under the provisions of the California Environmental Quality Act (CEQA) (as amended, 2015) and CA Public Resources Code section 21080.3.1.

Before providing tribal comments or scheduling a consultation meeting, the CRM Division is interested in reviewing specific technical reports to know more about the extent of proposed groundwork, impacts on native/undisturbed soils, and cultural resources investigations. The CRM Division would like to review the following documents:

- Project design/ excavation plans
- Geotechnical Report
- Cultural Resources Assessment

I appreciate your time and look forward to reviewing the requested documents.

Respectfully,

Jairo F. Avila, M.A., RPA.
Tribal Historic and Cultural Preservation Officer
Cultural Resources Management Division
Tribal Historic and Cultural Preservation Department

Fernandeño Tataviam Band of Mission Indians
1019 Second Street, Suite 1
San Fernando, California 91340
Office: (818) 837-0794
Website: http://www.tataviam-nsn.us

From: Levitt, Melissa <LevittM@metro.net>

Sent: Tuesday, February 1, 2022 2:51 PM
To: Jairo Avila <jairo.avila@tataviam-nsn.us>
Cc: Baker, Sarah <Sarah.Baker@icf.com>
Subject: Tribal Consultation for the Metro G Line Stormwater Infiltration and Quality Project

Dear Mr. Avila,

The Los Angeles County Metropolitan Transportation Authority (Metro) is conducting CEQA environmental review for the Metro G (Orange) Line (MGL) Stormwater Infiltration and Quality Project. The proposed Project is located in the city of Los Angeles in the San Fernando Valley, on ex Mission de Los Angeles lands (see attached figure). This letter serves to notify and invite you to consult on the MGL Stormwater Infiltration and Quality Project, in accordance with PRC§21080.3.1(d).

Project Description

The Project proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of underground pretreatment and infiltration stormwater facilities across seven locations within Metro-owned parcels and right-of-way adjacent to the active busway along the MGL. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed Project has the potential to include active diversion structures (pump stations) or gravity-driven diversion structures and pretreatment facilities to capture, treat, and infiltrate stormwater runoff from over 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin. Metro's extensive land holdings and fortuitous siting within the highest value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro's total potable water consumption was 772 and 673 acre-feet respectively. The Project has the potential to capture enough stormwater to allow Metro to become Net Water Positive, contributing more water to regional groundwater recharge than it uses to support all of its operations. This Project would be built utilizing the construction mobilization and resources of the MGL Bus Rapid Transit Improvements Project, to save construction cost and expedite implementation of the Project.

The Project area is completely urbanized and covered with buildings, heavily trafficked roadways, paving, hardscaping, and landscaping. Metro is preparing a Cultural Resources Technical Memorandum for the Project to include the results of records searches, research, consultation, and an archaeological sensitivity analysis. Metro has requested a Sacred Lands File Search from the Native American Heritage Commission (NAHC), and has requested a cultural resources records search from the South Central Coastal Information Center (SCCIC). Results of those records requests are pending. Additionally, the archaeological sensitivity analysis is in development.

Metro acknowledges that some areas may contain resources not readily available from the NAHC or the SCCIC, or through background research or a sensitivity assessment and would appreciate any information you can provide on potential or known cultural or Tribal resources within the Project area.

Metro is interested in receiving input from your community regarding and concern related to the proposed Project. If you know of any cultural or Tribal resources that may be of religious or cultural significance to your community, or if you would like more information please contact:

Melissa Levitt, Sr Environmental Specialist
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza (Mail Stop 99-16-9)
Los Angeles, California 90012
Email: levittm@metro.net

In return correspondence, please refer to this project as the Metro G Line Stormwater Infiltration and Quality Project.

Please respond within 30 days, pursuant to PRC§21080.3.1(d), if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.

Sincerely,

Melissa Faigeles Levitt
LA Metro
Senior Environmental Specialist
Environmental Services
213.265.0774 C

Metro's mission is to provide world-class transportation for all.

From: Gabrieleno Administration <admin@gabrielenoindians.org>
Sent: Wednesday, February 23, 2022 10:53 AM
To: Levitt, Melissa <LevittM@metro.net>
Subject: Re: Tribal Consultation for the Metro G Line Stormwater Infiltration and Quality Project

Hello Melissa

Unfortunately we are not available next week and we are all booked. The next time we are available for a phone call will be on March 15 at 1pm or March 17th at 11am. Please let us know what time works for you.

Thank you

Brandy Salas
Admin Specialist
Gabrieleno Band of Mission Indians - Kizh Nation
PO Box 393
Covina, CA 91723
Office: 844-390-0787
website: www.gabrielenoindians.org

The region where Gabrieleño culture thrived for more than eight centuries encompassed most of Los Angeles County, more than half of Orange County and portions of Riverside and San Bernardino counties. It was the labor of the Gabrieleño who built the missions, ranchos and the pueblos of Los Angeles. They were trained in the trades, and they did the construction and maintenance, as well as the farming and managing of herds of livestock. "The Gabrieleño are the ones who did all this work, and they really are the foundation of the early economy of the Los Angeles area ". "That's a contribution that Los Angeles has not recognized--the fact that in its early decades, without the Gabrieleño, the community simply would not have survived."

On Tue, Feb 22, 2022 at 4:42 PM Levitt, Melissa <LevittM@metro.net> wrote:

> Good afternoon Brandy,

Thank you for the replay. Metro has the following availability next week:

- Mon, 2/28: after 10:30am
- Tues, 3/1: 9-10am or after 12pm
- Wed, 3/2: anytime
- Thurs, 3/3: 9-11am; after 1pm
- Fri, 3/4: after 10am

Please let me know if any of these dates and times will work for Chariperson Salas. Also, if he would like to provide any oral history as part of the consultation that he would want to be included in the Cultural Resources Assessment, please let me know in advance and I can make the appropriate arrangements.

Thank you,
Melissa

Melissa Faigeles Levitt
LA Metro
Senior Environmental Specialist
Environmental Services
213.265.0774 C
Metro's mission is to provide world-class transportation for all.

From: Gabrieleno Administration <admin@gabrielenoindians.org>
Sent: Friday, February 18, 2022 3:34 PM
To: Levitt, Melissa <LevittM@metro.net>
Subject: Re: Tribal Consultation for the Metro G Line Stormwater Infiltration and Quality Project

Hello Melissa

We would like to consult on the above project.

Thank you
Admin Specialist
Gabrieleno Band of Mission Indians - Kizh Nation
PO Box 393
Covina, CA 91723
Office: 844-390-0787
website: www.gabrielenoindians.org

The region where Gabrieleño culture thrived for more than eight centuries encompassed most of Los Angeles County, more than half of Orange County and portions of Riverside and San Bernardino counties. It was the labor of the Gabrieleño who built the missions, ranchos and the pueblos of Los Angeles. They were trained in the trades, and they did the construction and maintenance, as well as the farming and managing of herds of livestock. "The Gabrieleño are the ones who did all this work, and they really are the foundation of the early economy of the Los Angeles area " . "That's a contribution that Los Angeles has not recognized--the fact that in its early decades, without the Gabrieleño, the community simply would not have survived."

On Tue, Feb 15, 2022 at 2:57 PM Levitt, Melissa <LevittM@metro.net> wrote:

> Dear Chairperson Salas,
>
> This email serves as a follow up to ensure you have received the project information provided for the Metro G (Orange) Line Stormwater Infiltration and Quality Project. Metro respectfully requests that you please respond by March 2, 2022 if you would like to consult on the Project, pursuant to PRC§21080.3.1(d). Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.
>
> Sincerely,
>
> **Melissa Faigeles Levitt**
> LA Metro
> Senior Environmental Specialist
> Environmental Services
> 213.265.0774 C
> **Metro's mission is to provide world-class transportation for all.**
>
> ---
>
> **From:** Levitt, Melissa
> **Sent:** Tuesday, February 1, 2022 2:55 PM
> **To:** admin@gabrielenoindians.org
> **Cc:** Baker, Sarah <Sarah.Baker@icf.com>
> **Subject:** Tribal Consultation for the Metro G Line Stormwater Infiltration and Quality Project
>
> Dear Chairperson Salas,
>
> The Los Angeles County Metropolitan Transportation Authority (Metro) is conducting CEQA environmental review for the Metro G (Orange) Line (MGL) Stormwater Infiltration and Quality Project. The proposed Project is located in the city of Los Angeles in the San Fernando Valley, on ex Mission de Los Angeles lands (see attached figure). This letter serves to notify and invite you to consult on the MGL Stormwater Infiltration and Quality Project, in accordance with PRC§21080.3.1(d).
>
> **Project Description**

The Project proposes to divert stormwater runoff from existing regional storm drains and from the surface to a network of underground pretreatment and infiltration stormwater facilities across seven locations within Metro-owned parcels and right-of-way adjacent to the active busway along the MGL. The proposed Project would add a largely subsurface beneficial use without disrupting primary transportation functions. The proposed Project has the potential to include active diversion structures (pump stations) or gravity-driven diversion structures and pretreatment facilities to capture, treat, and infiltrate stormwater runoff from over 2,300 acres, resulting in an estimated groundwater recharge of 890 acre-feet/year into the San Fernando Groundwater Basin. Metro's extensive land holdings and fortuitous siting within the highest value groundwater recharge areas in the region would allow for large-scale infiltration and aquifer recharge. In 2019 and 2020, Metro's total potable water consumption was 772 and 673 acre-feet respectively. The Project has the potential to capture enough stormwater to allow Metro to become Net Water Positive, contributing more water to regional groundwater recharge than it uses to support all of its operations. This Project would be built utilizing the construction mobilization and resources of the MGL Bus Rapid Transit Improvements Project, to save construction cost and expedite implementation of the Project.

The Project area is completely urbanized and covered with buildings, heavily trafficked roadways, paving, hardscaping, and landscaping. Metro is preparing a Cultural Resources Technical Memorandum for the Project to include the results of records searches, research, consultation, and an archaeological sensitivity analysis. Metro has requested a Sacred Lands File Search from the Native American Heritage Commission (NAHC), and has requested a cultural resources records search from the South Central Coastal Information Center (SCCIC). Results of those records requests are pending. Additionally, the archaeological sensitivity analysis is in development.

Metro acknowledges that some areas may contain resources not readily available from the NAHC or the SCCIC, or through background research or a sensitivity assessment and would appreciate any information you can provide on potential or known cultural or Tribal resources within the Project area.

Metro is interested in receiving input from your community regarding and concern related to the proposed Project. If you know of any cultural or Tribal resources that may be of religious or cultural significance to your community, or if you would like more information please contact:

Melissa Levitt, Sr Environmental Specialist
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza (Mail Stop 99-16-9)
Los Angeles, California 90012
Email: levittm@metro.net

In return correspondence, please refer to this project as the Metro G Line Stormwater Infiltration and Quality Project.

Please respond within 30 days, pursuant to PRC§21080.3.1(d), if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already. Your time and involvement in this process is appreciated.

Sincerely,

Melissa Faigeles Levitt
LA Metro
Senior Environmental Specialist
Environmental Services
213.265.0774 C
Metro's mission is to provide world-class transportation for all.

From:	Levitt, Melissa
To:	Gabrieleno Administration
Cc:	Baker, Sarah; Sparks, Shane
Subject:	RE: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review
Date:	Wednesday, May 18, 2022 10:54:07 AM
Attachments:	MGL_Response_to_GBMI-KizhNation_Letter and Proposed Mitigation Measures_05182022.pdf

Thank you for your response to the draft Cultural Resources Technical Memorandum and project Mitigation Measures and for your participation in AB52 consultation pursuant to PRC§21080.3.1(d). Please see the attached response. This letter will conclude consultation pursuant to PRC 21080.3.1-21080.3.2 for the Metro G Line Stormwater Infiltration and Quality Project.

Thank you again for your time and consideration,
Melissa

Melissa Faigeles Levitt
LA Metro
Senior Environmental Specialist
Environmental Services
213.265.0774 C
Metro's mission is to provide world-class transportation for all.

From: Gabrieleno Administration <admin@gabrielenoindians.org>
Sent: Wednesday, May 4, 2022 3:32 PM
To: Levitt, Melissa <LevittM@metro.net>
Subject: Re: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review

Hello Melissa

Please see the attachments below.

Thank you

Admin Specialist
Gabrieleno Band of Mission Indians - Kizh Nation
PO Box 393
Covina, CA 91723
Office: 844-390-0787
website: www.gabrielenoindians.org

The region where Gabrieleño culture thrived for more than eight centuries encompassed most of Los Angeles County, more than half of Orange County and portions of Riverside and San Bernardino counties. It was the labor of the Gabrieleño who built the missions, ranchos and the pueblos of Los Angeles. They were trained in the trades, and they did the construction and maintenance, as well as the farming and managing of herds of livestock. "The Gabrieleño are the ones who did all this work, and they really are the foundation of the early economy of the Los Angeles area " . "That's a contribution that Los Angeles has not recognized--the fact that in its early decades, without the Gabrieleño, the community simply would not have survived."

On Fri, Apr 29, 2022 at 12:26 PM Levitt, Melissa <LevittM@metro.net> wrote:

> Good afternoon Chairperson Salas and Mr. Teutimez,
>
> Thank you for taking the time to consult on the Metro G Line Stormwater Infiltration and Quality Project on March 17, 2022. Please find attached the following for your review and comment:
>
> - Draft Cultural Resources Technical Memorandum. This includes proposed mitigation measures
> - Draft AB52 consultation notes from 3/17/2022
>
> Metro respectfully requests your review and comments by **Friday, May 13, 2022**. If you would like to set up a time for additional consultation, please provide your availability.
>
> For your reference, I have also included the PowerPoint presentations from our 3/17/2022 meeting.
>
> Thank you,
> Melissa
>
> **Melissa Faigeles Levitt**
> LA Metro
> Senior Environmental Specialist
> Environmental Services
> 213.265.0774 C
> **Metro's mission is to provide world-class transportation for all.**
> **Out of Office 5/2 – 5/6**

Sparks, Shane

Subject: FW: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review
Attachments: METRO G LINE STORMWATER INFILTERATION & QUALITY PROJECT .pdf

From: Gabrieleno Administration <admin@gabrielenoindians.org>
Sent: Tuesday, May 24, 2022 10:23 AM
To: Levitt, Melissa <LevittM@metro.net>
Subject: Re: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review

Hello Melissa

After reviewing the language we have to disagree for the mitigation measures do not help protect Tribal cultural resources. Please note that Tribal cultural resources are their own element and must be separate from archeological, Paleo, and Bio to fulfill CEQA's requirements under AB52. We would like you to utilize the mitigations we have provided for the protection of Tribal cultural resources.

Admin Specialist
Gabrieleno Band of Mission Indians - Kizh Nation
PO Box 393
Covina, CA 91723
Office: 844-390-0787
website: www.gabrielenoindians.org

The region where Gabrieleño culture thrived for more than eight centuries encompassed most of Los Angeles County, more than half of Orange County and portions of Riverside and San Bernardino counties. It was the labor of the Gabrieleño who built the missions, ranchos and the pueblos of Los Angeles. They were trained in the trades, and they did the construction and maintenance, as well as the farming and managing of herds of livestock. "The Gabrieleño are the ones who did all this work, and they really are the foundation of the early economy of the Los Angeles area ". "That's a contribution that Los Angeles has not recognized--the fact that in its early decades, without the Gabrieleño, the community simply would not have survived."

Sparks, Shane

From: Levitt, Melissa <LevittM@metro.net>
Sent: Friday, April 29, 2022 11:07 AM
To: Jairo Avila
Cc: Baker, Sarah; Sparks, Shane
Subject: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review
Attachments: Metro_G-Line_WaterInfiltration_CR_Tech_Memo_042822_Compiled.pdf; Metro G Line Stormwater Infiltration and Quality Project-AB52 Consultation Meeting Notes - FTBMI - 02.22.2022.pdf; G Line Water Project_AB52 Consultation FTBMI_02-22-2022.pdf; Metro - MGL - Cultural Resources Technical Memo-Assessment_MeetingSlides.pdf

Good morning Mr. Avila,

Thank you for taking the time to consult on the Metro G Line Stormwater Infiltration and Quality Project on February 22, 2022. Please find attached the following for your review and comment:

- Draft Cultural Resources Technical Memorandum. This includes proposed mitigation measures
- Draft AB52 consultation notes from 2/22/2022

Metro respectfully requests your review and comments by **Friday, May 13, 2022**. If you would like to set up a time for additional consultation, please provide your availability.

For your reference, I have also included the PowerPoint presentations from our 2/22/2022 meeting.

Thank you,
Melissa

Melissa Faigeles Levitt
LA Metro
Senior Environmental Specialist
Environmental Services
213.265.0774 C
Metro's mission is to provide world-class transportation for all.
Out of Office 5/2 – 5/6

Sparks, Shane

Subject: FW: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review

From: Levitt, Melissa <LevittM@metro.net>
Sent: Monday, June 6, 2022 11:13 AM
To: Jairo Avila <jairo.avila@tataviam-nsn.us>
Cc: Baker, Sarah <Sarah.Baker@icf.com>; Sparks, Shane <Shane.Sparks@icf.com>
Subject: RE: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review

Good morning Jairo,

Thank you for providing the proposed revisions to the mitigation measures. I will review and get back to you with any questions.

Thank you,
Melissa

Melissa Faigeles Levitt
LA Metro
Senior Environmental Specialist
Environmental Services
213.265.0774 C
Metro's mission is to provide world-class transportation for all.

From:	Jairo Avila
To:	Levitt, Melissa
Cc:	Baker, Sarah; Sparks, Shane
Subject:	Re: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review
Date:	Monday, June 6, 2022 10:56:07 AM
Attachments:	FTBMI AB52 Request measures .docx

Hello Melissa,

I apologize for my delayed response. I was able to get final comments from our leadership over the weekend.
I have attached the measures with the requested changes (track changes on). If you or the ICF team have any questions, please let me know.

Thank you,

Jairo F. Avila, M.A., RPA.
Tribal Historic and Cultural Preservation Officer
Cultural Resources Management Division
Tribal Historic and Cultural Preservation Department

Fernandeño Tataviam Band of Mission Indians
1019 Second Street, Suite 1
San Fernando, California 91340
Office: (818) 837-0794
Website: http://www.tataviam-nsn.us

From: Levitt, Melissa <LevittM@metro.net>
Sent: Wednesday, June 1, 2022 12:07 PM
To: Jairo Avila <jairo.avila@tataviam-nsn.us>
Cc: Baker, Sarah <Sarah.Baker@icf.com>; Sparks, Shane <Shane.Sparks@icf.com>
Subject: RE: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review

Good afternoon Jairo,

Thank you for taking the time to meet with Metro last Wednesday. In our consultation you mentioned that you would like to provide proposed revisions to mitigation measures CR-2 and CR-3. If you would still like to provide proposed revisions, would it be possible to receive those by this **Friday, 6/3**?

Metro is finalizing the draft IS/MND for publication and would like to make sure there is time to incorporate any revisions into the draft.

Thank you again for your time and the productive conversations.

Regards,
Melissa

Melissa Faigeles Levitt
LA Metro
Senior Environmental Specialist
Environmental Services
213.265.0774 C
Metro's mission is to provide world-class transportation for all.

From: Jairo Avila <jairo.avila@tataviam-nsn.us>
Sent: Friday, May 20, 2022 3:03 PM
To: Levitt, Melissa <LevittM@metro.net>
Cc: Baker, Sarah <Sarah.Baker@icf.com>; Sparks, Shane <Shane.Sparks@icf.com>
Subject: Re: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review

Hello Melissa,

Thank you for your response and providing your meeting availability, I am available Wednesday 5/25 from 2:30pm-3:30pm.

Can you send a meeting invite for this day and time. If another time on this day is more convenient, please let me know.

I look forward to speaking with you next week.

Thank you,

Jairo F. Avila, M.A., RPA.
Tribal Historic and Cultural Preservation Officer
Cultural Resources Management Division
Tribal Historic and Cultural Preservation Department

Fernandeño Tataviam Band of Mission Indians
1019 Second Street, Suite 1
San Fernando, California 91340
Office: (818) 837-0794
Website: http://www.tataviam-nsn.us

From: Levitt, Melissa <LevittM@metro.net>

Sent: Wednesday, May 18, 2022 11:31 AM
To: Jairo Avila <jairo.avila@tataviam-nsn.us>
Cc: Baker, Sarah <Sarah.Baker@icf.com>; Sparks, Shane <Shane.Sparks@icf.com>
Subject: RE: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review

[CAUTION] EXTERNAL Email. Exercise caution.

Hello Jairo,

Thank you for your response. Metro has the following availability next week. Let me know if there is a preferred time for you.

Monday – 5/23 – 12:30p - 2pm
Tues – 5/24 – 9:30a - 11a
Wed – 5/25 – 2:30p – 5:00p.
Thurs – 5/26 – 11a-12p ; 1-3pm

Also, as a result of AB52 consultation with other Consulting Tribes and input received on the proposed Mitigation Measures, LACMTA will recommend the implementation of the following revisions to the proposed Mitigation Measures described in the Cultural Resources Technical Memorandum. These measures comport with the measures recommended by the Native American Heritage Commission (NAHC), and would mitigate potential impacts of the proposed Project on Tribal Cultural Resources in accordance with CEQA. The measures provide for the following, with revised text indicated in red:

CR-1: Retain a Qualified Archaeologist - Prior to the start of ground-disturbing activities, LACMTA will retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (36 Code of Federal Regulations, Part 61) to carry out the following cultural resources mitigation measures.

CR-2: Develop Worker Environmental Awareness Program (WEAP) Training and Deliver to Construction Crews - Prior to start of ground-disturbing activities, the qualified archaeologist will prepare a cultural resources sensitivity training module to be used as part of the construction operations Worker Environmental Awareness Program (WEAP) training. As part of the WEAP training development, LACMTA will retain a tribe-approved monitor from each consulting Tribe to develop tribal cultural resources sensitivity information pertinent to each Tribe and present this information during the WEAP trainings. All construction personnel will receive sensitivity training prior to beginning work onsite. Construction personnel will be informed about the types of archaeological resources and tribal cultural resources that may be encountered and the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources, tribal archaeological resources, or human remains. LACMTA and the lead construction firm will ensure that construction personnel are made available for and attend the training and will retain documentation demonstrating attendance.

CR-3: Prepare a Detailed Unanticipated Discovery Plan (UDP) - Prior to the start of any project-related ground-disturbing activities, the qualified archaeologist will prepare a detailed Unanticipated Discovery Plan (UDP) for the project. The UDP will outline the appropriate measures to be followed in the event of unanticipated discovery of cultural resources during project implementation, including that all ground disturbance within 50 to 100 feet of an unanticipated discovery will cease until a qualified archaeologist evaluates it. Project construction

within 50 to 100 feet will not continue until the qualified archaeologist has coordinated with LACMTA. LACMTA will coordinate with consulting Tribes and retain a Native American monitor to respond to discoveries for the project if Native American resources or tribal cultural resources are identified (e.g., prehistoric site, ethnographic sites, native American resources).

CR-4: Implement Procedures for Discovery of Human Remains and Associated or Unassociated Funerary Objects - If human remains are encountered, then all work will halt in the vicinity (i.e., within 50 to 100 feet) of the find, and the Los Angeles County Coroner will be contacted in accordance with PRC Section 5097.98 and Health and Safety Code Section 7050.5. If the County Coroner determines that the remains are Native American, then the NAHC will be notified in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC Section 5097.98 (as amended by AB 2641). The NAHC will designate a Most Likely Descendant (MLD) for the remains, per PRC Section 5097.98. LACMTA will consult with the MLD regarding the final disposition of any human remains that are determined to be Native American in origin. The treatment of any human remains determined to be Native American in origin and all subsequent actions to be taken will be described in the UDP.

Thank you,
Melissa

Melissa Faigeles Levitt
LA Metro
Senior Environmental Specialist
Environmental Services
213.265.0774 C
Metro's mission is to provide world-class transportation for all.

From: Jairo Avila <jairo.avila@tataviam-nsn.us>
Sent: Tuesday, May 17, 2022 8:24 AM
To: Levitt, Melissa <LevittM@metro.net>
Cc: Baker, Sarah <Sarah.Baker@icf.com>; Sparks, Shane <Shane.Sparks@icf.com>
Subject: Re: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review

Hello Melissa,

Thank you for the email and opportunity to review the information provided. Our office has various concerns regarding the cultural report and mitigation measures included in the report. I also have questions regarding the Archaeological Sensitivity Model as it appears to lack data and misrepresent the cultural significance of the area.

Can you provide your availability for the next two weeks to schedule a follow up meeting to discuss the report and measures?

The FTBMI would like to keep AB52 Consultation open until we are able to address all concerns.

Thank you,

Jairo F. Avila, M.A., RPA.
Tribal Historic and Cultural Preservation Officer
Cultural Resources Management Division
Tribal Historic and Cultural Preservation Department

Fernandeño Tataviam Band of Mission Indians
1019 Second Street, Suite 1
San Fernando, California 91340
Office: (818) 837-0794
Website: http://www.tataviam-nsn.us

From: Levitt, Melissa <LevittM@metro.net>
Sent: Tuesday, May 10, 2022 1:10 PM
To: Jairo Avila <jairo.avila@tataviam-nsn.us>
Cc: Baker, Sarah <Sarah.Baker@icf.com>; Sparks, Shane <Shane.Sparks@icf.com>
Subject: RE: Metro G Line Stormwater Infiltration & Quality Project AB52 Consultation - Cultural Resources Memo and Consultation Notes Review

Hello Mr. Avila,

This is a friendly reminder that your review and comments on the Draft Cultural Resources Technical Memorandum and Draft AB52 consultation notes are requested by this Friday, May 13. If you have any questions, please do not hesitate to ask.

Thank you,
Melissa

Melissa Faigeles Levitt
LA Metro
Senior Environmental Specialist
Environmental Services
213.265.0774 C
Metro's mission is to provide world-class transportation for all.

Appendix B: Air Quality CalEEMod Modeling Calculations

Project Name: Metro 066 MOL Infiltration Project
Construction Days per week: 5
Project Size (acres): 3.05

Water Exposed Area	Reduction (%)	Truck Trips
Dust Control Reduction (Water 3x per day: 3.2-hr interval)[1,2]	61%	6
Dust Control Reduction (Water 4x per day: 2.1-hr interval)[1]	74%	8
Valued used in analysis	**61%**	

WRAP Fugitive Dust Handbook. Table 3-7
SCAQMD Rule 403

Schedule[2]

Phase Name[1]	Start Date	End Date	# of Workdays per Week	# of Workdays	Worker One-Way Trips per Day (In/Out)	Vendor One-Way Trips per Day (In/Out)	Total One-Way Haul Trucks (In/Out)	Total One-Way Haul Trucks per Day (In/Out)
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	0	12	0	0
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	8	6	324	12
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	8	12	0	0
Install Drywells	6/27/2024	5/20/2026	5	495	12	50	1044	4
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	4	6	0	0
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	8	6	298	4
Restore Surfacing	11/12/2024	12/15/2024	5	24	8	6	0	0
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	8	6	426	4
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	8	12	0	0
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	8	6	260	2
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	8	6	292	4
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	8	6	0	0
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	8	6	74	2
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	4	6	0	0
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	4	6	0	0
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	0	6	0	0
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	8	6	0	0

Notes:
1. Contractor Mobilization and Testing/Startup would only include Vendor Trips.
2. Provided by the Applicant. Constuction would occur over two years and it was conservatively assumed that all construction would occur at once and be overlapping.
3. CalEEMod default trip lenghts were used.

Material Import/Export

Phase Name1	Soil Export Volume (CY)	Haul Truck Capacity (CY/truck)[1]	# of Trucks Required	Total # of One-Truck Trips	Total # of One-Truck Trips per Day
SWC: Contractor Mobilization	0	16	0	0	0
Excavation for Pre-Treatment Vault	2,583	16	162	324	12
FRPS Pre-Treatment Vault Complete	0	16	0	0	0
Install Drywells	8,350	16	522	1,044	4
Test Infiltration rate of drywells	0	16	0	0	0
Dig/Lay/Bf pre-treatment to Drywell pipes	2,372	16	149	298	4
Restore Surfacing	0	16	0	0	0
Excavate for Diversion Struct (Cut and Cover)	3,401	16	213	426	4
FRPS Diversion Structure Complete	0	16	0	0	0
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	2,074	16	130	260	2
Shore/Excavate for Pump Station	2,327	16	146	292	4
Set/BF PreCast Pump Station	0	16	0	0	0
Dig/Lay/BF 20" pump sta to pre-treat	591	16	37	74	2
Install pump Station Mechanical	0	16	0	0	0
Install pump Station Elec - All	0	16	0	0	0
Testing/Startup of Pump Station	0	16	0	0	0
Bypass/Demo Trunk Line in Diversion Struct	0	16	0	0	0
Notes:	21,698				

1. Based off CalEEMod defaults.

Vendor Trips

Phase Name1	Total disturbed sq.ft.	Vendor trip rate per 1k sq.ft.	Total one-way vendor trips.
Install Drywells	132,938	0.1639	44

Notes:
1. Based off CalEEMod Methodology; Appendix A - Section 4.5.

Project Construction Equipment - Provided by applicant

Phase Name[1,2]	Equipment Type	Horsepower	CalEEMod Equipment Type	# of Equipment	Wokers per Equipment[3]	# of Workers[4]	# of Worker One-Way Trips
SWC: Contractor Mobilization	-	-	-	-	-	-	-
Excavation for Pre-Treatment Vault	345 CAT Excavator	346	Excavators	1	1.25	2	4
Excavation for Pre-Treatment Vault	CAT 950 Loader	248	Rubber Tired Loaders	1	1.25	2	4
FRPS Pre-Treatment Vault Complete	75 Ton RT Crane	270	Cranes	1	1.25	2	4
FRPS Pre-Treatment Vault Complete	12k Forklift	120	Forklifts	1	1.25	2	4
Install Drywells	Large Diameter Subsurface fou	581	Bore/Drill Rigs	1	1.25	2	4
Install Drywells	CAT 950 Loader	248	Rubber Tired Loaders	1	1.25	2	4
Install Drywells	Skidsteer	67	Skid Steer Loaders	1	1.25	2	4
Test Infiltration rate of drywells	5kw Generator; <10hp sump pump	9.9	Generator Sets	1	1.25	2	4
Dig/Lay/Bf pre-treatment to Drywell pipes	345 CAT Excavator	346	Excavators	1	1.25	2	4
Dig/Lay/Bf pre-treatment to Drywell pipes	CAT 950 Loader	248	Rubber Tired Loaders	1	1.25	2	4
Restore Surfacing	8' width Asphalt Paver	74	Pavers	1	1.25	2	4
Restore Surfacing	CAT Double Drum Roller	120	Rollers	1	1.25	2	4
Excavate for Diversion Struct (Cut and Cover)	345 CAT Excavator	346	Excavators	1	1.25	2	4
Excavate for Diversion Struct (Cut and Cover)	CAT 950 Loader	248	Rubber Tired Loaders	1	1.25	2	4
FRPS Diversion Structure Complete	75 Ton RT Crane	270	Cranes	1	1.25	2	4
FRPS Diversion Structure Complete	12k Forklift	120	Forklifts	1	1.25	2	4
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	345 CAT Excavator	346	Excavators	1	1.25	2	4
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	CAT 950 Loader	248	Rubber Tired Loaders	1	1.25	2	4
Shore/Excavate for Pump Station	345 CAT Excavator	346	Excavators	1	1.25	2	4
Shore/Excavate for Pump Station	CAT 950 Loader	248	Rubber Tired Loaders	1	1.25	2	4
Set/BF PreCast Pump Station	75 ton RT Crane	270	Cranes	1	1.25	2	4
Set/BF PreCast Pump Station	CAT 950 Loader	248	Rubber Tired Loaders	1	1.25	2	4
Dig/Lay/BF 20" pump sta to pre-treat	345 CAT Excavator	346	Excavators	1	1.25	2	4
Dig/Lay/BF 20" pump sta to pre-treat	CAT 950 Loader	248	Rubber Tired Loaders	1	1.25	2	4
Install pump Station Mechanical	12k Forklift	120	Forklifts	1	1.25	2	4
Install pump Station Elec - All	12k Forklift	120	Forklifts	1	1.25	2	4
Bypass/Demo Trunk Line in Diversion Struct	30kv generator, sump pumps	122	Generator Sets	1	1.25	2	4
Bypass/Demo Trunk Line in Diversion Struct	air compressors, pneumatic breaker	122	Air Compressors	1	1.25	2	4

Notes:
1. The Contractor mobilization phase would only include on-road heavy duty truck trips. These truck trips are included and modeled as Vendor trips.
2. The Testing phase does not have any proposed construction equipment (onroad or offroad) and thus is not included in this table.
3. CalEEMod methodology assumes 1.25 workers per piece of equipment
4. Rounded up for single pieces of equipment.
5. All equipment greater than 50hp is required to be Tier 4 Final.

Regional Emissions (Onsite + Offsite) by Phase					Daily Emissions (lb/day)[2]										Daily Emissions (lb/day)			Total MT per Phase[1]			
Phase Name	Start Date	End Date	Workdays per Week	# of Workdays	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	CO_2e
SWC: Contractor Mobilization	6/13/24	6/26/24	5	10	0.01	0.52	0.17	0.00	0.29	0.00	0.30	0.06	0.00	0.06	276.27	0.00	0.04	1.25	0.00	0.00	1.31
Excavation for Pre-Treatment Vault	6/27/24	8/11/24	5	32	0.28	2.41	12.65	0.03	0.88	0.05	0.93	0.21	0.05	0.26	2914.12	0.60	0.16	42.30	0.01	0.00	43.20
FRPS Pre-Treatment Vault Complete	7/3/24	12/17/24	5	120	0.16	1.22	5.26	0.01	0.64	0.02	0.66	0.12	0.02	0.14	1242.42	0.28	0.05	67.63	0.02	0.00	68.83
Install Drywells	6/27/24	5/20/26	5	495	0.55	5.49	17.63	0.05	1.71	0.08	1.79	0.35	0.08	0.43	4911.10	1.09	0.23	1102.68	0.25	0.05	1124.09
Test Infiltration rate of drywells	10/9/24	1/28/25	5	80	0.06	0.64	0.74	0.00	0.30	0.02	0.31	0.06	0.02	0.07	263.36	0.00	0.02	9.56	0.00	0.00	9.83
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/24	2/25/25	5	90	0.27	1.67	12.54	0.02	0.54	0.04	0.58	0.13	0.04	0.16	2342.94	0.60	0.07	95.65	0.02	0.00	97.10
Restore Surfacing	11/12/24	12/15/24	5	24	0.11	0.64	5.44	0.01	0.37	0.01	0.38	0.08	0.01	0.10	862.40	0.21	0.02	9.39	0.00	0.00	9.52
Excavate for Diversion Struct (Cut and Cover)	7/3/24	12/17/24	5	120	0.34	1.67	12.54	0.02	1.63	0.04	1.67	0.29	0.04	0.33	2342.94	0.60	0.07	127.53	0.03	0.00	129.46
FRPS Diversion Structure Complete	7/25/24	1/8/25	5	120	0.15	1.01	5.12	0.01	0.52	0.02	0.54	0.11	0.02	0.13	1212.97	0.28	0.05	66.02	0.02	0.00	67.15
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump	8/15/24	4/2/25	5	165	0.27	1.48	12.51	0.02	0.46	0.04	0.49	0.10	0.04	0.14	2200.15	0.60	0.05	164.67	0.04	0.00	166.82
Shore/Excavate for Pump Station	7/25/24	12/25/24	5	110	0.27	1.67	12.54	0.02	0.54	0.04	0.58	0.13	0.04	0.16	2342.94	0.60	0.07	116.90	0.03	0.00	118.67
Set/BF PreCast Pump Station	8/1/24	9/25/24	5	40	0.21	0.87	6.89	0.02	0.29	0.02	0.31	0.06	0.02	0.09	1486.73	0.45	0.00	26.97	0.01	0.00	27.20
Dig/Lay/BF 20" pump sta to pre-treat	8/8/24	10/8/24	5	44	0.26	1.11	12.43	0.02	0.29	0.03	0.32	0.06	0.03	0.09	1929.09	0.60	0.00	38.50	0.01	0.00	38.82
Install pump Station Mechanical	8/9/24	11/28/24	5	80	0.04	0.20	1.78	0.00	0.17	0.00	0.18	0.03	0.00	0.04	251.44	0.07	0.00	9.12	0.00	0.00	9.21
Install pump Station Elec - All	8/23/24	12/12/24	5	80	0.04	0.20	1.78	0.00	0.17	0.00	0.18	0.03	0.00	0.04	251.44	0.07	0.00	9.12	0.00	0.00	9.21
Testing/Startup of Pump Station	3/5/25	9/9/25	5	135	0.00	0.07	0.04	0.00	0.06	0.00	0.06	0.01	0.00	0.01	9.69	0.00	0.00	0.59	0.00	0.00	0.62
Bypass/Demo Trunk Line in Diversion Struct	3/19/25	4/21/25	5	24	0.19	0.78	10.08	0.02	0.29	0.02	0.31	0.06	0.02	0.08	1584.04	0.07	0.00	17.24	0.00	0.00	17.28
Maximum Daily Emissions					**2.29**	**15.89**	**88.49**	**0.19**	**7.05**	**0.30**	**7.35**	**1.44**	**0.30**	**1.74**						**Total**	**1,938.34**
SCAQMD Regional Significance Thresholds					75	100	550	150			150			55				30	-Year Amortization		64.61
Threshold Exceeded?					**No**	**No**	**No**	**No**			**No**			**No**							

Notes:
1. Global warming potentials based on IPCC AR4, consistent with CARB emission inventory methods.
2. LA Metro requires that all construction equipment greater than 50 hp be Tier 4 Final.
3. Required SCAQMD Rule 403 Dust Control was applied.

Regional Emissions (Onsite + Offsite) by Year	Daily Emissions (lb/day)[2]										Total MT per year			
Construction Year	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O	CO_2e
2024	2.29	15.89	88.49	0.19	7.05	0.30	7.35	1.44	0.30	1.74	969.05	0.23	0.03	985
2025	1.30	10.30	48.54	0.11	3.53	0.19	3.71	0.75	0.18	0.94	713.32	0.16	0.03	726
2026	0.55	5.49	17.63	0.05	1.71	0.08	1.79	0.35	0.08	0.43	222.76	0.05	0.01	227
Maximum Daily Emissions	**2.29**	**15.89**	**88.49**	**0.19**	**7.05**	**0.30**	**7.35**	**1.44**	**0.30**	**1.74**			**Total**	**1,938**
SCAQMD Regional Significance Thresholds	75	100	550	150			150			55	30.00	-Year Amortization		65
Threshold Exceeded?	**No**	**No**	**No**	**No**			**No**			**No**				

Localized Emissions (Onsite Only) by Phase

Phase Name	Start Date	End Date	Workdays per Week	# of Workdays	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total
					Daily Emissions (lb/day)									
SWC: Contractor Mobilization	6/13/24	6/26/24	5	10	0.01	0.14	0.08	0.00	0.12	0.00	0.12	0.01	0.00	0.01
Excavation for Pre-Treatment Vault	6/27/24	8/11/24	5	32	0.24	1.08	12.08	0.02	0.07	0.03	0.10	0.01	0.03	0.04
FRPS Pre-Treatment Vault Complete	7/3/24	12/17/24	5	120	0.12	0.82	4.82	0.01	0.25	0.01	0.26	0.02	0.01	0.04
Install Drywells	6/27/24	5/20/26	5	495	0.48	3.53	16.68	0.04	0.51	0.06	0.57	0.05	0.06	0.11
Test Infiltration rate of drywells	10/9/24	1/28/25	5	80	0.04	0.44	0.52	0.00	0.10	0.01	0.12	0.01	0.01	0.02
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/24	2/25/25	5	90	0.24	1.08	12.08	0.02	0.06	0.03	0.09	0.01	0.03	0.04
Restore Surfacing	11/12/24	12/15/24	5	24	0.08	0.42	5.04	0.01	0.06	0.01	0.07	0.01	0.01	0.02
Excavate for Diversion Struct (Cut and Cover)	7/3/24	12/17/24	5	120	0.30	1.08	12.08	0.02	1.15	0.03	1.18	0.17	0.03	0.20
FRPS Diversion Structure Complete	7/25/24	1/8/25	5	120	0.11	0.61	4.68	0.01	0.12	0.01	0.14	0.01	0.01	0.03
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump	8/15/24	4/2/25	5	165	0.24	1.08	12.08	0.02	0.06	0.03	0.09	0.01	0.03	0.04
Shore/Excavate for Pump Station	7/25/24	12/25/24	5	110	0.24	1.08	12.08	0.02	0.06	0.03	0.09	0.01	0.03	0.04
Set/BF PreCast Pump Station	8/1/24	9/25/24	5	40	0.18	0.84	6.54	0.01	0.06	0.02	0.09	0.01	0.02	0.03
Dig/Lay/BF 20" pump sta to pre-treat	8/8/24	10/8/24	5	44	0.24	1.08	12.08	0.02	0.06	0.03	0.09	0.01	0.03	0.04
Install pump Station Mechanical	8/9/24	11/28/24	5	80	0.03	0.18	1.61	0.00	0.06	0.00	0.06	0.01	0.00	0.01
Install pump Station Elec - All	8/23/24	12/12/24	5	80	0.03	0.18	1.61	0.00	0.06	0.00	0.06	0.01	0.00	0.01
Testing/Startup of Pump Station	3/5/25	9/9/25	5	135	0.00	0.07	0.04	0.00	0.06	0.00	0.06	0.01	0.00	0.01
Bypass/Demo Trunk Line in Diversion Struct	3/19/25	4/21/25	5	24	0.16	0.75	9.75	0.02	0.06	0.02	0.08	0.01	0.02	0.03
Maximum Daily Emissions					**1.96**	**10.54**	**84.26**	**0.15**	**2.51**	**0.24**	**2.75**	**0.31**	**0.24**	**0.55**
SCAQMD Localized Significance Thresholds						80	498				4			3
Threshold Exceeded?						**No**	**No**				**No**			**No**

Localized Significance Thresholds (LSTs)

Source Receptor Area (SRA): 7: East San Fernando Valley
Site Size (acres): 1
Receptor Distance (m): 25

Pollutant	LST (lb/day)
NO_X	80
CO	498
PM_{10}	4
$PM_{2.5}$	3

Source: SCAQMD. Appendix C - Mass Rate LST Look-up Tables

Localized Emissions (Onsite Only) by Year

Year	NOx	CO	PM_{10} Total	$PM_{2.5}$ Total
	Daily Emissions (lb/day)			
2024	10.54	84.26	2.75	0.55
2025	6.76	46.04	1.01	0.23
2026	3.53	16.68	0.57	0.11
Maximum Daily Emissions	**10.54**	**84.26**	**2.75**	**0.55**
SCAQMD Localized Significance Thresholds	80	498	4	3
Threshold Exceeded?	**No**	**No**	**No**	**No**

OFFROAD EQUIPMENT (ONSITE)

												Emission Factor (g/bhp-hr)[1]												
Phase Name	Start Date	End Date	Workdays per Week	# of Workdays	First Year of CSTN	EF Year	CalEEmod Equipment Type	# of Equipment	Daily Usage (hr/day)	HP	LF	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	2024	Excavators	1	8	346	0.38	0.060	0.260	3.700	0.005	-	0.008	0.008	-	0.008	0.008	472.428	0.153	-
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.060	0.260	2.200	0.005	-	0.008	0.008	-	0.008	0.008	469.788	0.152	-
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	2024	Cranes	1	8	270	0.29	0.060	0.260	2.200	0.005	-	0.008	0.008	-	0.008	0.008	472.964	0.153	-
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	2024	Forklifts	1	8	120	0.2	0.060	0.260	3.700	0.005	-	0.008	0.008	-	0.008	0.008	471.529	0.153	-
Install Drywells	6/27/2024	5/20/2026	5	495	2024	2024	Bore/Drill Rigs	1	8	581	0.5	0.060	0.260	2.200	0.005	-	0.008	0.008	-	0.008	0.008	470.712	0.152	-
Install Drywells	6/27/2024	5/20/2026	5	495	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.060	0.260	2.200	0.005	-	0.008	0.008	-	0.008	0.008	469.788	0.152	-
Install Drywells	6/27/2024	5/20/2026	5	495	2024	2024	Skid Steer Loaders	1	8	67	0.37	0.120	2.740	3.700	0.005	-	0.008	0.008	-	0.008	0.008	472.847	0.153	-
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	2024	Generator Sets	1	8	9.9	0.74	0.260	2.321	3.342	0.006	-	0.101	0.101	-	0.101	0.101	568.299	0.023	-
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	2024	Excavators	1	8	346	0.38	0.060	0.260	3.700	0.005	-	0.008	0.008	-	0.008	0.008	472.428	0.153	-
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.060	0.260	2.200	0.005	-	0.008	0.008	-	0.008	0.008	469.788	0.152	-
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	2024	Pavers	1	8	74	0.42	0.060	0.260	3.700	0.005	-	0.008	0.008	-	0.008	0.008	472.661	0.153	-
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	2024	Rollers	1	8	120	0.38	0.060	0.260	3.700	0.005	-	0.008	0.008	-	0.008	0.008	474.007	0.153	-
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	2024	Excavators	1	8	346	0.38	0.060	0.260	3.700	0.005	-	0.008	0.008	-	0.008	0.008	472.428	0.153	-
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.060	0.260	2.200	0.005	-	0.008	0.008	-	0.008	0.008	469.788	0.152	-
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	2024	Cranes	1	8	270	0.29	0.060	0.260	2.200	0.005	-	0.008	0.008	-	0.008	0.008	472.964	0.153	-
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	2024	Forklifts	1	8	120	0.2	0.060	0.260	3.700	0.005	-	0.008	0.008	-	0.008	0.008	471.529	0.153	-
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	2024	Excavators	1	8	346	0.38	0.060	0.260	3.700	0.005	-	0.008	0.008	-	0.008	0.008	472.428	0.153	-
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.060	0.260	2.200	0.005	-	0.008	0.008	-	0.008	0.008	469.788	0.152	-
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	2024	Excavators	1	8	346	0.38	0.060	0.260	3.700	0.005	-	0.008	0.008	-	0.008	0.008	472.428	0.153	-
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.060	0.260	2.200	0.005	-	0.008	0.008	-	0.008	0.008	469.788	0.152	-
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	2024	Cranes	1	8	270	0.29	0.060	0.260	2.200	0.005	-	0.008	0.008	-	0.008	0.008	472.964	0.153	-
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.060	0.260	2.200	0.005	-	0.008	0.008	-	0.008	0.008	469.788	0.152	-
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	2024	Excavators	1	8	346	0.38	0.060	0.260	3.700	0.005	-	0.008	0.008	-	0.008	0.008	472.428	0.153	-
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.060	0.260	2.200	0.005	-	0.008	0.008	-	0.008	0.008	469.788	0.152	-
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	2024	Forklifts	1	8	120	0.2	0.060	0.260	3.700	0.005	-	0.008	0.008	-	0.008	0.008	471.529	0.153	-
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	2024	Forklifts	1	8	120	0.2	0.060	0.260	3.700	0.005	-	0.008	0.008	-	0.008	0.008	471.529	0.153	-
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	2025	Generator Sets	1	8	122	0.74	0.060	0.260	3.700	0.006	-	0.008	0.008	-	0.008	0.008	568.299	0.021	-
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	2025	Air Compressors	1	8	122	0.48	0.060	0.260	3.700	0.006	-	0.008	0.008	-	0.008	0.008	568.299	0.031	-

Notes:

1. Emission factors based on CalEEMod fleet average

OFFROAD EQUIPMENT (ONSITE)

												Daily Emissions (lb/day)												
Phase Name	Start Date	End Date	Workdays per Week	# of Workdays	First Year of CSTN	EF Year	CalEEmod Equipment Type	# of Equipment	Daily Usage (hr/day)	HP	LF	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	2024	Excavators	1	8	346	0.38	0.139	0.603	8.580	0.012	-	0.019	0.019	-	0.019	0.019	1095.519	0.355	-
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.094	0.409	3.464	0.008	-	0.013	0.013	-	0.013	0.013	739.742	0.239	-
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	2024	Cranes	1	8	270	0.29	0.083	0.359	3.038	0.007	-	0.011	0.011	-	0.011	0.011	653.152	0.211	-
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	2024	Forklifts	1	8	120	0.2	0.025	0.110	1.566	0.002	-	0.003	0.003	-	0.003	0.003	199.592	0.065	-
Install Drywells	6/27/2024	5/20/2026	5	495	2024	2024	Bore/Drill Rigs	1	8	581	0.5	0.307	1.332	11.272	0.026	-	0.041	0.041	-	0.041	0.041	2411.713	0.779	-
Install Drywells	6/27/2024	5/20/2026	5	495	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.094	0.409	3.464	0.008	-	0.013	0.013	-	0.013	0.013	739.742	0.239	-
Install Drywells	6/27/2024	5/20/2026	5	495	2024	2024	Skid Steer Loaders	1	8	67	0.37	0.052	1.198	1.618	0.002	-	0.003	0.003	-	0.003	0.003	206.739	0.067	-
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	2024	Generator Sets	1	8	9.9	0.74	0.034	0.300	0.432	0.001	-	0.013	0.013	-	0.013	0.013	73.429	0.003	-
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	2024	Excavators	1	8	346	0.38	0.139	0.603	8.580	0.012	-	0.019	0.019	-	0.019	0.019	1095.519	0.355	-
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.094	0.409	3.464	0.008	-	0.013	0.013	-	0.013	0.013	739.742	0.239	-
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	2024	Pavers	1	8	74	0.42	0.033	0.143	2.028	0.003	-	0.004	0.004	-	0.004	0.004	259.093	0.084	-
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	2024	Rollers	1	8	120	0.38	0.048	0.209	2.976	0.004	-	0.006	0.006	-	0.006	0.006	381.219	0.123	-
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	2024	Excavators	1	8	346	0.38	0.139	0.603	8.580	0.012	-	0.019	0.019	-	0.019	0.019	1095.519	0.355	-
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.094	0.409	3.464	0.008	-	0.013	0.013	-	0.013	0.013	739.742	0.239	-
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	2024	Cranes	1	8	270	0.29	0.083	0.359	3.038	0.007	-	0.011	0.011	-	0.011	0.011	653.152	0.211	-
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	2024	Forklifts	1	8	120	0.2	0.025	0.110	1.566	0.002	-	0.003	0.003	-	0.003	0.003	199.592	0.065	-
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	2024	Excavators	1	8	346	0.38	0.139	0.603	8.580	0.012	-	0.019	0.019	-	0.019	0.019	1095.519	0.355	-
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.094	0.409	3.464	0.008	-	0.013	0.013	-	0.013	0.013	739.742	0.239	-
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	2024	Excavators	1	8	346	0.38	0.139	0.603	8.580	0.012	-	0.019	0.019	-	0.019	0.019	1095.519	0.355	-
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.094	0.409	3.464	0.008	-	0.013	0.013	-	0.013	0.013	739.742	0.239	-
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	2024	Cranes	1	8	270	0.29	0.083	0.359	3.038	0.007	-	0.011	0.011	-	0.011	0.011	653.152	0.211	-
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.094	0.409	3.464	0.008	-	0.013	0.013	-	0.013	0.013	739.742	0.239	-
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	2024	Excavators	1	8	346	0.38	0.139	0.603	8.580	0.012	-	0.019	0.019	-	0.019	0.019	1095.519	0.355	-
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	2024	Rubber Tired Loaders	1	8	248	0.36	0.094	0.409	3.464	0.008	-	0.013	0.013	-	0.013	0.013	739.742	0.239	-
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	2024	Forklifts	1	8	120	0.2	0.025	0.110	1.566	0.002	-	0.003	0.003	-	0.003	0.003	199.592	0.065	-
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	2024	Forklifts	1	8	120	0.2	0.025	0.110	1.566	0.002	-	0.003	0.003	-	0.003	0.003	199.592	0.065	-
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	2025	Generator Sets	1	8	122	0.74	0.096	0.414	5.891	0.010	-	0.013	0.013	-	0.013	0.013	904.884	0.033	-
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	2025	Air Compressors	1	8	122	0.48	0.062	0.269	3.821	0.006	-	0.008	0.008	-	0.008	0.008	586.952	0.032	-

Notes:

1. Emission factors based on CalEEMod fleet average

Demo Dust Control Reduction 0%

DEMOLITION FUGITIVE DUST (ONSITE)

									Demolition EF (lb/ton)[1]						Daily Emissions (lb/day)					
Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	Total Demo Area (SF)	Demo SF per Day	Conversion Factor (ton/SF demo area)	Demo Debris Weight (tons)	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	0	0.00	0.046	0.00	0.021	-	0.021	0.003	-	0.003	0.0000	-	0.00	0.00	-	0.000
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32		0.00	0.046	0.00	0.021	-	0.021	0.003	-	0.003	0.0000	-	0.00	0.00	-	0.000
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	0	0.00	0.046	0.00	0.021	-	0.021	0.003	-	0.003	0.0000	-	0.00	0.00	-	0.000
Install Drywells	6/27/2024	5/20/2026	5	495	0	0.00	0.046	0.00	0.021	-	0.021	0.003	-	0.003	0.0000	-	0.00	0.00	-	0.000
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	0	0.00	0.046	0.00	0.021	-	0.021	0.003	-	0.003	0.0000	-	0.00	0.00	-	0.000
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	0	0.00	0.046	0.00	0.021	-	0.021	0.003	-	0.003	0.0000	-	0.00	0.00	-	0.000
Restore Surfacing	11/12/2024	12/15/2024	5	24	0	0.00	0.046	0.00	0.021	-	0.021	0.003	-	0.003	0.0000	-	0.00	0.00	-	0.000
Excavate for Diversion Struct (Cut and Cov	7/3/2024	12/17/2024	5	120	132,938	1,107.82	0.046	50.96	0.021	-	0.021	0.003	-	0.003	1.0904	-	1.09	0.17	-	0.165
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	0	0.00	0.046	0.00	0.021	1.00	1.021	0.003	1.00	1.003	0.0000	-	0.00	0.00	-	0.000
Dig/Shore/Lay/Bf 20" Pipe : Diversion to p	8/15/2024	4/2/2025	5	165	0	0.00	0.046	0.00	0.021	2.00	2.021	0.003	2.00	2.003	0.0000	-	0.00	0.00	-	0.000
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	0	0.00	0.046	0.00	0.021	3.00	3.021	0.003	3.00	3.003	0.0000	-	0.00	0.00	-	0.000
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	0	0.00	0.046	0.00	0.021	4.00	4.021	0.003	4.00	4.003	0.0000	-	0.00	0.00	-	0.000
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	0	0.00	0.046	0.00	0.021	5.00	5.021	0.003	5.00	5.003	0.0000	-	0.00	0.00	-	0.000
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	0	0.00	0.046	0.00	0.021	-	0.021	0.003	-	0.003	0.0000	-	0.00	0.00	-	0.000
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	0	0.00	0.046	0.00	0.021	-	0.021	0.003	-	0.003	0.0000	-	0.00	0.00	-	0.000
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	0	0.00	0.046	0.00	0.021	1.00	1.021	0.003	1.00	1.003	0.0000	-	0.00	0.00	-	0.000
Bypass/Demo Trunk Line in Diversion Stru	3/19/2025	4/21/2025	5	24	0	0.00	0.046	0.00	0.021	2.00	2.021	0.003	2.00	2.003	0.0000	-	0.00	0.00	-	0.000

Notes:

1. Emission factor based on CalEEMod default value.

Dust Control Reduction 61%

TRUCK LOADING FUGITIVE DUST (ONSITE)

Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	Total CY	Tons/CY[3]	Total Throughput (tons)	Daily Throughput (tons)	Truck Loading EF (lb/ton throughput)[1] PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	Daily Emissions (lb/day)[2] PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	0	1.264	0	0	8.93E-05	-	8.93E-05	1.35E-05	-	1.35E-05	0.00E+00	-	0.00E+00	0.00E+00	-	0.00E+00
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2,583	1.264	3,266	102	8.93E-05	-	8.93E-05	1.35E-05	-	1.35E-05	3.55E-03	-	3.55E-03	5.38E-04	-	5.38E-04
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	0	1.264	0	0	8.93E-05	-	8.93E-05	1.35E-05	-	1.35E-05	0.00E+00	-	0.00E+00	0.00E+00	-	0.00E+00
Install Drywells	6/27/2024	5/20/2026	5	495	8,350	1.264	10,556	21	8.93E-05	-	8.93E-05	1.35E-05	-	1.35E-05	7.43E-04	-	7.43E-04	1.12E-04	-	1.12E-04
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	0	1.264	0	0	8.93E-05	-	8.93E-05	1.35E-05	-	1.35E-05	0.00E+00	-	0.00E+00	0.00E+00	-	0.00E+00
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2,372	1.264	2,998	33	8.93E-05	-	8.93E-05	1.35E-05	-	1.35E-05	1.16E-03	-	1.16E-03	1.76E-04	-	1.76E-04
Restore Surfacing	11/12/2024	12/15/2024	5	24	0	1.264	0	0	8.93E-05	-	8.93E-05	1.35E-05	-	1.35E-05	0.00E+00	-	0.00E+00	0.00E+00	-	0.00E+00
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	3,401	1.264	4,300	36	8.93E-05	-	8.93E-05	1.35E-05	-	1.35E-05	1.25E-03	-	1.25E-03	1.89E-04	-	1.89E-04
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	0	1.264	0	0	8.93E-05	-	8.93E-05	1.35E-05	-	1.35E-05	0.00E+00	-	0.00E+00	0.00E+00	-	0.00E+00
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2,074	1.264	2,622	16	8.93E-05	-	8.93E-05	1.35E-05	-	1.35E-05	5.53E-04	-	5.53E-04	8.38E-05	-	8.38E-05
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2,327	1.264	2,942	27	8.93E-05		8.93E-05	1.35E-05		1.35E-05	9.31E-04		9.31E-04	1.41E-04		1.41E-04
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	0	1.264	0	0	8.93E-05		8.93E-05	1.35E-05		1.35E-05	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	591	1.264	747	17	8.93E-05		8.93E-05	1.35E-05		1.35E-05	5.91E-04		5.91E-04	8.96E-05		8.96E-05
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	0	1.264	0	0	8.93E-05		8.93E-05	1.35E-05		1.35E-05	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	0	1.264	0	0	8.93E-05		8.93E-05	1.35E-05		1.35E-05	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	0	1.264	0	0	8.93E-05		8.93E-05	1.35E-05		1.35E-05	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	0	1.264	0	0	8.93E-05		8.93E-05	1.35E-05		1.35E-05	0.00E+00		0.00E+00	0.00E+00		0.00E+00

Notes:

1. Emission factor based on CalEEMod default value.
2. Emissions account for dust control reduction from water application 3 times per day.
3. Conversion factor based on CalEEMod default value.

Dust Control Reduction 61%

BULLDOZING FUGITIVE DUST (ONSITE)

Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	CalEEmod Equipment Type	# of Equipment	Daily Usage (hr/day)	Bulldozing EF (lb/hr)[1] PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	Daily Emissions (lb/day)[2] PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	Excavators	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	Rubber Tired Loaders	1	8	-	-	-	-	-	-	-	-	-	-	-	-
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	Cranes	1	8	-	-	-	-	-	-	-	-	-	-	-	-
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	Forklifts	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Install Drywells	6/27/2024	5/20/2026	5	495	Bore/Drill Rigs	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Install Drywells	6/27/2024	5/20/2026	5	495	Rubber Tired Loaders	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Install Drywells	6/27/2024	5/20/2026	5	495	Skid Steer Loaders	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	Generator Sets	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	Excavators	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	Rubber Tired Loaders	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Restore Surfacing	11/12/2024	12/15/2024	5	24	Pavers	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Restore Surfacing	11/12/2024	12/15/2024	5	24	Rollers	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	Excavators	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	Rubber Tired Loaders	1	8	-	-	-	-	-	-	-	-	-	-	-	-
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	Cranes	1	8	-	-	-	-	-	-	-	-	-	-	-	-
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	Forklifts	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep	8/15/2024	4/2/2025	5	165	Excavators	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep	8/15/2024	4/2/2025	5	165	Rubber Tired Loaders	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	Excavators	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	Rubber Tired Loaders	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	Cranes	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	Rubber Tired Loaders	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	Excavators	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	Rubber Tired Loaders	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	Forklifts	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	Forklifts	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	Generator Sets	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	Air Compressors	1	8	-	-	-	-	-	-	-	-	-	-	-	-
Notes:																			

Notes:

1. Emission factor based on CalEEMod default value.
2. Emissions account for dust control reduction from water application 3 times per day (SCAQMD Rule 403).

Dust Control Reduction 61%

GRADING FUGITIVE DUST (ONSITE)

Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	CalEEmod Equipment Type	# of Equipment	Daily Usage (hr/day)	Acres Graded per 8-hr day	Scaling Factor	Acres per day	Daily VMT	Grading EF (lb/VMT)[1] PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	Daily Emissions (lb/day)[2] PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	Excavators	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	Rubber Tired Loaders	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	Cranes	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	Forklifts	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Install Drywells	6/27/2024	5/20/2026	5	495	Bore/Drill Rigs	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Install Drywells	6/27/2024	5/20/2026	5	495	Rubber Tired Loaders	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Install Drywells	6/27/2024	5/20/2026	5	495	Skid Steer Loaders	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	Generator Sets	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	Excavators	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	Rubber Tired Loaders	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Restore Surfacing	11/12/2024	12/15/2024	5	24	Pavers	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Restore Surfacing	11/12/2024	12/15/2024	5	24	Rollers	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Excavate for Diversion Struct (Cut and Cover	7/3/2024	12/17/2024	5	120	Excavators	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Excavate for Diversion Struct (Cut and Cover	7/3/2024	12/17/2024	5	120	Rubber Tired Loaders	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	Cranes	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	Forklifts	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pum	8/15/2024	4/2/2025	5	165	Excavators	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pum	8/15/2024	4/2/2025	5	165	Rubber Tired Loaders	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	Excavators	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	Rubber Tired Loaders	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	Cranes	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	Rubber Tired Loaders	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	Excavators	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	Rubber Tired Loaders	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	Forklifts	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	Forklifts	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	Generator Sets	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	Air Compressors	1	8	0	8	-	-	1.54	-	1.54	0.17	-	0.17	-	-	-	-	-	-

Notes:

1. Emission factor based on CalEEMod default value.

2. Emissions account for dust control reduction from water application 3 times per day.

WORKER VEHICLE TRIPS (OFFSITE)

								Running Emission Factor (g/mile)[1,2]												
Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Worker One-Way Trips per Day (In/Out)	Worker Trip Length (miles)	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	0	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	8	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	8	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Install Drywells	6/27/2024	5/20/2026	5	495	2024	12	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	4	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	8	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	8	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	8	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	8	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	8	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	8	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	8	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	8	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	4	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	4	14.7	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	0	14.7	0.017	0.074	1.029	0.003	0.863	0.002	0.865	0.213	0.001	0.214	313.029	0.004	0.006
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	8	14.7	0.017	0.074	1.029	0.003	0.863	0.002	0.865	0.213	0.001	0.214	313.029	0.004	0.006

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: Aggregate; Light Duty-Mix (50% LDA/25% LDT1/25% LDT2); Fuel Type: Gasoline.
2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.
3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak. According to CARB methodology, idling emissions associated with light-duty vehicles are accounted for in running emission factors.

WORKER VEHICLE TRIPS (OFFSITE)

								Non-Running Emission Factor (g/mile)[1,3]												
Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Worker One-Way Trips per Day (In/Out)	Worker Trip Length (miles)	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	0	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	8	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	8	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Install Drywells	6/27/2024	5/20/2026	5	495	2024	12	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	4	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	8	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	8	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	8	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	8	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	8	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	8	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	8	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	8	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	4	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	4	14.7	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	0	14.7	1.186	0.288	3.502	0.001	-	0.002	0.002	-	0.002	0.002	76.943	0.077	0.034
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	8	14.7	1.186	0.288	3.502	0.001	-	0.002	0.002	-	0.002	0.002	76.943	0.077	0.034

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: Aggregate; Light Duty-Mix (50% LDA/25% LDT1/25% LDT2); Fuel Type: Gasoline.
2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.
3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak. According to CARB methodology, idling emissions associated with light-duty vehicles are accounted for in running emission factors.

WORKER VEHICLE TRIPS (OFFSITE)

								Daily Emissions (lb/day)												
Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Worker One-Way Trips per Day (In/Out)	Worker Trip Length (miles)	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	0	14.7	-	-	-	-	-	-	-	-	-	-	-	-	-
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	8	14.7	0.027	0.027	0.351	0.001	0.224	0.000	0.224	0.055	0.000	0.056	83.959	0.003	0.002
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	8	14.7	0.027	0.027	0.351	0.001	0.224	0.000	0.224	0.055	0.000	0.056	83.959	0.003	0.002
Install Drywells	6/27/2024	5/20/2026	5	495	2024	12	14.7	0.040	0.040	0.527	0.001	0.336	0.001	0.336	0.083	0.001	0.083	125.939	0.004	0.004
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	4	14.7	0.013	0.013	0.176	0.000	0.112	0.000	0.112	0.028	0.000	0.028	41.980	0.001	0.001
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	8	14.7	0.027	0.027	0.351	0.001	0.224	0.000	0.224	0.055	0.000	0.056	83.959	0.003	0.002
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	8	14.7	0.027	0.027	0.351	0.001	0.224	0.000	0.224	0.055	0.000	0.056	83.959	0.003	0.002
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	8	14.7	0.027	0.027	0.351	0.001	0.224	0.000	0.224	0.055	0.000	0.056	83.959	0.003	0.002
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	8	14.7	0.027	0.027	0.351	0.001	0.224	0.000	0.224	0.055	0.000	0.056	83.959	0.003	0.002
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	8	14.7	0.027	0.027	0.351	0.001	0.224	0.000	0.224	0.055	0.000	0.056	83.959	0.003	0.002
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	8	14.7	0.027	0.027	0.351	0.001	0.224	0.000	0.224	0.055	0.000	0.056	83.959	0.003	0.002
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	8	14.7	0.027	0.027	0.351	0.001	0.224	0.000	0.224	0.055	0.000	0.056	83.959	0.003	0.002
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	8	14.7	0.027	0.027	0.351	0.001	0.224	0.000	0.224	0.055	0.000	0.056	83.959	0.003	0.002
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	4	14.7	0.013	0.013	0.176	0.000	0.112	0.000	0.112	0.028	0.000	0.028	41.980	0.001	0.001
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	4	14.7	0.013	0.013	0.176	0.000	0.112	0.000	0.112	0.028	0.000	0.028	41.980	0.001	0.001
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	0	14.7	-	-	-	-	-	-	-	-	-	-	-	-	-
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	8	14.7	0.025	0.024	0.328	0.001	0.224	0.000	0.224	0.055	0.000	0.056	82.514	0.002	0.002

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: Aggregate; Light Duty-Mix (50% LDA/25% LDT1/25% LDT2); Fuel Type: Gasoline.
2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.
3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak. According to CARB methodology, idling emissions associated with light-duty vehicles are accounted for in running emission factors.

VENDOR TRUCK TRIPS (ONSITE)

Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Vendor One-Way Trips per Day (In/Out)	Vendor Trip Length (miles)	Running Emission Factor (g/mile)[1,2] ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	12	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	6	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	12	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Install Drywells	6/27/2024	5/20/2026	5	495	2024	50	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	6	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	6	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	6	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	6	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	12	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	6	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	6	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	6	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	6	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	6	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	6	0.10	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	6	0.10	0.104	5.315	0.526	0.022	119.285	0.021	119.306	11.957	0.020	11.977	2360.390	0.005	0.372
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	6	0.10	0.104	5.315	0.526	0.022	119.285	0.021	119.306	11.957	0.020	11.977	2360.390	0.005	0.372

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: All Speeds; Heavy Duty-Mix (50% MHDT/50% HHDT); Fuel Type: Diesel; Onsite Speed: 10 MPH.

2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.

3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting and idling. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak.

4. Emissions account for dust control reduction from water application 3 times per day.

VENDOR TRUCK TRIPS (ONSITE)

Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Vendor One-Way Trips per Day (In/Out)	Vendor Trip Length (miles)	Non-Running Emission Factor (g/mile)[1,3] ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	12	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	6	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	12	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Install Drywells	6/27/2024	5/20/2026	5	495	2024	50	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	6	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	6	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	6	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	6	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	12	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	6	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	6	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	6	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	6	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	6	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	6	0.10	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	6	0.10	0.186	4.877	2.884	0.005	-	0.002	0.002	-	0.002	0.002	496.769	0.009	0.078
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	6	0.10	0.186	4.877	2.884	0.005	-	0.002	0.002	-	0.002	0.002	496.769	0.009	0.078

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: All Speeds; Heavy Duty-Mix (50% MHDT/50% HHDT); Fuel Type: Diesel; Onsite Speed: 10 MPH.

2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.

3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting and idling. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak.

4. Emissions account for dust control reduction from water application 3 times per day.

Dust Control Reduction 61%

VENDOR TRUCK TRIPS (ONSITE)

								Daily Emissions (lb/day)[4]												
Phase Name	**Start Date**	**End Date**	**# of Workdays per Week**	**# of Workdays**	**EF Year**	**Vendor One-Way Trips per Day (In/Out)**	**Vendor Trip Length (miles)**	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10} Fugitive**	**PM_{10} Exhaust**	**PM_{10} Total**	**$PM_{2.5}$ Fugitive**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ Total**	**CO_2**	**CH_4**	**N_2O**
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	12	0.10	0.005	0.144	0.078	0.000	0.123	0.000	0.123	0.012	0.000	0.012	19.745	0.000	0.003
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.873	0.000	0.002
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	12	0.10	0.005	0.144	0.078	0.000	0.123	0.000	0.123	0.012	0.000	0.012	19.745	0.000	0.003
Install Drywells	6/27/2024	5/20/2026	5	495	2024	50	0.10	0.022	0.595	0.322	0.001	0.508	0.000	0.509	0.051	0.000	0.051	81.575	0.001	0.013
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.873	0.000	0.002
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.873	0.000	0.002
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.873	0.000	0.002
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.873	0.000	0.002
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	12	0.10	0.005	0.144	0.078	0.000	0.123	0.000	0.123	0.012	0.000	0.012	19.745	0.000	0.003
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.873	0.000	0.002
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.873	0.000	0.002
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.873	0.000	0.002
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.873	0.000	0.002
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.873	0.000	0.002
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.873	0.000	0.002
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.693	0.000	0.002
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	6	0.10	0.003	0.072	0.039	0.000	0.062	0.000	0.062	0.006	0.000	0.006	9.693	0.000	0.002

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: All Speeds; Heavy Duty-Mix (50% MHDT/50% HHDT); Fuel Type: Diesel; Onsite Speed: 10 MPH.

2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.

3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting and idling. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak.

4. Emissions account for dust control reduction from water application 3 times per day.

VENDOR TRUCK TRIPS (OFFSITE)

								Running Emission Factor (g/mile)[1,2]												
Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Vendor One-Way Trips per Day (In/Out)	Vendor Trip Length (miles)	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	12	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	6	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	12	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Install Drywells	6/27/2024	5/20/2026	5	495	2024	50	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	6	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	6	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	6	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	6	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	12	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	6	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	6	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	6	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	6	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	6	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	6	6.9	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	6	6.9	0.014	1.265	0.069	0.012	0.930	0.018	0.948	0.235	0.018	0.252	1317.861	0.001	0.208
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	6	6.9	0.014	1.265	0.069	0.012	0.930	0.018	0.948	0.235	0.018	0.252	1317.861	0.001	0.208

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: Aggregate; Heavy Duty-Mix (50% MHDT/50% HHDT); Fuel Type: Diesel.

2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.

3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting and idling. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak.

VENDOR TRUCK TRIPS (OFFSITE)

								Non-Running Emission Factor (g/mile)[1,3]												
Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Vendor One-Way Trips per Day (In/Out)	Vendor Trip Length (miles)	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	12	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	6	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	12	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Install Drywells	6/27/2024	5/20/2026	5	495	2024	50	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	6	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	6	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	6	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	6	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	12	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	6	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	6	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	6	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	6	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	6	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	6	6.9	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	6	6.9	0.186	4.877	2.884	0.005	-	0.002	0.002	-	0.002	0.002	496.769	0.009	0.078
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	6	6.9	0.186	4.877	2.884	0.005	-	0.002	0.002	-	0.002	0.002	496.769	0.009	0.078

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: Aggregate; Heavy Duty-Mix (50% MHDT/50% HHDT); Fuel Type: Diesel.
2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.
3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting and idling. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak.

VENDOR TRUCK TRIPS (OFFSITE)

Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Vendor One-Way Trips per Day (In/Out)	Vendor Trip Length (miles)	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
								Daily Emissions (lb/day)												
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	12	6.9	0.008	0.374	0.090	0.002	0.170	0.004	0.173	0.043	0.003	0.046	256.523	0.000	0.040
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	6	6.9	0.004	0.187	0.045	0.001	0.085	0.002	0.087	0.021	0.002	0.023	128.261	0.000	0.020
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	12	6.9	0.008	0.374	0.090	0.002	0.170	0.004	0.173	0.043	0.003	0.046	256.523	0.000	0.040
Install Drywells	6/27/2024	5/20/2026	5	495	2024	50	6.9	0.032	1.544	0.372	0.010	0.701	0.015	0.716	0.177	0.014	0.191	#######	0.001	0.167
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	6	6.9	0.004	0.187	0.045	0.001	0.085	0.002	0.087	0.021	0.002	0.023	128.261	0.000	0.020
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	6	6.9	0.004	0.187	0.045	0.001	0.085	0.002	0.087	0.021	0.002	0.023	128.261	0.000	0.020
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	6	6.9	0.004	0.187	0.045	0.001	0.085	0.002	0.087	0.021	0.002	0.023	128.261	0.000	0.020
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	6	6.9	0.004	0.187	0.045	0.001	0.085	0.002	0.087	0.021	0.002	0.023	128.261	0.000	0.020
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	12	6.9	0.008	0.374	0.090	0.002	0.170	0.004	0.173	0.043	0.003	0.046	256.523	0.000	0.040
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	6	6.9	0.004	0.187	0.045	0.001	0.085	0.002	0.087	0.021	0.002	0.023	128.261	0.000	0.020
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	6	6.9	0.004	0.187	0.045	0.001	0.085	0.002	0.087	0.021	0.002	0.023	128.261	0.000	0.020
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	6	6.9	0.004	0.187	0.045	0.001	0.085	0.002	0.087	0.021	0.002	0.023	128.261	0.000	0.020
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	6	6.9	0.004	0.187	0.045	0.001	0.085	0.002	0.087	0.021	0.002	0.023	128.261	0.000	0.020
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	6	6.9	0.004	0.187	0.045	0.001	0.085	0.002	0.087	0.021	0.002	0.023	128.261	0.000	0.020
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	6	6.9	0.004	0.187	0.045	0.001	0.085	0.002	0.087	0.021	0.002	0.023	128.261	0.000	0.020
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	6	6.9	0.004	0.180	0.044	0.001	0.085	0.002	0.087	0.021	0.002	0.023	126.854	0.000	0.020
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	6	6.9	0.004	0.180	0.044	0.001	0.085	0.002	0.087	0.021	0.002	0.023	126.854	0.000	0.020

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: Aggregate; Heavy Duty-Mix (50% MHDT/50% HHDT); Fuel Type: Diesel.
2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.
3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting and idling. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak.

HAUL TRUCK TRIPS (ONSITE)

								Running Emission Factor (g/mile)[1,2]												
Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Haul One-Way Trips per Day (In/Out)	Haul Trip Length (miles)	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	0	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	12	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	0	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Install Drywells	6/27/2024	5/20/2026	5	495	2024	4	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	0	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	4	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	0	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	4	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	0	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	2	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	4	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	0	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	2	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	0	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	0	0.10	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	0	0.10	0.078	8.041	0.710	0.026	119.335	0.013	119.348	11.974	0.012	11.986	2732.616	0.004	0.431
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	0	0.10	0.078	8.041	0.710	0.026	119.335	0.013	119.348	11.974	0.012	11.986	2732.616	0.004	0.431

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: All Speeds; HHDT; Fuel Type: Diesel; Onsite Speed: 10 MPH.
2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.
3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting and idling. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak.
4. Emissions account for dust control reduction from water application 3 times per day.

HAUL TRUCK TRIPS (ONSITE)

								Non-Running Emission Factor (g/mile)[1,3]												
Phase Name	**Start Date**	**End Date**	**# of Workdays per Week**	**# of Workdays**	**EF Year**	**Haul One-Way Trips per Day (In/Out)**	**Haul Trip Length (miles)**	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10} Fugitive**	**PM_{10} Exhaust**	**PM_{10} Total**	**$PM_{2.5}$ Fugitive**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ Total**	**CO_2**	**CH_4**	**N_2O**
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	0	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	12	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	0	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Install Drywells	6/27/2024	5/20/2026	5	495	2024	4	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	0	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	4	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	0	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	4	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	0	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	2	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	4	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	0	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	2	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	0	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	0	0.10	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	0	0.10	0.354	7.126	5.168	0.008	-	0.002	0.002	-	0.002	0.002	816.136	0.016	0.129
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	0	0.10	0.354	7.126	5.168	0.008	-	0.002	0.002	-	0.002	0.002	816.136	0.016	0.129

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: All Speeds; HHDT; Fuel Type: Diesel; Onsite Speed: 10 MPH.
2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.
3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting and idling. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak.
4. Emissions account for dust control reduction from water application 3 times per day.

HAUL TRUCK TRIPS (ONSITE)

Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Haul One-Way Trips per Day (In/Out)	Haul Trip Length (miles)	Daily Emissions (lb/day)[4] ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	0	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	12	0.10	0.010	0.210	0.139	0.000	0.123	0.000	0.123	0.012	0.000	0.012	29.453	0.000	0.005
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	0	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-
Install Drywells	6/27/2024	5/20/2026	5	495	2024	4	0.10	0.003	0.070	0.046	0.000	0.041	0.000	0.041	0.004	0.000	0.004	9.818	0.000	0.002
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	0	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	4	0.10	0.003	0.070	0.046	0.000	0.041	0.000	0.041	0.004	0.000	0.004	9.818	0.000	0.002
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	0	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	4	0.10	0.003	0.070	0.046	0.000	0.041	0.000	0.041	0.004	0.000	0.004	9.818	0.000	0.002
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	0	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	2	0.10	0.002	0.035	0.023	0.000	0.021	0.000	0.021	0.002	0.000	0.002	4.909	0.000	0.001
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	4	0.10	0.003	0.070	0.046	0.000	0.041	0.000	0.041	0.004	0.000	0.004	9.818	0.000	0.002
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	0	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	2	0.10	0.002	0.035	0.023	0.000	0.021	0.000	0.021	0.002	0.000	0.002	4.909	0.000	0.001
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	0	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	0	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	0	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	0	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: All Speeds; HHDT; Fuel Type: Diesel; Onsite Speed: 10 MPH.
2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.
3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting and idling. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak.
4. Emissions account for dust control reduction from water application 3 times per day.

HAUL TRUCK TRIPS (OFFSITE)

								Running Emission Factor (g/mile)[1,2]												
Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Haul One-Way Trips per Day (In/Out)	Haul Trip Length (miles)	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	0	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	12	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	0	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Install Drywells	6/27/2024	5/20/2026	5	495	2024	4	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	0	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	4	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	0	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	4	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	0	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	2	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	4	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	0	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	2	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	0	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	0	20	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	0	20	0.013	1.685	0.067	0.015	0.958	0.027	0.985	0.243	0.025	0.269	1554.803	0.001	0.245
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	0	20	0.013	1.685	0.067	0.015	0.958	0.027	0.985	0.243	0.025	0.269	1554.803	0.001	0.245

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: All Speeds; HHDT; Fuel Type: Diesel.

2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.

3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting and idling. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak.

HAUL TRUCK TRIPS (OFFSITE)

								Non-Running Emission Factor (g/mile)[1,3]												
Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Haul One-Way Trips per Day (In/Out)	Haul Trip Length (miles)	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	0	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	12	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	0	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Install Drywells	6/27/2024	5/20/2026	5	495	2024	4	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	0	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	4	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	0	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	4	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	0	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	2	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	4	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	0	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	2	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	0	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	0	20	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	0	20	0.354	7.126	5.168	0.008	-	0.002	0.002	-	0.002	0.002	816.136	0.016	0.129
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	0	20	0.354	7.126	5.168	0.008	-	0.002	0.002	-	0.002	0.002	816.136	0.016	0.129

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: All Speeds; HHDT; Fuel Type: Diesel.

2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.

3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting and idling. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak.

HAUL TRUCK TRIPS (OFFSITE)

								Daily Emissions (lb/day)												
Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	EF Year	Haul One-Way Trips per Day (In/Out)	Haul Trip Length (miles)	ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10	2024	0	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32	2024	12	20	0.016	1.114	0.174	0.008	0.507	0.014	0.521	0.129	0.014	0.142	856.763	0.001	0.135
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120	2024	0	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Install Drywells	6/27/2024	5/20/2026	5	495	2024	4	20	0.005	0.371	0.058	0.003	0.169	0.005	0.174	0.043	0.005	0.047	285.588	0.000	0.045
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80	2024	0	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90	2024	4	20	0.005	0.371	0.058	0.003	0.169	0.005	0.174	0.043	0.005	0.047	285.588	0.000	0.045
Restore Surfacing	11/12/2024	12/15/2024	5	24	2024	0	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	2024	4	20	0.005	0.371	0.058	0.003	0.169	0.005	0.174	0.043	0.005	0.047	285.588	0.000	0.045
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120	2024	0	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165	2024	2	20	0.003	0.186	0.029	0.001	0.085	0.002	0.087	0.021	0.002	0.024	142.794	0.000	0.022
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110	2024	4	20	0.005	0.371	0.058	0.003	0.169	0.005	0.174	0.043	0.005	0.047	285.588	0.000	0.045
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40	2024	0	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44	2024	2	20	0.003	0.186	0.029	0.001	0.085	0.002	0.087	0.021	0.002	0.024	142.794	0.000	0.022
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80	2024	0	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80	2024	0	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135	2025	0	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Bypass/Demo Trunk Line in Diversion Struct	3/19/2025	4/21/2025	5	24	2025	0	20	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

1. Emission factors generated from EMFAC2021. Region: SCAQMD; Season: Annual; Vehicle Classification: EMFAC2007 Categories; Model Year: Aggregate; Speed: All Speeds; HHDT; Fuel Type: Diesel.
2. Running emission factors account for exhaust and fugitive dust from brake wear, tire wear, and road dust from paved roads.
3. Non-Running emission factors account for additional exhaust and evaporative processes. Exhaust: Engine starting and idling. Evaporative (ROG Only): Runloss, Restloss, Diurnal, and Hotsoak.

NO ARCHITECTURAL COATINGS FOR PROJECT

ARCHITECTURAL COATINGS-ONSITE

							Residential Interior				Residential Exterior			
Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	Coating Type	Coating Area (SF)	Residential Interior VOC Content (g/L)	Residential Surface Factor	Interior Surface Fraction	Residential Interior Area (SF)	Residential Exterior VOC Content (g/L)	Residential Surface Factor	Exterior Surface Fraction	Residential Exterior Area (SF)
	#N/A	#N/A		#N/A	Non-Residential		10	2.7	75%	0.00	10	2.7	25%	0.00
	#N/A	#N/A		#N/A	Non-Residential		10	2.7	75%	0.00	10	2.7	25%	0.00
	#N/A	#N/A		#N/A	Non-Residential		10	2.7	75%	0.00	10	2.7	25%	0.00
	#N/A	#N/A		#N/A	Non-Residential		10	2.7	75%	0.00	10	2.7	25%	0.00
	#N/A	#N/A		#N/A	Non-Residential		10	2.7	75%	0.00	10	2.7	25%	0.00
	#N/A	#N/A		#N/A	Non-Residential		10	2.7	75%	0.00	10	2.7	25%	0.00

NO ARCHITECTURAL COATINGS FOR PROJECT

ARCHITECTURAL COATINGS-ONSITE

Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	Coating Type	Coating Area (SF)	Non-Residential Interior: Non-Residential Interior VOC Content	Non-Residential Interior: Non-Residential Surface Factor	Non-Residential Interior: Interior Surface Fraction	Non-Residential Interior: Non-Residential Interior Area (SF)	Non-Residential Exterior: Non-Residential Exterior VOC Content	Non-Residential Exterior: Non-Residential Surface Factor	Non-Residential Exterior: Exterior Surface Fraction	Non-Residential Exterior: Non-Residential Exterior Area (SF)
	#N/A	#N/A		#N/A	Non-Residential		10	2	75%	0.00	10	2	25%	0.00
	#N/A	#N/A		#N/A	Non-Residential		10	2	75%	0.00	10	2	25%	0.00
	#N/A	#N/A		#N/A	Non-Residential		10	2	75%	0.00	10	2	25%	0.00
	#N/A	#N/A		#N/A	Non-Residential		10	2	75%	0.00	10	2	25%	0.00
	#N/A	#N/A		#N/A	Non-Residential		10	2	75%	0.00	10	2	25%	0.00
	#N/A	#N/A		#N/A	Non-Residential		10	2	75%	0.00	10	2	25%	0.00

NO ARCHITECTURAL COATINGS FOR PROJECT

ARCHITECTURAL COATINGS-ONSITE

Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	Coating Type	Coating Area (SF)	Parking Lot Parking EF	Parking Lot % of Parking Area Painted	Parking Lot Parking Area	Total ROG Emissions (lbs)	Daily ROG Emissions (lb/day)
	#N/A	#N/A		#N/A	Non-Residential		10	6%	0.00	0.00	#N/A
	#N/A	#N/A		#N/A	Non-Residential		10	6%	0.00	0.00	#N/A
	#N/A	#N/A		#N/A	Non-Residential		10	6%	0.00	0.00	#N/A
	#N/A	#N/A		#N/A	Non-Residential		10	6%	0.00	0.00	#N/A
	#N/A	#N/A		#N/A	Non-Residential		10	6%	0.00	0.00	#N/A
	#N/A	#N/A		#N/A	Non-Residential		10	6%	0.00	0.00	#N/A

PAVING OFF-GASSING-ONSITE

Phase Name	Start Date	End Date	# of Workdays per Week	# of Workdays	Paved Area (SF)	Paved Area (Acres)	Paved Area (Acres)/day	Off-Gassing EF (lb/acre)	Daily ROG Emissions (lbs)
SWC: Contractor Mobilization	6/13/2024	6/26/2024	5	10		0.00	0.00	2.62	0.00
Excavation for Pre-Treatment Vault	6/27/2024	8/11/2024	5	32		0.00	0.00	2.62	0.00
FRPS Pre-Treatment Vault Complete	7/3/2024	12/17/2024	5	120		0.00	0.00	2.62	0.00
Install Drywells	6/27/2024	5/20/2026	5	495		0.00	0.00	2.62	0.00
Test Infiltration rate of drywells	10/9/2024	1/28/2025	5	80		0.00	0.00	2.62	0.00
Dig/Lay/Bf pre-treatment to Drywell pipes	10/23/2024	2/25/2025	5	90		0.00	0.00	2.62	0.00
Restore Surfacing	11/12/2024	12/15/2024	5	24		0.00	0.00	2.62	0.00
Excavate for Diversion Struct (Cut and Cover)	7/3/2024	12/17/2024	5	120	132,938	3.05	0.03	2.62	0.07
FRPS Diversion Structure Complete	7/25/2024	1/8/2025	5	120		0.00	0.00	2.62	0.00
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	8/15/2024	4/2/2025	5	165		0.00	0.00	2.62	0.00
Shore/Excavate for Pump Station	7/25/2024	12/25/2024	5	110		0.00	0.00	2.62	0.00
Set/BF PreCast Pump Station	8/1/2024	9/25/2024	5	40		0.00	0.00	2.62	0.00
Dig/Lay/BF 20" pump sta to pre-treat	8/8/2024	10/8/2024	5	44		0.00	0.00	2.62	0.00
Install pump Station Mechanical	8/9/2024	11/28/2024	5	80		0.00	0.00	2.62	0.00
Install pump Station Elec - All	8/23/2024	12/12/2024	5	80		0.00	0.00	2.62	0.00
Testing/Startup of Pump Station	3/5/2025	9/9/2025	5	135		0.00	0.00	2.62	0.00

1. Assumed a worst-case scenario that all disturbed area would be paved.

Table 3.3 OFFROAD Default Horsepower and Load Factors

OFFROAD Equipment Type	Horsepower	Load Factor
Aerial Lifts	63	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	221	0.5
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	231	0.29
Crawler Tractors	212	0.43
Crushing/Proc. Equipment	85	0.78
Dumpers/Tenders	16	0.38
Excavators	158	0.38
Forklifts	89	0.2
Generator Sets	84	0.74
Graders	187	0.41
Off-Highway Tractors	124	0.44
Off-Highway Trucks	402	0.38
Other Construction Equipment	172	0.42
Other General Industrial Equipment	88	0.34
Other Material Handling Equipment	168	0.4
Pavers	130	0.42
Paving Equipment	132	0.36
Plate Compactors	8	0.43
Pressure Washers	13	0.3
Pumps	84	0.74
Rollers	80	0.38
Rough Terrain Forklifts	100	0.4
Rubber Tired Dozers	247	0.4
Rubber Tired Loaders	203	0.36
Scrapers	367	0.48
Signal Boards	6	0.82
Skid Steer Loaders	65	0.37
Surfacing Equipment	263	0.3
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	78	0.5
Welders	46	0.45

Mechanical or Explosive Dismemberment

$$EF_D = k \times (0.0032) \times \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

Parameter	Description	Source:
EF_D	emission factor (lb/ton)	CalEEMod User's Guide, Appendix A
k (unitless)	particle size multiplier, AP-42 default for PM10: 0.35; PM2.5: 0.053	CalEEMod User's Guide, Appendix A
U	mean wind speed, m/s to mph	CalEEMod, based on project location
M	material moisture content (%), AP-42 Default: 2	CalEEMod User's Guide, Appendix A

CalEEMod Wind Speed (m/s) 2.2 <--Value consistent with CalEEMod values for projects in SCAB, value confirmed on 7/27/21 by BB.

Parameter	PM_{10}	$PM_{2.5}$
k (unitless)	0.35	0.053
U (m/s to mph)	4.92	4.92
M (%)	2	2
EF (lb/ton)	**0.00110**	**0.00017**

Debris Loading

$$EF_L = k \times EF_{L-TSP}$$

Parameter	Description	Source:
EF_L	emission factor (lb/ton)	CalEEMod User's Guide, Appendix A
k (unitless)	particle size multiplier, AP-42 default for PM10: 0.35; PM2.5: 0.053	CalEEMod User's Guide, Appendix A

Default EF_{L-TSP} 0.058

	lb/ton of debris	
Parameter	**PM_{10}**	**$PM_{2.5}$**
Default EF_{L-TSP} (lb/ton)	**0.058**	**0.058**
k (unitless)	**0.35**	**0.053**
EF (lb/ton)	**0.0203**	**0.00307**

	DEMO EF (lb/ton)	
	PM_{10}	**$PM_{2.5}$**
Total DEMO EF (mechanical + truck loading) [lb/ton]	**0.021**	**0.003**

Truck Loading Emission Factor

$$EF_D = k \times (0.0032) \times \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

Parameter	Description	Source:
EF_D	emission factor (lb/ton	CalEEMod User's Guide, Appendix A
k (unitless)	particle size multiplier, AP-42 default for PM10: 0.35; PM2.5: 0.053	CalEEMod User's Guide, Appendix A
U	mean wind speed, m/s to mph	CalEEMod, based on project location
M	material moisture content (%), AP-42 Default: 12	CalEEMod User's Guide, Appendix A

CalEEMod Wind Speed (m/s) 2.2 <--Value consistent with CalEEMod values for projects in SCAB, value confirmed on 7/27/21 by BB.

Parameter	PM_{10}	$PM_{2.5}$
k (unitless)	0.35	0.053
U (m/s to mph)	4.92	4.92
M (%)	12	12
EF (lb/ton)	**8.93E-05**	**1.35E-05**

Bulldozing Emission Factor

$$EF_{TSP} = \frac{C_{TSP} \times s^{1.2}}{M^{1.3}}, \text{ and } EF_{PM2.5} = EF_{TSP} \times F_{PM2.5}$$

$$EF_{PM15} = \frac{C_{PM15} \times s^{1.5}}{M^{1.4}}, \text{ and } EF_{PM10} = EF_{PM15} \times F_{PM10}$$

Parameter	Description	Source:
EF	emission factor (lb/hr)	CalEEMod User's Guide, Appendix A
C	arbitrary coefficient use by AP-42	CalEEMod User's Guide, Appendix A
M	material moisture content (%)	CalEEMod User's Guide, Appendix A
S	material silt content (%)	CalEEMod User's Guide, Appendix A
F	scaling factor	CalEEMod User's Guide, Appendix A

Parameter	Value
C_{TSP} (unitless):	5.7
C_{PM15} (unitless):	1
M(%):	7.9
s (%):	6.9
F_{PM10} (unitless):	0.75
$F_{PM2.5}$ (unitless):	0.105

EF_{TSP}	3.941
EF_{PM15}	1.004

Emission Factors (lb/hr)

EF_{PM10}	**0.753**
$EF_{PM2.5}$	**0.414**

Grading Emission Factor

$$EF_{PM15} = 0.051 \times (S)^{2.0}, \text{ and } EF_{PM10} = EF_{PM15} \times F_{PM10}$$
$$EF_{TSP} = 0.04 \times (S)^{2.5}, \text{ and } EF_{PM2.5} = EF_{TSP} \times F_{PM2.5}$$

Parameter	Description	Source:
EF	Emission Factor (lb/VMT)	CalEEMod User's Guide, Appendix A
S	mean vehicle speed (mph), AP-42 Default: 7.1 mph	CalEEMod User's Guide, Appendix A
$F_{PM2.5}$	PM2.5 scaling factor, AP-42 default: 0.031	CalEEMod User's Guide, Appendix A
F_{PM10}	PM10 scaling factor, AP-42 defualt: 0.6	CalEEMod User's Guide, Appendix A

Parameter	Value
S:	7.1
$F_{PM2.5:}$	0.031
F_{PM10}:	0.6
EF_{PM15}:	2.57
EF_{TSP}:	5.37

Emission factor (lb/VMT)

EF_{PM10}	1.543
$EF_{PM2.5}$	0.167

EMISSION FACTORS FOR ANALYSIS-Workers Offsite

	Running Emission Factor (g/mile)													
Year	ROG	NOX	CO	SOX	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	CO2	CH4	N2O	TOG
2020	0.030	0.127	1.503	0.003	0.863	0.002	0.865	0.213	0.002	0.215	339.973	0.007	0.009	0.043
2021	0.027	0.114	1.394	0.003	0.863	0.002	0.865	0.213	0.002	0.215	335.240	0.006	0.009	0.039
2022	0.024	0.102	1.286	0.003	0.863	0.002	0.865	0.213	0.002	0.215	329.869	0.006	0.008	0.035
2023	0.021	0.091	1.188	0.003	0.863	0.002	0.865	0.213	0.002	0.214	324.330	0.005	0.007	0.031
2024	0.019	0.082	1.101	0.003	0.863	0.002	0.865	0.213	0.002	0.214	318.494	0.005	0.007	0.027
2025	0.017	0.074	1.029	0.003	0.863	0.002	0.865	0.213	0.001	0.214	313.029	0.004	0.006	0.025
2026	0.015	0.067	0.965	0.003	0.863	0.002	0.864	0.213	0.001	0.214	307.537	0.004	0.006	0.022
2027	0.014	0.061	0.908	0.003	0.863	0.001	0.864	0.213	0.001	0.214	302.614	0.003	0.006	0.020
2028	0.013	0.056	0.861	0.003	0.863	0.001	0.864	0.213	0.001	0.214	298.048	0.003	0.005	0.018
2029	0.011	0.052	0.818	0.003	0.863	0.001	0.864	0.213	0.001	0.214	293.901	0.003	0.005	0.017
2030	0.010	0.047	0.779	0.003	0.863	0.001	0.864	0.213	0.001	0.214	290.139	0.003	0.005	0.015
2031	0.009	0.043	0.743	0.003	0.863	0.001	0.864	0.213	0.001	0.214	286.719	0.002	0.005	0.014
2032	0.009	0.039	0.712	0.003	0.863	0.001	0.864	0.213	0.001	0.214	283.641	0.002	0.004	0.013
2033	0.008	0.036	0.685	0.003	0.863	0.001	0.864	0.213	0.001	0.214	280.821	0.002	0.004	0.011
2034	0.007	0.034	0.659	0.003	0.863	0.001	0.864	0.213	0.001	0.214	278.323	0.002	0.004	0.010
2035	0.007	0.032	0.638	0.003	0.863	0.001	0.864	0.213	0.001	0.214	276.114	0.002	0.004	0.010
2036	0.006	0.030	0.619	0.003	0.863	0.001	0.864	0.213	0.001	0.214	274.215	0.002	0.004	0.009
2037	0.006	0.028	0.604	0.003	0.863	0.001	0.864	0.213	0.001	0.213	272.505	0.002	0.004	0.008
2038	0.005	0.027	0.591	0.003	0.863	0.001	0.864	0.213	0.001	0.213	271.078	0.002	0.004	0.008
2039	0.005	0.026	0.579	0.003	0.863	0.001	0.864	0.213	0.001	0.213	269.793	0.001	0.004	0.007
2040	0.005	0.025	0.569	0.003	0.863	0.001	0.864	0.213	0.001	0.213	268.688	0.001	0.004	0.007
2041	0.004	0.024	0.560	0.003	0.863	0.001	0.864	0.213	0.001	0.213	267.744	0.001	0.003	0.006
2042	0.004	0.023	0.552	0.003	0.863	0.001	0.864	0.213	0.001	0.213	266.923	0.001	0.003	0.006
2043	0.004	0.022	0.545	0.003	0.863	0.001	0.863	0.213	0.001	0.213	266.216	0.001	0.003	0.006
2044	0.004	0.021	0.541	0.003	0.863	0.001	0.863	0.213	0.001	0.213	265.624	0.001	0.003	0.005
2045	0.004	0.021	0.538	0.003	0.863	0.001	0.863	0.213	0.001	0.213	265.104	0.001	0.003	0.005
2046	0.004	0.021	0.536	0.003	0.863	0.001	0.863	0.213	0.001	0.213	264.667	0.001	0.003	0.005
2047	0.003	0.020	0.533	0.003	0.863	0.001	0.863	0.213	0.001	0.213	264.297	0.001	0.003	0.005
2048	0.003	0.020	0.532	0.003	0.863	0.001	0.863	0.213	0.001	0.213	263.997	0.001	0.003	0.005
2049	0.003	0.020	0.531	0.003	0.863	0.001	0.863	0.213	0.001	0.213	263.744	0.001	0.003	0.005
2050	0.003	0.020	0.531	0.003	0.863	0.001	0.863	0.213	0.000	0.213	263.534	0.001	0.003	0.005

EMISSION FACTORS

	Non-Running Emission Factor (g/trip)													
Year	ROG	NOX	CO	SOX	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	CO2	CH4	N2O	TOG
2020	1.497	0.390	4.844	0.001	-	0.003	0.003	-	0.003	0.003	85.192	0.102	0.039	1.545
2021	1.440	0.367	4.545	0.001	-	0.003	0.003	-	0.003	0.003	83.614	0.098	0.039	1.485
2022	1.376	0.343	4.247	0.001	-	0.003	0.003	-	0.002	0.002	81.896	0.092	0.037	1.419
2023	1.313	0.322	3.974	0.001	-	0.002	0.002	-	0.002	0.002	80.203	0.087	0.036	1.352
2024	1.245	0.304	3.727	0.001	-	0.002	0.002	-	0.002	0.002	78.554	0.082	0.035	1.282
2025	1.186	0.288	3.502	0.001	-	0.002	0.002	-	0.002	0.002	76.943	0.077	0.034	1.221
2026	1.128	0.273	3.297	0.001	-	0.002	0.002	-	0.002	0.002	75.361	0.072	0.033	1.160
2027	1.082	0.261	3.113	0.001	-	0.002	0.002	-	0.002	0.002	73.904	0.068	0.032	1.112
2028	1.041	0.250	2.951	0.001	-	0.002	0.002	-	0.002	0.002	72.576	0.065	0.032	1.070
2029	0.992	0.240	2.801	0.001	-	0.002	0.002	-	0.002	0.002	71.349	0.061	0.031	1.018
2030	0.949	0.231	2.662	0.001	-	0.002	0.002	-	0.002	0.002	70.214	0.058	0.030	0.974
2031	0.907	0.223	2.531	0.001	-	0.002	0.002	-	0.002	0.002	69.160	0.055	0.030	0.930
2032	0.871	0.215	2.413	0.001	-	0.002	0.002	-	0.001	0.001	68.198	0.053	0.029	0.893
2033	0.844	0.209	2.308	0.001	-	0.002	0.002	-	0.001	0.001	67.324	0.050	0.029	0.864
2034	0.806	0.203	2.207	0.001	-	0.001	0.001	-	0.001	0.001	66.511	0.048	0.029	0.825
2035	0.789	0.198	2.119	0.001	-	0.001	0.001	-	0.001	0.001	65.784	0.046	0.028	0.807
2036	0.768	0.194	2.039	0.001	-	0.001	0.001	-	0.001	0.001	65.123	0.044	0.028	0.785
2037	0.742	0.190	1.970	0.001	-	0.001	0.001	-	0.001	0.001	64.542	0.042	0.028	0.759
2038	0.717	0.187	1.910	0.001	-	0.001	0.001	-	0.001	0.001	64.028	0.041	0.027	0.733
2039	0.687	0.184	1.856	0.001	-	0.001	0.001	-	0.001	0.001	63.574	0.039	0.027	0.702
2040	0.656	0.181	1.809	0.001	-	0.001	0.001	-	0.001	0.001	63.175	0.038	0.027	0.670
2041	0.634	0.178	1.769	0.001	-	0.001	0.001	-	0.001	0.001	62.831	0.037	0.027	0.648
2042	0.616	0.176	1.734	0.001	-	0.001	0.001	-	0.001	0.001	62.526	0.036	0.027	0.629
2043	0.601	0.173	1.704	0.001	-	0.001	0.001	-	0.001	0.001	62.263	0.035	0.027	0.614
2044	0.589	0.171	1.683	0.001	-	0.001	0.001	-	0.001	0.001	62.048	0.034	0.026	0.601
2045	0.579	0.169	1.667	0.001	-	0.001	0.001	-	0.001	0.001	61.862	0.034	0.026	0.591
2046	0.570	0.168	1.654	0.001	-	0.001	0.001	-	0.001	0.001	61.705	0.033	0.026	0.582
2047	0.563	0.167	1.642	0.001	-	0.001	0.001	-	0.001	0.001	61.571	0.033	0.026	0.575
2048	0.557	0.166	1.634	0.001	-	0.001	0.001	-	0.001	0.001	61.463	0.033	0.026	0.569
2049	0.554	0.165	1.628	0.001	-	0.001	0.001	-	0.001	0.001	61.373	0.032	0.026	0.565
2050	0.550	0.165	1.623	0.001	-	0.001	0.001	-	0.001	0.001	61.298	0.032	0.026	0.562

EMISSION FACTORS FOR ANALYSIS-Vendors Onsite

	Running Emission Factor (g/mile)													
Year	ROG	NOX	CO	SOX	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	CO2	CH4	N2O	TOG
2020	0.673	8.408	1.550	0.025	119.289	0.085	119.374	11.958	0.082	12.040	2589.985	0.031	0.408	0.766
2021	0.339	6.858	1.025	0.024	119.287	0.046	119.333	11.958	0.044	12.002	2541.379	0.016	0.400	0.386
2022	0.247	6.374	0.863	0.024	119.286	0.036	119.322	11.958	0.034	11.992	2497.695	0.011	0.394	0.281
2023	0.128	5.571	0.581	0.023	119.285	0.028	119.313	11.957	0.027	11.984	2436.562	0.006	0.384	0.146
2024	0.115	5.442	0.552	0.023	119.285	0.024	119.309	11.957	0.023	11.980	2398.752	0.005	0.378	0.131
2025	0.104	5.315	0.526	0.022	119.285	0.021	119.306	11.957	0.020	11.977	2360.390	0.005	0.372	0.118
2026	0.094	5.184	0.503	0.022	119.285	0.018	119.303	11.957	0.018	11.975	2323.706	0.004	0.366	0.107
2027	0.085	5.060	0.483	0.022	119.285	0.016	119.301	11.957	0.015	11.973	2286.562	0.004	0.360	0.097
2028	0.078	4.954	0.466	0.021	119.286	0.014	119.300	11.957	0.014	11.971	2252.755	0.004	0.355	0.089
2029	0.073	4.856	0.451	0.021	119.286	0.013	119.299	11.958	0.012	11.970	2220.641	0.003	0.350	0.083
2030	0.068	4.773	0.439	0.021	119.287	0.012	119.298	11.958	0.011	11.969	2190.569	0.003	0.345	0.078
2031	0.064	4.696	0.428	0.020	119.287	0.011	119.298	11.958	0.010	11.968	2160.889	0.003	0.340	0.073
2032	0.061	4.624	0.417	0.020	119.287	0.010	119.297	11.958	0.009	11.967	2132.632	0.003	0.336	0.069
2033	0.058	4.560	0.408	0.020	119.288	0.009	119.297	11.958	0.009	11.967	2105.066	0.003	0.332	0.066
2034	0.056	4.495	0.400	0.020	119.288	0.008	119.297	11.958	0.008	11.966	2079.458	0.003	0.328	0.064
2035	0.054	4.437	0.393	0.019	119.289	0.008	119.296	11.958	0.007	11.966	2055.912	0.003	0.324	0.061
2036	0.053	4.394	0.386	0.019	119.289	0.007	119.296	11.959	0.007	11.966	2031.682	0.002	0.320	0.060
2037	0.051	4.347	0.381	0.019	119.289	0.007	119.296	11.959	0.007	11.966	2011.554	0.002	0.317	0.059
2038	0.050	4.305	0.376	0.019	119.290	0.007	119.296	11.959	0.007	11.965	1992.914	0.002	0.314	0.057
2039	0.049	4.266	0.372	0.019	119.290	0.007	119.297	11.959	0.006	11.965	1976.897	0.002	0.311	0.056
2040	0.049	4.229	0.369	0.019	119.290	0.007	119.297	11.959	0.006	11.965	1962.620	0.002	0.309	0.055
2041	0.048	4.195	0.366	0.018	119.290	0.006	119.297	11.959	0.006	11.965	1949.983	0.002	0.307	0.055
2042	0.047	4.164	0.363	0.018	119.290	0.006	119.297	11.959	0.006	11.965	1939.049	0.002	0.305	0.054
2043	0.047	4.138	0.361	0.018	119.290	0.006	119.297	11.959	0.006	11.965	1929.389	0.002	0.304	0.053
2044	0.046	4.113	0.358	0.018	119.291	0.006	119.296	11.959	0.006	11.965	1920.653	0.002	0.303	0.053
2045	0.046	4.093	0.357	0.018	119.291	0.006	119.297	11.959	0.006	11.965	1912.873	0.002	0.301	0.052
2046	0.046	4.077	0.355	0.018	119.291	0.006	119.297	11.959	0.006	11.965	1905.868	0.002	0.300	0.052
2047	0.045	4.063	0.354	0.018	119.291	0.006	119.297	11.959	0.006	11.965	1899.781	0.002	0.299	0.052
2048	0.045	4.052	0.353	0.018	119.291	0.006	119.297	11.959	0.006	11.965	1894.305	0.002	0.298	0.051
2049	0.045	4.044	0.352	0.018	119.291	0.006	119.297	11.959	0.006	11.965	1889.568	0.002	0.298	0.051
2050	0.045	4.036	0.351	0.018	119.291	0.006	119.297	11.959	0.006	11.965	1885.415	0.002	0.297	0.051

EMISSION FAC

	Non-Running Emission Factor (g/trip)													
Year	ROG	NOX	CO	SOX	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	CO2	CH4	N2O	TOG
2020	0.196	4.938	2.560	0.005	-	0.007	0.007	-	0.007	0.007	544.675	0.009	0.086	0.223
2021	0.191	4.898	2.673	0.005	-	0.004	0.004	-	0.004	0.004	543.441	0.009	0.086	0.218
2022	0.190	4.928	2.758	0.005	-	0.003	0.003	-	0.003	0.003	539.415	0.009	0.085	0.216
2023	0.188	4.908	2.904	0.005	-	0.002	0.002	-	0.002	0.002	516.924	0.009	0.081	0.215
2024	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080	0.213
2025	0.186	4.877	2.884	0.005	-	0.002	0.002	-	0.002	0.002	496.769	0.009	0.078	0.211
2026	0.185	4.857	2.880	0.005	-	0.002	0.002	-	0.002	0.002	487.936	0.009	0.077	0.210
2027	0.184	4.830	2.878	0.005	-	0.002	0.002	-	0.001	0.001	479.860	0.009	0.076	0.210
2028	0.184	4.790	2.879	0.004	-	0.001	0.001	-	0.001	0.001	472.252	0.009	0.074	0.209
2029	0.184	4.747	2.883	0.004	-	0.001	0.001	-	0.001	0.001	465.367	0.009	0.073	0.209
2030	0.184	4.712	2.888	0.004	-	0.001	0.001	-	0.001	0.001	459.216	0.009	0.072	0.209
2031	0.184	4.682	2.896	0.004	-	0.001	0.001	-	0.001	0.001	453.831	0.009	0.072	0.209
2032	0.184	4.656	2.905	0.004	-	0.001	0.001	-	0.001	0.001	449.142	0.009	0.071	0.210
2033	0.185	4.635	2.916	0.004	-	0.001	0.001	-	0.001	0.001	445.058	0.009	0.070	0.211
2034	0.186	4.616	2.927	0.004	-	0.001	0.001	-	0.001	0.001	441.557	0.009	0.070	0.211
2035	0.186	4.598	2.938	0.004	-	0.001	0.001	-	0.001	0.001	438.594	0.009	0.069	0.212
2036	0.187	4.583	2.953	0.004	-	0.001	0.001	-	0.001	0.001	436.449	0.009	0.069	0.213
2037	0.188	4.567	2.967	0.004	-	0.001	0.001	-	0.001	0.001	434.765	0.009	0.068	0.214
2038	0.189	4.552	2.980	0.004	-	0.001	0.001	-	0.001	0.001	433.487	0.009	0.068	0.215
2039	0.190	4.537	2.994	0.004	-	0.001	0.001	-	0.001	0.001	432.541	0.009	0.068	0.216
2040	0.191	4.523	3.007	0.004	-	0.001	0.001	-	0.001	0.001	431.883	0.009	0.068	0.217
2041	0.191	4.510	3.020	0.004	-	0.001	0.001	-	0.001	0.001	431.484	0.009	0.068	0.218
2042	0.192	4.498	3.032	0.004	-	0.001	0.001	-	0.001	0.001	431.278	0.009	0.068	0.219
2043	0.193	4.487	3.044	0.004	-	0.001	0.001	-	0.001	0.001	431.234	0.009	0.068	0.220
2044	0.194	4.478	3.056	0.004	-	0.001	0.001	-	0.001	0.001	431.320	0.009	0.068	0.221
2045	0.194	4.471	3.067	0.004	-	0.001	0.001	-	0.001	0.001	431.495	0.009	0.068	0.221
2046	0.195	4.465	3.077	0.004	-	0.001	0.001	-	0.001	0.001	431.736	0.009	0.068	0.222
2047	0.196	4.461	3.087	0.004	-	0.001	0.001	-	0.001	0.001	432.028	0.009	0.068	0.223
2048	0.196	4.458	3.096	0.004	-	0.001	0.001	-	0.001	0.001	432.350	0.009	0.068	0.224
2049	0.197	4.456	3.105	0.004	-	0.001	0.001	-	0.001	0.001	432.702	0.009	0.068	0.224
2050	0.198	4.455	3.112	0.004	-	0.001	0.001	-	0.001	0.001	433.064	0.009	0.068	0.225

EMISSION FACTORS FOR ANALYSIS-Vendors Offsite

	Running Emission Factor (g/mile)													
Year	ROG	NOX	CO	SOX	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	CO2	CH4	N2O	TOG
2020	0.080	2.927	0.297	0.013	0.932	0.056	0.988	0.235	0.054	0.289	1368.983	0.004	0.216	0.091
2021	0.041	2.186	0.154	0.013	0.931	0.029	0.960	0.235	0.028	0.263	1363.994	0.002	0.215	0.046
2022	0.030	1.912	0.112	0.013	0.931	0.022	0.953	0.235	0.021	0.256	1354.555	0.001	0.213	0.034
2023	0.017	1.416	0.080	0.013	0.930	0.020	0.950	0.235	0.019	0.254	1343.513	0.001	0.212	0.019
2024	0.016	1.338	0.074	0.013	0.930	0.019	0.949	0.235	0.018	0.253	1331.872	0.001	0.210	0.018
2025	0.014	1.265	0.069	0.012	0.930	0.018	0.948	0.235	0.018	0.252	1317.861	0.001	0.208	0.016
2026	0.013	1.199	0.064	0.012	0.930	0.018	0.948	0.235	0.017	0.252	1304.041	0.001	0.205	0.015
2027	0.012	1.140	0.060	0.012	0.930	0.017	0.947	0.235	0.017	0.251	1290.086	0.001	0.203	0.014
2028	0.012	1.088	0.057	0.012	0.930	0.017	0.947	0.235	0.016	0.251	1275.142	0.001	0.201	0.013
2029	0.011	1.041	0.054	0.012	0.930	0.017	0.947	0.235	0.016	0.251	1260.661	0.001	0.199	0.012
2030	0.010	1.001	0.052	0.012	0.931	0.016	0.947	0.235	0.016	0.251	1246.772	0.000	0.196	0.012
2031	0.010	0.965	0.050	0.012	0.931	0.016	0.947	0.235	0.015	0.251	1233.052	0.000	0.194	0.011
2032	0.010	0.933	0.048	0.012	0.931	0.016	0.947	0.235	0.015	0.250	1219.875	0.000	0.192	0.011
2033	0.009	0.903	0.046	0.011	0.931	0.016	0.947	0.235	0.015	0.250	1207.633	0.000	0.190	0.011
2034	0.009	0.876	0.045	0.011	0.932	0.016	0.947	0.235	0.015	0.250	1196.027	0.000	0.188	0.010
2035	0.009	0.853	0.044	0.011	0.932	0.015	0.947	0.235	0.015	0.250	1185.382	0.000	0.187	0.010
2036	0.009	0.830	0.043	0.011	0.932	0.015	0.947	0.235	0.015	0.250	1174.468	0.000	0.185	0.010
2037	0.008	0.812	0.042	0.011	0.932	0.015	0.947	0.235	0.014	0.250	1165.334	0.000	0.184	0.010
2038	0.008	0.796	0.042	0.011	0.932	0.015	0.947	0.236	0.014	0.250	1156.515	0.000	0.182	0.009
2039	0.008	0.782	0.041	0.011	0.932	0.015	0.947	0.236	0.014	0.250	1149.217	0.000	0.181	0.009
2040	0.008	0.769	0.040	0.011	0.933	0.015	0.947	0.236	0.014	0.250	1142.715	0.000	0.180	0.009
2041	0.008	0.757	0.040	0.011	0.933	0.015	0.947	0.236	0.014	0.250	1136.969	0.000	0.179	0.009
2042	0.008	0.747	0.040	0.011	0.933	0.015	0.947	0.236	0.014	0.250	1131.977	0.000	0.178	0.009
2043	0.008	0.737	0.039	0.011	0.933	0.015	0.947	0.236	0.014	0.250	1127.590	0.000	0.178	0.009
2044	0.008	0.729	0.039	0.011	0.933	0.015	0.947	0.236	0.014	0.250	1123.647	0.000	0.177	0.009
2045	0.008	0.721	0.039	0.011	0.933	0.015	0.947	0.236	0.014	0.250	1120.122	0.000	0.176	0.009
2046	0.008	0.715	0.038	0.011	0.933	0.015	0.947	0.236	0.014	0.250	1116.935	0.000	0.176	0.009
2047	0.008	0.710	0.038	0.011	0.933	0.015	0.947	0.236	0.014	0.250	1114.154	0.000	0.176	0.009
2048	0.008	0.706	0.038	0.011	0.933	0.015	0.948	0.236	0.014	0.250	1111.695	0.000	0.175	0.009
2049	0.008	0.703	0.038	0.011	0.933	0.015	0.948	0.236	0.014	0.250	1109.553	0.000	0.175	0.009
2050	0.008	0.700	0.038	0.010	0.933	0.015	0.948	0.236	0.014	0.250	1107.667	0.000	0.175	0.009

EMISSION FAC

	Non-Running Emission Factor (g/trip)													
Year	ROG	NOX	CO	SOX	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	CO2	CH4	N2O	TOG
2020	0.196	4.938	2.560	0.005	-	0.007	0.007	-	0.007	0.007	544.675	0.009	0.086	0.223
2021	0.191	4.898	2.673	0.005	-	0.004	0.004	-	0.004	0.004	543.441	0.009	0.086	0.218
2022	0.190	4.928	2.758	0.005	-	0.003	0.003	-	0.003	0.003	539.415	0.009	0.085	0.216
2023	0.188	4.908	2.904	0.005	-	0.002	0.002	-	0.002	0.002	516.924	0.009	0.081	0.215
2024	0.187	4.896	2.892	0.005	-	0.002	0.002	-	0.002	0.002	506.478	0.009	0.080	0.213
2025	0.186	4.877	2.884	0.005	-	0.002	0.002	-	0.002	0.002	496.769	0.009	0.078	0.211
2026	0.185	4.857	2.880	0.005	-	0.002	0.002	-	0.002	0.002	487.936	0.009	0.077	0.210
2027	0.184	4.830	2.878	0.005	-	0.002	0.002	-	0.001	0.001	479.860	0.009	0.076	0.210
2028	0.184	4.790	2.879	0.004	-	0.001	0.001	-	0.001	0.001	472.252	0.009	0.074	0.209
2029	0.184	4.747	2.883	0.004	-	0.001	0.001	-	0.001	0.001	465.367	0.009	0.073	0.209
2030	0.184	4.712	2.888	0.004	-	0.001	0.001	-	0.001	0.001	459.216	0.009	0.072	0.209
2031	0.184	4.682	2.896	0.004	-	0.001	0.001	-	0.001	0.001	453.831	0.009	0.072	0.209
2032	0.184	4.656	2.905	0.004	-	0.001	0.001	-	0.001	0.001	449.142	0.009	0.071	0.210
2033	0.185	4.635	2.916	0.004	-	0.001	0.001	-	0.001	0.001	445.058	0.009	0.070	0.211
2034	0.186	4.616	2.927	0.004	-	0.001	0.001	-	0.001	0.001	441.557	0.009	0.070	0.211
2035	0.186	4.598	2.938	0.004	-	0.001	0.001	-	0.001	0.001	438.594	0.009	0.069	0.212
2036	0.187	4.583	2.953	0.004	-	0.001	0.001	-	0.001	0.001	436.449	0.009	0.069	0.213
2037	0.188	4.567	2.967	0.004	-	0.001	0.001	-	0.001	0.001	434.765	0.009	0.068	0.214
2038	0.189	4.552	2.980	0.004	-	0.001	0.001	-	0.001	0.001	433.487	0.009	0.068	0.215
2039	0.190	4.537	2.994	0.004	-	0.001	0.001	-	0.001	0.001	432.541	0.009	0.068	0.216
2040	0.191	4.523	3.007	0.004	-	0.001	0.001	-	0.001	0.001	431.883	0.009	0.068	0.217
2041	0.191	4.510	3.020	0.004	-	0.001	0.001	-	0.001	0.001	431.484	0.009	0.068	0.218
2042	0.192	4.498	3.032	0.004	-	0.001	0.001	-	0.001	0.001	431.278	0.009	0.068	0.219
2043	0.193	4.487	3.044	0.004	-	0.001	0.001	-	0.001	0.001	431.234	0.009	0.068	0.220
2044	0.194	4.478	3.056	0.004	-	0.001	0.001	-	0.001	0.001	431.320	0.009	0.068	0.221
2045	0.194	4.471	3.067	0.004	-	0.001	0.001	-	0.001	0.001	431.495	0.009	0.068	0.221
2046	0.195	4.465	3.077	0.004	-	0.001	0.001	-	0.001	0.001	431.736	0.009	0.068	0.222
2047	0.196	4.461	3.087	0.004	-	0.001	0.001	-	0.001	0.001	432.028	0.009	0.068	0.223
2048	0.196	4.458	3.096	0.004	-	0.001	0.001	-	0.001	0.001	432.350	0.009	0.068	0.224
2049	0.197	4.456	3.105	0.004	-	0.001	0.001	-	0.001	0.001	432.702	0.009	0.068	0.224
2050	0.198	4.455	3.112	0.004	-	0.001	0.001	-	0.001	0.001	433.064	0.009	0.068	0.225

EMISSION FACTORS FOR ANALYSIS-Haul Onsite

	Running Emission Factor (g/mile)													
Year	ROG	NOX	CO	SOX	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	CO2	CH4	N2O	TOG
2020	0.615	10.910	1.813	0.030	119.343	0.055	119.398	11.976	0.053	12.029	3129.461	0.029	0.493	0.700
2021	0.385	9.851	1.443	0.029	119.340	0.030	119.370	11.975	0.029	12.004	3047.655	0.018	0.480	0.438
2022	0.250	9.188	1.188	0.028	119.339	0.020	119.359	11.975	0.019	11.994	2967.712	0.012	0.468	0.284
2023	0.083	8.234	0.761	0.027	119.335	0.014	119.349	11.974	0.013	11.987	2859.426	0.004	0.451	0.095
2024	0.081	8.139	0.734	0.026	119.335	0.013	119.348	11.974	0.013	11.986	2794.886	0.004	0.440	0.092
2025	0.078	8.041	0.710	0.026	119.335	0.013	119.348	11.974	0.012	11.986	2732.616	0.004	0.431	0.089
2026	0.076	7.935	0.690	0.025	119.336	0.012	119.348	11.974	0.012	11.986	2674.168	0.004	0.421	0.087
2027	0.074	7.825	0.673	0.025	119.336	0.012	119.348	11.974	0.011	11.985	2614.823	0.003	0.412	0.084
2028	0.072	7.740	0.657	0.024	119.337	0.012	119.349	11.974	0.011	11.985	2561.637	0.003	0.404	0.082
2029	0.070	7.657	0.643	0.024	119.338	0.011	119.349	11.975	0.011	11.985	2511.444	0.003	0.396	0.080
2030	0.069	7.587	0.631	0.023	119.339	0.011	119.350	11.975	0.010	11.985	2465.081	0.003	0.388	0.078
2031	0.067	7.522	0.620	0.023	119.340	0.011	119.350	11.975	0.010	11.985	2420.125	0.003	0.381	0.077
2032	0.066	7.456	0.609	0.023	119.341	0.010	119.351	11.975	0.010	11.985	2377.660	0.003	0.375	0.075
2033	0.065	7.392	0.598	0.022	119.341	0.010	119.351	11.976	0.009	11.985	2336.750	0.003	0.368	0.074
2034	0.063	7.323	0.588	0.022	119.342	0.010	119.352	11.976	0.009	11.985	2299.076	0.003	0.362	0.072
2035	0.062	7.264	0.580	0.021	119.343	0.009	119.352	11.976	0.009	11.985	2265.032	0.003	0.357	0.071
2036	0.062	7.224	0.572	0.021	119.344	0.009	119.353	11.977	0.009	11.985	2229.566	0.003	0.351	0.070
2037	0.061	7.178	0.566	0.021	119.344	0.009	119.354	11.977	0.009	11.986	2201.482	0.003	0.347	0.070
2038	0.061	7.136	0.561	0.021	119.345	0.009	119.354	11.977	0.009	11.986	2176.036	0.003	0.343	0.069
2039	0.060	7.097	0.557	0.020	119.345	0.009	119.354	11.977	0.009	11.986	2155.186	0.003	0.340	0.068
2040	0.060	7.061	0.554	0.020	119.346	0.009	119.355	11.977	0.008	11.986	2137.276	0.003	0.337	0.068
2041	0.059	7.029	0.551	0.020	119.346	0.009	119.355	11.977	0.008	11.986	2122.144	0.003	0.334	0.068
2042	0.059	7.004	0.549	0.020	119.346	0.009	119.355	11.978	0.008	11.986	2109.871	0.003	0.332	0.067
2043	0.059	6.983	0.547	0.020	119.347	0.009	119.355	11.978	0.008	11.986	2099.567	0.003	0.331	0.067
2044	0.059	6.964	0.546	0.020	119.347	0.009	119.355	11.978	0.008	11.986	2090.521	0.003	0.329	0.067
2045	0.058	6.948	0.545	0.020	119.347	0.009	119.356	11.978	0.008	11.986	2082.749	0.003	0.328	0.066
2046	0.058	6.936	0.544	0.020	119.347	0.009	119.356	11.978	0.008	11.986	2075.930	0.003	0.327	0.066
2047	0.058	6.928	0.543	0.020	119.347	0.009	119.356	11.978	0.008	11.986	2070.244	0.003	0.326	0.066
2048	0.058	6.923	0.542	0.020	119.347	0.008	119.356	11.978	0.008	11.986	2065.057	0.003	0.325	0.066
2049	0.058	6.920	0.542	0.020	119.347	0.008	119.356	11.978	0.008	11.986	2060.655	0.003	0.325	0.066
2050	0.058	6.917	0.541	0.019	119.347	0.008	119.356	11.978	0.008	11.986	2056.841	0.003	0.324	0.066

EMISSION FACTORS F

	Non-Running Emission Factor (g/trip)													
Year	ROG	NOX	CO	SOX	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	CO2	CH4	N2O	TOG
2020	0.361	6.965	4.529	0.008	-	0.007	0.007	-	0.007	0.007	895.378	0.017	0.141	0.411
2021	0.360	7.094	4.768	0.009	-	0.005	0.005	-	0.004	0.004	899.113	0.017	0.142	0.410
2022	0.359	7.189	4.939	0.008	-	0.003	0.003	-	0.002	0.002	892.749	0.017	0.141	0.409
2023	0.357	7.144	5.205	0.008	-	0.002	0.002	-	0.002	0.002	853.207	0.017	0.134	0.407
2024	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131	0.404
2025	0.354	7.126	5.168	0.008	-	0.002	0.002	-	0.002	0.002	816.136	0.016	0.129	0.403
2026	0.353	7.117	5.160	0.008	-	0.002	0.002	-	0.002	0.002	800.119	0.016	0.126	0.401
2027	0.352	7.095	5.158	0.007	-	0.002	0.002	-	0.002	0.002	785.556	0.016	0.124	0.401
2028	0.352	7.063	5.160	0.007	-	0.002	0.002	-	0.002	0.002	771.830	0.016	0.122	0.400
2029	0.352	7.027	5.167	0.007	-	0.002	0.002	-	0.002	0.002	759.452	0.016	0.120	0.401
2030	0.352	7.001	5.177	0.007	-	0.002	0.002	-	0.002	0.002	748.473	0.016	0.118	0.401
2031	0.353	6.984	5.192	0.007	-	0.002	0.002	-	0.002	0.002	739.082	0.016	0.116	0.402
2032	0.354	6.972	5.211	0.007	-	0.002	0.002	-	0.002	0.002	731.039	0.016	0.115	0.403
2033	0.355	6.963	5.232	0.007	-	0.002	0.002	-	0.002	0.002	724.193	0.016	0.114	0.404
2034	0.356	6.958	5.254	0.007	-	0.002	0.002	-	0.002	0.002	718.487	0.017	0.113	0.406
2035	0.358	6.952	5.277	0.007	-	0.002	0.002	-	0.002	0.002	713.855	0.017	0.112	0.407
2036	0.360	6.950	5.305	0.007	-	0.002	0.002	-	0.002	0.002	710.857	0.017	0.112	0.409
2037	0.361	6.947	5.333	0.007	-	0.002	0.002	-	0.002	0.002	708.776	0.017	0.112	0.411
2038	0.363	6.944	5.360	0.007	-	0.002	0.002	-	0.002	0.002	707.488	0.017	0.111	0.413
2039	0.365	6.942	5.387	0.007	-	0.002	0.002	-	0.002	0.002	706.847	0.017	0.111	0.415
2040	0.367	6.940	5.414	0.007	-	0.002	0.002	-	0.002	0.002	706.769	0.017	0.111	0.417
2041	0.368	6.939	5.440	0.007	-	0.002	0.002	-	0.002	0.002	707.177	0.017	0.111	0.419
2042	0.370	6.939	5.465	0.007	-	0.002	0.002	-	0.002	0.002	707.944	0.017	0.112	0.421
2043	0.372	6.941	5.489	0.007	-	0.002	0.002	-	0.002	0.002	708.999	0.017	0.112	0.423
2044	0.373	6.943	5.513	0.007	-	0.002	0.002	-	0.002	0.002	710.269	0.017	0.112	0.425
2045	0.375	6.947	5.535	0.007	-	0.002	0.002	-	0.002	0.002	711.660	0.017	0.112	0.427
2046	0.376	6.953	5.557	0.007	-	0.002	0.002	-	0.002	0.002	713.125	0.017	0.112	0.428
2047	0.378	6.959	5.577	0.007	-	0.002	0.002	-	0.002	0.002	714.629	0.018	0.113	0.430
2048	0.379	6.966	5.596	0.007	-	0.002	0.002	-	0.002	0.002	716.124	0.018	0.113	0.431
2049	0.380	6.974	5.614	0.007	-	0.002	0.002	-	0.002	0.002	717.600	0.018	0.113	0.433
2050	0.381	6.982	5.630	0.007	-	0.002	0.002	-	0.002	0.002	719.037	0.018	0.113	0.434

EMISSION FACTORS FOR ANALYSIS-Haul Offsite

	Running Emission Factor (g/mile)													
Year	ROG	NOX	CO	SOX	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	CO2	CH4	N2O	TOG
2020	0.070	3.437	0.277	0.016	0.963	0.052	1.015	0.245	0.050	0.295	1650.137	0.003	0.260	0.080
2021	0.045	2.842	0.182	0.015	0.962	0.038	1.000	0.245	0.037	0.281	1635.192	0.002	0.258	0.051
2022	0.030	2.457	0.118	0.015	0.960	0.028	0.989	0.244	0.027	0.271	1617.590	0.001	0.255	0.034
2023	0.014	1.825	0.076	0.015	0.959	0.027	0.986	0.244	0.026	0.269	1598.251	0.001	0.252	0.016
2024	0.013	1.749	0.070	0.015	0.958	0.027	0.985	0.243	0.026	0.269	1577.563	0.001	0.249	0.015
2025	0.013	1.685	0.067	0.015	0.958	0.027	0.985	0.243	0.025	0.269	1554.803	0.001	0.245	0.015
2026	0.013	1.628	0.064	0.015	0.959	0.026	0.985	0.244	0.025	0.269	1532.299	0.001	0.241	0.014
2027	0.012	1.577	0.060	0.014	0.959	0.027	0.985	0.244	0.025	0.269	1508.727	0.001	0.238	0.014
2028	0.012	1.532	0.058	0.014	0.959	0.026	0.986	0.244	0.025	0.269	1484.395	0.001	0.234	0.014
2029	0.012	1.490	0.056	0.014	0.960	0.026	0.986	0.244	0.025	0.269	1461.041	0.001	0.230	0.013
2030	0.012	1.455	0.054	0.014	0.960	0.026	0.987	0.244	0.025	0.269	1439.103	0.001	0.227	0.013
2031	0.011	1.423	0.052	0.013	0.961	0.026	0.987	0.244	0.025	0.270	1417.983	0.001	0.223	0.013
2032	0.011	1.392	0.051	0.013	0.961	0.026	0.988	0.245	0.025	0.270	1398.223	0.001	0.220	0.013
2033	0.011	1.364	0.049	0.013	0.962	0.026	0.988	0.245	0.025	0.270	1380.364	0.001	0.217	0.013
2034	0.011	1.336	0.047	0.013	0.962	0.026	0.988	0.245	0.025	0.270	1363.511	0.001	0.215	0.012
2035	0.011	1.314	0.046	0.013	0.963	0.026	0.989	0.245	0.025	0.270	1348.337	0.001	0.212	0.012
2036	0.011	1.290	0.045	0.013	0.963	0.026	0.989	0.245	0.025	0.270	1333.004	0.000	0.210	0.012
2037	0.011	1.273	0.044	0.013	0.963	0.026	0.989	0.245	0.024	0.270	1320.421	0.000	0.208	0.012
2038	0.011	1.260	0.044	0.012	0.964	0.025	0.989	0.245	0.024	0.270	1309.327	0.000	0.206	0.012
2039	0.010	1.247	0.043	0.012	0.964	0.025	0.989	0.245	0.024	0.270	1300.029	0.000	0.205	0.012
2040	0.010	1.236	0.043	0.012	0.964	0.025	0.990	0.246	0.024	0.270	1292.093	0.000	0.204	0.012
2041	0.010	1.225	0.042	0.012	0.964	0.025	0.990	0.246	0.024	0.270	1285.419	0.000	0.203	0.012
2042	0.010	1.217	0.042	0.012	0.965	0.025	0.990	0.246	0.024	0.270	1279.935	0.000	0.202	0.012
2043	0.010	1.210	0.042	0.012	0.965	0.025	0.990	0.246	0.024	0.270	1275.371	0.000	0.201	0.012
2044	0.010	1.203	0.041	0.012	0.965	0.025	0.990	0.246	0.024	0.270	1271.464	0.000	0.200	0.012
2045	0.010	1.196	0.041	0.012	0.965	0.025	0.990	0.246	0.024	0.270	1268.160	0.000	0.200	0.012
2046	0.010	1.191	0.041	0.012	0.965	0.025	0.990	0.246	0.024	0.270	1265.273	0.000	0.199	0.012
2047	0.010	1.187	0.041	0.012	0.965	0.025	0.990	0.246	0.024	0.270	1262.836	0.000	0.199	0.012
2048	0.010	1.184	0.041	0.012	0.965	0.025	0.990	0.246	0.024	0.270	1260.686	0.000	0.199	0.012
2049	0.010	1.182	0.041	0.012	0.965	0.025	0.990	0.246	0.024	0.270	1258.837	0.000	0.198	0.012
2050	0.010	1.181	0.041	0.012	0.965	0.025	0.990	0.246	0.024	0.270	1257.210	0.000	0.198	0.012

EMISSION FACTORS F

	Non-Running Emission Factor (g/trip)													
Year	ROG	NOX	CO	SOX	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	CO2	CH4	N2O	TOG
2020	0.361	6.965	4.529	0.008	-	0.007	0.007	-	0.007	0.007	895.378	0.017	0.141	0.411
2021	0.360	7.094	4.768	0.009	-	0.005	0.005	-	0.004	0.004	899.113	0.017	0.142	0.410
2022	0.359	7.189	4.939	0.008	-	0.003	0.003	-	0.002	0.002	892.749	0.017	0.141	0.409
2023	0.357	7.144	5.205	0.008	-	0.002	0.002	-	0.002	0.002	853.207	0.017	0.134	0.407
2024	0.355	7.136	5.182	0.008	-	0.002	0.002	-	0.002	0.002	833.818	0.016	0.131	0.404
2025	0.354	7.126	5.168	0.008	-	0.002	0.002	-	0.002	0.002	816.136	0.016	0.129	0.403
2026	0.353	7.117	5.160	0.008	-	0.002	0.002	-	0.002	0.002	800.119	0.016	0.126	0.401
2027	0.352	7.095	5.158	0.007	-	0.002	0.002	-	0.002	0.002	785.556	0.016	0.124	0.401
2028	0.352	7.063	5.160	0.007	-	0.002	0.002	-	0.002	0.002	771.830	0.016	0.122	0.400
2029	0.352	7.027	5.167	0.007	-	0.002	0.002	-	0.002	0.002	759.452	0.016	0.120	0.401
2030	0.352	7.001	5.177	0.007	-	0.002	0.002	-	0.002	0.002	748.473	0.016	0.118	0.401
2031	0.353	6.984	5.192	0.007	-	0.002	0.002	-	0.002	0.002	739.082	0.016	0.116	0.402
2032	0.354	6.972	5.211	0.007	-	0.002	0.002	-	0.002	0.002	731.039	0.016	0.115	0.403
2033	0.355	6.963	5.232	0.007	-	0.002	0.002	-	0.002	0.002	724.193	0.016	0.114	0.404
2034	0.356	6.958	5.254	0.007	-	0.002	0.002	-	0.002	0.002	718.487	0.017	0.113	0.406
2035	0.358	6.952	5.277	0.007	-	0.002	0.002	-	0.002	0.002	713.855	0.017	0.112	0.407
2036	0.360	6.950	5.305	0.007	-	0.002	0.002	-	0.002	0.002	710.857	0.017	0.112	0.409
2037	0.361	6.947	5.333	0.007	-	0.002	0.002	-	0.002	0.002	708.776	0.017	0.112	0.411
2038	0.363	6.944	5.360	0.007	-	0.002	0.002	-	0.002	0.002	707.488	0.017	0.111	0.413
2039	0.365	6.942	5.387	0.007	-	0.002	0.002	-	0.002	0.002	706.847	0.017	0.111	0.415
2040	0.367	6.940	5.414	0.007	-	0.002	0.002	-	0.002	0.002	706.769	0.017	0.111	0.417
2041	0.368	6.939	5.440	0.007	-	0.002	0.002	-	0.002	0.002	707.177	0.017	0.111	0.419
2042	0.370	6.939	5.465	0.007	-	0.002	0.002	-	0.002	0.002	707.944	0.017	0.112	0.421
2043	0.372	6.941	5.489	0.007	-	0.002	0.002	-	0.002	0.002	708.999	0.017	0.112	0.423
2044	0.373	6.943	5.513	0.007	-	0.002	0.002	-	0.002	0.002	710.269	0.017	0.112	0.425
2045	0.375	6.947	5.535	0.007	-	0.002	0.002	-	0.002	0.002	711.660	0.017	0.112	0.427
2046	0.376	6.953	5.557	0.007	-	0.002	0.002	-	0.002	0.002	713.125	0.017	0.112	0.428
2047	0.378	6.959	5.577	0.007	-	0.002	0.002	-	0.002	0.002	714.629	0.018	0.113	0.430
2048	0.379	6.966	5.596	0.007	-	0.002	0.002	-	0.002	0.002	716.124	0.018	0.113	0.431
2049	0.380	6.974	5.614	0.007	-	0.002	0.002	-	0.002	0.002	717.600	0.018	0.113	0.433
2050	0.381	6.982	5.630	0.007	-	0.002	0.002	-	0.002	0.002	719.037	0.018	0.113	0.434

Vendor Onsite EF by Speed Speed: 10

Year	Vehicle Category	VMT	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMBW	PM10_RUNEX	PM2.5_PMBW	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX	TOG_RUNEX
2020	HHDT	12753	0.615	10.910	1.813	0.030	0.147	0.055	0.051	0.053	3129.461	0.029	0.493	0.700
2020	MHDT	18649	0.731	5.906	1.286	0.019	0.061	0.116	0.022	0.111	2050.510	0.034	0.323	0.832
2021	HHDT	12955	0.385	9.851	1.443	0.029	0.144	0.030	0.051	0.029	3047.655	0.018	0.480	0.438
2021	MHDT	18871	0.294	3.864	0.608	0.019	0.061	0.062	0.022	0.059	2035.103	0.014	0.321	0.335
2022	HHDT	13198	0.250	9.188	1.188	0.028	0.143	0.020	0.050	0.019	2967.712	0.012	0.468	0.284
2022	MHDT	19105	0.243	3.560	0.538	0.019	0.061	0.052	0.022	0.050	2027.679	0.011	0.319	0.277
2023	HHDT	13296	0.083	8.234	0.761	0.027	0.139	0.014	0.049	0.013	2859.426	0.004	0.451	0.095
2023	MHDT	18710	0.173	2.908	0.400	0.019	0.061	0.042	0.022	0.040	2013.697	0.008	0.317	0.197
2024	HHDT	13056	0.081	8.139	0.734	0.026	0.139	0.013	0.049	0.013	2794.886	0.004	0.440	0.092
2024	MHDT	20097	0.149	2.745	0.370	0.019	0.061	0.035	0.022	0.034	2002.617	0.007	0.316	0.170
2025	HHDT	13266	0.078	8.041	0.710	0.026	0.139	0.013	0.049	0.012	2732.616	0.004	0.431	0.089
2025	MHDT	20244	0.129	2.589	0.342	0.019	0.061	0.029	0.022	0.028	1988.164	0.006	0.313	0.147
2026	HHDT	13411	0.076	7.935	0.690	0.025	0.139	0.012	0.049	0.012	2674.168	0.004	0.421	0.087
2026	MHDT	20639	0.111	2.433	0.316	0.019	0.061	0.024	0.022	0.023	1973.244	0.005	0.311	0.127
2027	HHDT	12218	0.074	7.825	0.673	0.025	0.140	0.012	0.049	0.011	2614.823	0.003	0.412	0.084
2027	MHDT	19214	0.097	2.295	0.294	0.019	0.061	0.020	0.022	0.019	1958.301	0.004	0.309	0.110
2028	HHDT	12372	0.072	7.740	0.657	0.024	0.141	0.012	0.049	0.011	2561.637	0.003	0.404	0.082
2028	MHDT	19160	0.085	2.168	0.275	0.018	0.061	0.017	0.022	0.016	1943.873	0.004	0.306	0.097
2029	HHDT	12507	0.070	7.657	0.643	0.024	0.142	0.011	0.050	0.011	2511.444	0.003	0.396	0.080
2029	MHDT	18990	0.075	2.055	0.260	0.018	0.061	0.014	0.022	0.014	1929.839	0.004	0.304	0.086
2030	HHDT	12627	0.069	7.587	0.631	0.023	0.143	0.011	0.050	0.010	2465.081	0.003	0.388	0.078
2030	MHDT	18705	0.068	1.959	0.247	0.018	0.061	0.012	0.022	0.012	1916.056	0.003	0.302	0.077
2031	HHDT	12856	0.067	7.522	0.620	0.023	0.144	0.011	0.050	0.010	2420.125	0.003	0.381	0.077
2031	MHDT	18470	0.061	1.869	0.235	0.018	0.061	0.011	0.022	0.010	1901.654	0.003	0.300	0.070
2032	HHDT	13151	0.066	7.456	0.609	0.023	0.144	0.010	0.051	0.010	2377.660	0.003	0.375	0.075
2032	MHDT	18238	0.056	1.792	0.226	0.018	0.061	0.009	0.022	0.009	1887.604	0.003	0.297	0.064
2033	HHDT	12107	0.065	7.392	0.598	0.022	0.145	0.010	0.051	0.009	2336.750	0.003	0.368	0.074
2033	MHDT	16682	0.052	1.729	0.219	0.018	0.061	0.008	0.022	0.008	1873.383	0.002	0.295	0.059
2034	HHDT	12325	0.063	7.323	0.588	0.022	0.146	0.010	0.051	0.009	2299.076	0.003	0.362	0.072
2034	MHDT	16348	0.049	1.667	0.212	0.018	0.061	0.007	0.022	0.007	1859.839	0.002	0.293	0.055
2035	HHDT	12559	0.062	7.264	0.580	0.021	0.147	0.009	0.051	0.009	2265.032	0.003	0.357	0.071
2035	MHDT	15989	0.046	1.610	0.205	0.017	0.061	0.006	0.022	0.006	1846.792	0.002	0.291	0.052
2036	HHDT	10854	0.062	7.224	0.572	0.021	0.148	0.009	0.052	0.009	2229.566	0.003	0.351	0.070
2036	MHDT	14325	0.044	1.564	0.201	0.017	0.061	0.006	0.022	0.005	1833.799	0.002	0.289	0.050
2037	HHDT	10993	0.061	7.178	0.566	0.021	0.148	0.009	0.052	0.009	2201.482	0.003	0.347	0.070
2037	MHDT	14056	0.042	1.516	0.196	0.017	0.061	0.005	0.022	0.005	1821.627	0.002	0.287	0.047
2038	HHDT	10407	0.061	7.136	0.561	0.021	0.149	0.009	0.052	0.009	2176.036	0.003	0.343	0.069
2038	MHDT	13824	0.040	1.474	0.191	0.017	0.061	0.005	0.022	0.005	1809.791	0.002	0.285	0.046
2039	HHDT	10566	0.060	7.097	0.557	0.020	0.149	0.009	0.052	0.009	2155.186	0.003	0.340	0.068
2039	MHDT	13621	0.039	1.434	0.188	0.017	0.061	0.004	0.022	0.004	1798.609	0.002	0.283	0.044
2040	HHDT	10740	0.060	7.061	0.554	0.020	0.149	0.009	0.052	0.008	2137.276	0.003	0.337	0.068
2040	MHDT	13446	0.038	1.396	0.184	0.017	0.061	0.004	0.022	0.004	1787.963	0.002	0.282	0.043
2041	HHDT	10929	0.059	7.029	0.551	0.020	0.150	0.009	0.052	0.008	2122.144	0.003	0.334	0.068
2041	MHDT	13295	0.037	1.361	0.181	0.017	0.061	0.004	0.022	0.004	1777.822	0.002	0.280	0.042
2042	HHDT	11135	0.059	7.004	0.549	0.020	0.150	0.009	0.053	0.008	2109.871	0.003	0.332	0.067
2042	MHDT	13170	0.035	1.325	0.177	0.017	0.061	0.004	0.022	0.004	1768.227	0.002	0.279	0.040
2043	HHDT	11358	0.059	6.983	0.547	0.020	0.150	0.009	0.053	0.008	2099.567	0.003	0.331	0.067
2043	MHDT	13080	0.035	1.292	0.174	0.017	0.061	0.004	0.022	0.003	1759.210	0.002	0.277	0.039
2044	HHDT	11596	0.059	6.964	0.546	0.020	0.150	0.009	0.053	0.008	2090.521	0.003	0.329	0.067
2044	MHDT	13023	0.034	1.262	0.171	0.017	0.061	0.003	0.022	0.003	1750.786	0.002	0.276	0.038
2045	HHDT	11850	0.058	6.948	0.545	0.020	0.151	0.009	0.053	0.008	2082.749	0.003	0.328	0.066
2045	MHDT	13004	0.033	1.238	0.169	0.017	0.061	0.003	0.022	0.003	1742.996	0.002	0.275	0.038
2046	HHDT	12119	0.058	6.936	0.544	0.020	0.151	0.009	0.053	0.008	2075.930	0.003	0.327	0.066
2046	MHDT	13020	0.033	1.218	0.167	0.016	0.061	0.003	0.022	0.003	1735.806	0.002	0.273	0.038
2047	HHDT	12404	0.058	6.928	0.543	0.020	0.151	0.009	0.053	0.008	2070.244	0.003	0.326	0.066
2047	MHDT	13070	0.033	1.199	0.165	0.016	0.061	0.003	0.022	0.003	1729.318	0.002	0.272	0.037
2048	HHDT	12703	0.058	6.923	0.542	0.020	0.151	0.008	0.053	0.008	2065.057	0.003	0.325	0.066
2048	MHDT	13154	0.033	1.182	0.164	0.016	0.061	0.003	0.022	0.003	1723.552	0.002	0.272	0.037
2049	HHDT	13016	0.058	6.920	0.542	0.020	0.151	0.008	0.053	0.008	2060.655	0.003	0.325	0.066
2049	MHDT	13270	0.032	1.168	0.163	0.016	0.061	0.003	0.022	0.003	1718.481	0.002	0.271	0.037
2050	HHDT	13343	0.058	6.917	0.541	0.019	0.151	0.008	0.053	0.008	2056.841	0.003	0.324	0.066
2050	MHDT	13415	0.032	1.156	0.161	0.016	0.061	0.003	0.022	0.003	1713.989	0.001	0.270	0.037

Haul Onsite EF by Speed Speed: 10

Year	Vehicle Category	VMT	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMBW	PM10_RUNEX	PM2.5_PMBW	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX	TOG_RUNEX
2020	HHDT	12753	0.615	10.910	1.813	0.030	0.147	0.055	0.051	0.053	3129.461	0.029	0.493	0.700
2021	HHDT	12955	0.385	9.851	1.443	0.029	0.144	0.030	0.051	0.029	3047.655	0.018	0.480	0.438
2022	HHDT	13198	0.250	9.188	1.188	0.028	0.143	0.020	0.050	0.019	2967.712	0.012	0.468	0.284
2023	HHDT	13296	0.083	8.234	0.761	0.027	0.139	0.014	0.049	0.013	2859.426	0.004	0.451	0.095
2024	HHDT	13056	0.081	8.139	0.734	0.026	0.139	0.013	0.049	0.013	2794.886	0.004	0.440	0.092
2025	HHDT	13266	0.078	8.041	0.710	0.026	0.139	0.013	0.049	0.012	2732.616	0.004	0.431	0.089
2026	HHDT	13411	0.076	7.935	0.690	0.025	0.139	0.012	0.049	0.012	2674.168	0.004	0.421	0.087
2027	HHDT	12218	0.074	7.825	0.673	0.025	0.140	0.012	0.049	0.011	2614.823	0.003	0.412	0.084
2028	HHDT	12372	0.072	7.740	0.657	0.024	0.141	0.012	0.049	0.011	2561.637	0.003	0.404	0.082
2029	HHDT	12507	0.070	7.657	0.643	0.024	0.142	0.011	0.050	0.011	2511.444	0.003	0.396	0.080
2030	HHDT	12627	0.069	7.587	0.631	0.023	0.143	0.011	0.050	0.010	2465.081	0.003	0.388	0.078
2031	HHDT	12856	0.067	7.522	0.620	0.023	0.144	0.011	0.050	0.010	2420.125	0.003	0.381	0.077
2032	HHDT	13151	0.066	7.456	0.609	0.023	0.144	0.010	0.051	0.010	2377.660	0.003	0.375	0.075
2033	HHDT	12107	0.065	7.392	0.598	0.022	0.145	0.010	0.051	0.009	2336.750	0.003	0.368	0.074
2034	HHDT	12325	0.063	7.323	0.588	0.022	0.146	0.010	0.051	0.009	2299.076	0.003	0.362	0.072
2035	HHDT	12559	0.062	7.264	0.580	0.021	0.147	0.009	0.051	0.009	2265.032	0.003	0.357	0.071
2036	HHDT	10854	0.062	7.224	0.572	0.021	0.148	0.009	0.052	0.009	2229.566	0.003	0.351	0.070
2037	HHDT	10993	0.061	7.178	0.566	0.021	0.148	0.009	0.052	0.009	2201.482	0.003	0.347	0.070
2038	HHDT	10407	0.061	7.136	0.561	0.021	0.149	0.009	0.052	0.009	2176.036	0.003	0.343	0.069
2039	HHDT	10566	0.060	7.097	0.557	0.020	0.149	0.009	0.052	0.009	2155.186	0.003	0.340	0.068
2040	HHDT	10740	0.060	7.061	0.554	0.020	0.149	0.009	0.052	0.008	2137.276	0.003	0.337	0.068
2041	HHDT	10929	0.059	7.029	0.551	0.020	0.150	0.009	0.052	0.008	2122.144	0.003	0.334	0.068
2042	HHDT	11135	0.059	7.004	0.549	0.020	0.150	0.009	0.053	0.008	2109.871	0.003	0.332	0.067
2043	HHDT	11358	0.059	6.983	0.547	0.020	0.150	0.009	0.053	0.008	2099.567	0.003	0.331	0.067
2044	HHDT	11596	0.059	6.964	0.546	0.020	0.150	0.009	0.053	0.008	2090.521	0.003	0.329	0.067
2045	HHDT	11850	0.058	6.948	0.545	0.020	0.151	0.009	0.053	0.008	2082.749	0.003	0.328	0.066
2046	HHDT	12119	0.058	6.936	0.544	0.020	0.151	0.009	0.053	0.008	2075.930	0.003	0.327	0.066
2047	HHDT	12404	0.058	6.928	0.543	0.020	0.151	0.009	0.053	0.008	2070.244	0.003	0.326	0.066
2048	HHDT	12703	0.058	6.923	0.542	0.020	0.151	0.008	0.053	0.008	2065.057	0.003	0.325	0.066
2049	HHDT	13016	0.058	6.920	0.542	0.020	0.151	0.008	0.053	0.008	2060.655	0.003	0.325	0.066
2050	HHDT	13343	0.058	6.917	0.541	0.019	0.151	0.008	0.053	0.008	2056.841	0.003	0.324	0.066

Daily Paved Road Dust EF

$$E_{ext} = [\ k\ (sL)^{0.91} \times (W)^{1.02}\ ]\ (1 - P/4N)$$

Parameter	Description	Source:
E_{ext}	Annual or other long-term average emission factor in the same units as k	USEPA AP-42, Paved Roads Methodology
k	Particle size multiplier for particle size range and units of interest	USEPA AP-42, Table 13.2.1-1,
sL	road surface silt loading (g/m^2)	CARB_2016, Table 3
W	average weight (tons) of all the vehicles raveling the road (2.4 tons)	CARB_2016, Table 7
P	Number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period	CalEEMod Default value for SCAQMD
N	Number of days in the averaging period (e.g. 365 for annual, 91 for seasonal, 30 for monthly)	

Parameters	PM_{10}	$PM_{2.5}$	
k (lb/VMT)	0.0022	0.00054	
k (g/VMT)	0.998	0.245	
sL (g/m^2)	0.32	0.32	
W (tons)	2.4	2.4	
P	31	31	
N	365	365	
EF without natural dust control (g/mi)	8.64E-01	2.12E-01	
EF with natural dust control (g/mi)	8.46E-01	2.08E-01	<--Values used in analysis

Unpaved Road Dust EF

$$E.F._{dust,j} = \left(\frac{k(s/12)^1(S/30)^{0.5}}{(M/0.5)^{0.2}} - C\right)(1 - \frac{P}{365})$$

Parameter	Description	Source:
EF_{dust}	Unpaved road emission factor	USEPA AP-42, Unpaved Roads Methodology
k	Particle size multiplier for particle size range and units of interest	USEPA AP-42, Table 13.2.2-2, Public Roads
s	Surface material silt content (%)	CalEEMod Default value for LA County
M	Surface material moisture content (%)	CalEEMod Default value for LA County
S	Mean vehicle speed (mph)	Assumed an onsite speed of 5 MPH
C	emission factor for 1980s vehicle fleet exhaust, brakewear and tire wear	USEPA AP-42, Table 13.2.1-1,
P	Number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period	CalEEMod Default value for SCAQMD
N	Number of days in the averaging period (e.g. 365 for annual, 91 for seasonal, 30 for monthly)	

Parameters	PM_{10}	$PM_{2.5}$	
k (lb/VMT)	1.8	0.18	
k (g/VMT)	816.5	81.6	
s	8.5	8.5	
M	0.5	0.5	
S	10	10	
C[a]	0.00E+00	0.00E+00	
P	31	31	
N	365	365	
EF without natural dust control (g/mi)	333.90	33.39	
EF with natural dust control (g/mi)	305.54	30.55	
Dust Reduction (%)	61%	61%	
EF with Dust Control (g/mi)	119.16	11.92	<--Values used in analysis

Notes:

a Subtracting out exhaust, brake wear, and tire wear values is not required because the unpaved road dust emission factor will be added to brake wear and tire wear values from EMFAC to have a mobile fugitive dust EF that includes brake wear, tire wear, and unpaved road dust.

Regional Emissions Summary

	Daily Emissions (lb/day)					
Source	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10} Total**	**$PM_{2.5}$ Total**
Maintenance (Mobile Trips)	0.03	0.03	0.46	0.00	0.14	0.04
Project Total	**0.03**	**0.03**	**0.46**	**0.00**	**0.14**	**0.04**
SCAQMD Regional Thresholds	55	55	550	150	150	55
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

GHG Emissions Summary

Source	$MTCO_2e$
Maintenance (Mobile Trips)	0.07
Electricity	37.37
Construction	65.00
Total Emissions	**102.43**

1 kilowatt	0.001	MW

Electricity Consumption - Infiltration and Treatment of Water

Annual Days of Operation	Year	Kilowatt Hours per Year (high estimate)	Intensity Factors (lbs per MWh)[1] CO_2	CH_4	N_2O	GHG emissions (lbs per day) CO_2	CH_4	N_2O	Annual Emissions (MT)[4] CO_2	CH_4	N_2O	CO_2e
365	2026	118,700	691.983	0.033	0.004	225.04	0.01	0.00	37.26	0.00	0.00	37.37

Notes:
1) CalEEMod intensity factors for Los Angeles Department of Water & Power.
4) Global Warming Potentials based on IPCC AR4

Maintenance (Mobile Trips)

Annual Days of Operation	Year	Daily Employees[1]	# of One-way Employee Trips/day (In/Out)	Trip Length (mi)[2]	Running Exhaust Emission Factor (g/mile)[5] ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
1	2026	6	12	16.6	0.016	0.057	0.878	0.003	0.317	0.001	0.318	0.079	0.001	0.080	319.253	0.004	0.005

Notes:

1) Worst-case assumption of all six trips happening during one day.

2) Trip length based on CalEEMod default value for Commercial-Work trip

3) Accounts for all exhaust (idling/starting) and evaporative processes

4) Global Warming Potentials based on IPCC AR4

5) Emission factors based on EMFAC2021, LDA, LDT1, LDT2, MCY, & MDV vehicle categories, gasoline only

Maintenance (Mobile Trips)

Annual Days of Operation	Year	Daily Employees[1]	# of One-way Employee Trips/day (In/Out)	Trip Length (mi)[2]	Non-Running Emission Factors (g/trip)[3,5] ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
1	2026	6	12	16.6	1.007	0.265	2.973	0.001	0.000	0.002	0.002	0.000	0.002	0.002	77.676	0.069	0.033

Notes:

1) Worst-case assumption of all six trips happening during one day.

2) Trip length based on CalEEMod default value for Commercial-Work trip

3) Accounts for all exhaust (idling/starting) and evaporative processes

4) Global Warming Potentials based on IPCC AR4

5) Emission factors based on EMFAC2021, LDA, LDT1, LDT2, MCY, & MDV vehicle categories, gasoline only

Maintenance (Mobile Trips)

Annual Days of Operation	Year	Daily Employees[1]	# of One-way Employee Trips/day (In/Out)	Trip Length (mi)[2]	Daily Emissions (lb/day) ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
1	2026	6	12	16.6	0.03	0.03	0.46	0.00	0.14	0.00	0.14	0.03	0.00	0.04	142.26	0.00	0.00

Notes:

1) Worst-case assumption of all six trips happening during one day.

2) Trip length based on CalEEMod default value for Commercial-Work trip

3) Accounts for all exhaust (idling/starting) and evaporative processes

4) Global Warming Potentials based on IPCC AR4

5) Emission factors based on EMFAC2021, LDA, LDT1, LDT2, MCY, & MDV vehicle categories, gasoline only

Maintenance (Mobile Trips)

Annual Days of Operation	Year	Daily Employees[1]	# of One-way Employee Trips/day (In/Out)	Trip Length (mi)[2]	Annual Emissions (MT)[4]			
					CO_2	CH_4	N_2O	CO_2e
1	2026	6	12	16.6	0.06	0.00	0.00	0.07

Notes:

1) Worst-case assumption of all six trips happening during one day.
2) Trip length based on CalEEMod default value for Commercial-Work trip
3) Accounts for all exhaust (idling/starting) and evaporative processes
4) Global Warming Potentials based on IPCC AR4
5) Emission factors based on EMFAC2021, LDA, LDT1, LDT2, MCY, & MDV vehicle categories, gasoline only

Region	South Coast AQMD
Calendar Year	2026
Model Year	Aggregate
Speed	Aggregate
Fuel	Gasoline

Row Labels	Sum of Population	Sum of Total VMT	Sum of Trips	Sum of ROG_RUNEX	Sum of NOx_RUNEX	Sum of CO_RUNEX	Sum of SOx_RUNEX	Sum of PM10_PMTW	Sum of PM10_PMBW	Sum of PM10_RUNEX	Sum of PM2.5_PMTW
LDA	5339379.66	212244195.5	24814666.92	0.008154512	0.034728398	0.712820633	0.002748315	0.008000002	0.008297585	0.001352258	0.002000001
LDT1	490237.7027	17704193.5	2158650.36	0.033459935	0.140443572	1.61175237	0.003291461	0.008000002	0.010176126	0.002136	0.002000001
LDT2	2657371.732	109178451.2	12497506.84	0.01111314	0.058925432	0.824062193	0.00337319	0.008000002	0.009739146	0.001387745	0.002000001
MCY	256959.9655	1634904.478	513919.931	1.102522558	0.548264051	13.74514831	0.001924574	0.004000001	0.012000003	0.002244283	0.001
MDV	1648728.54	63617996.04	7635291.029	0.016390102	0.089511313	0.983812937	0.004138214	0.008000002	0.009904583	0.001396259	0.002000001
Grand Total	**10392677.6**	**404379740.7**	**47620035.07**	**1.171640248**	**0.871872768**	**17.87759645**	**0.015475753**	**0.03600001**	**0.050117443**	**0.008516545**	**0.009000003**

Row Labels	Sum of PM2.5_PMBW	Sum of PM2.5_RUNEX	Sum of CO2_RUNEX	Sum of CH4_RUNEX	Sum of N2O_RUNEX	Sum of TOG_RUNEX	Sum of ROG_STREX	Sum of ROG_HOTSOAK	Sum of ROG_RUNLOSS	Sum of NOx_STREX	Sum of CO_STREX	Sum of SOx_STREX	Sum of PM10_STREX	Sum of PM2.5_STREX	Sum of CO2_STREX	Sum of CH4_STREX	Sum of N2O_STREX	Sum of TOG_STREX	Sum of TOG_HOTSOAK	Sum of TOG_RUNLOSS	Sum of ROG_IDLEX	Sum of ROG_DIURN	Sum of NOx_IDLEX	Sum of CO_IDLEX	Sum of SOx_IDLEX	Sum of PM10_IDLEX	Sum of PM2.5_IDLEX	Sum of CO2_IDLEX	Sum of CH4_IDLEX	Sum of N2O_IDLEX	Sum of TOG_IDLEX	Sum of TOG_DIURN
LDA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
LDT1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
LDT2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MCY	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MDV	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grand Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

				Emission Rate (g/mi)								
Vehicle Category	Population	VMT (miles/day)	Trips (trips/day)	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM2.5_PMTW	PM2.5_PMBW
LDA	5339380	212244195	24814667	8.15E-03	3.47E-02	7.13E-01	2.75E-03	8.00E-03	8.30E-03	1.35E-03	2.00E-03	2.90E-03
LDT1	490238	17704193	2158650	3.35E-02	1.40E-01	1.61E+00	3.29E-03	8.00E-03	1.02E-02	2.14E-03	2.00E-03	3.56E-03
LDT2	2657372	109178451	12497507	1.11E-02	5.89E-02	8.24E-01	3.37E-03	8.00E-03	9.74E-03	1.39E-03	2.00E-03	3.41E-03
MCY	256960	1634904	513920	1.10E+00	5.48E-01	1.37E+01	1.92E-03	4.00E-03	1.20E-02	2.24E-03	1.00E-03	4.20E-03
MDV	1648729	63617996	7635291	1.64E-02	8.95E-02	9.84E-01	4.14E-03	8.00E-03	9.90E-03	1.40E-03	2.00E-03	3.47E-03

Emission Rate (g/mi)								
ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM2.5_PMTW	PM2.5_PMBW
1.58E-02	5.66E-02	8.78E-01	3.16E-03	7.98E-03	9.04E-03	1.41E-03	2.00E-03	3.16E-03

Vehicle Category	Fleet Mix
LDA	52%
LDT1	4%
LDT2	27%
MCY	0%
MDV	16%

2	3	4	5	6	7	8	9	10
Emission Rate (g/mi)								
ROG	NOX	CO	SOX	PM10 Fugitive	PM10 Exhaust	PM10 Total	PM2.5 Fugitive	PM2.5 Exhaust
1.58E-02	5.66E-02	8.78E-01	3.16E-03	3.17E-01	1.41E-03	3.18E-01	7.85E-02	1.24E-03

Road Dust Emission Factors

Daily Paved Road Dust EF[1]

$$E_{ext} = [\ k\ (sL)^{0.91} \times (W)^{1.02}\ ]$$

EF_{paved}	Annual or other long-term average emission factor in the same units as k
k	particle size multiplier for particle size range and units of interest
sL	road surface silt loading (g/m^2)
W	average weight (tons) of all the vehicles raveling the road (2.4 tons)
P	Number of "wet' days with at least 0.254 (0.01 in) of precipitation during the averaging period
N	Number of days in the averaging period (e.g. 365 for annual, 91 for seasonal, 30 for monthly)

Parameters	PM10	PM2.5
k (g/VMT)[2]	0.997898	0.244939
sL (g/m^2)	0.1	0.1
W (tons)	2.4	2.4
EF (g/mi)	3.00E-01	7.36E-02

1) CalEEMod User's Guide, Appendix A, p. 29
2) AP42: Chapter 13: Miscellaneous Sources, 13.2.1 Paved Roads, Table 13.2.1-1

Daily Unpaved Road Dust EF[1]

$$E.F._{dust,i} = \left(\frac{k(s/12)^{1}(S/30)^{0.5}}{(M/0.5)^{0.2}} - C \right)$$

k	particle size multiplier for particle size range and units of interest
s	surface material silt content (%)
M	surface material moisture content (%)
S	mean vehicle speed (mph)
C	emission factor for 1980s vehicle fleet exhaust, brakewear and tire wear

Parameters	PM10	PM2.5
k (g/VMT)[2]	816.462	81.6462
s[3]	8.5	8.5
M	0.5	0.5
S	#REF!	#REF!
C	0.213187	0.163292
EF (g/mi)	#REF!	#REF!

1) CalEEMod User's Guide, Appendix A, p. 29
2) AP42: Chapter 13: Miscellaneous Sources, 13.2.2 Unpaved Roads, Table 13.2.2-2
3) AP42: Chapter 13: Miscellaneous Sources, 13.2.2 Unpaved Roads, Table 13.2.2-1, "Construction sites"

HAUL

Speed
5
10
15
20
25
30
35
40

Appendix C: Energy Impact Analysis Calculations

Project Construction Fuel Consumption Summary

Source Category	Fuel Consumption (gal)	
	Diesel	Gasoline
Offroad Equipment	151,455	--
Haul Trucks	9,169	--
Vendor Trucks	37,333	--
Workers	--	7,718
Total Fuel Consumption	**197,957**	**7,718**

Construction Duration (years):	1.9
Average Annual Diesel (gal):	102,343
Average Annual Gasoline (gal):	3,990

County Fuel Consumption (2020) [1]

County: Los Angeles

Source	Fuel Type	Gallons (Retail + Non-Retail	Percent of Project Compared to County
Workers	Gas	2,770,000,000	0.0001%
Off-Road/Haul & Vendor Trucks	Diesel	622,916,667	0.0164%

Notes:

1. California Energy Commission, California Annual Retail Fuel Outlet Report Results (CEC-A15), 2010-2019
https://www.energy.ca.gov/sites/default/files/2020-10/2010-2019%20CEC-A15%20Results%20and%20Analysis.xlsx
Accessed November 2020. Diesel is adjusted to account for retail (48%) and non-retail (52%) diesel sales.

Offroad Equipment

Fuel Consumption: Equipment ≤ 100HP	**Value**
Brake Specific Fuel Consumption Factor (lb/hp-hr)[1]	0.408
Fuel Density (lb/gal)[1]	7.11
Consumption Factor (gal/hp-hr)	0.0574
Total HP-HR <100	108,824
Total Diesel Fuel (gal)	**6,246**

Fuel Consumption: Equipment > 100HP	**Value**
Brake Specific Fuel Consumption Factor (lb/hp-hr)[1]	0.367
Fuel Density (lb/gal)[1]	7.11
Consumption Factor (gal/hp-hr)	0.0516
Total HP-HR >100	2,812,794
Total Diesel Fuel (gal)	**145,210**

Total diesel gallons (off-road equipment): 151,455

Phase Name	**Equipment**	**# of Equipment**	**Hours/Day**	**HP**	**Load Factor**	**Days**	**Total HP-HR**
Excavation for Pre-Treatment Vault	Excavators	1	8	346	0.380	32	33658.88
Excavation for Pre-Treatment Vault	Rubber Tired Loaders	1	8	248	0.360	32	22855.680
FRPS Pre-Treatment Vault Complete	Cranes	1	8	270	0.290	120	75168
FRPS Pre-Treatment Vault Complete	Forklifts	1	8	120	0.200	120	23040
Install Drywells	Bore/Drill Rigs	1	8	581	0.500	495	1150380
Install Drywells	Rubber Tired Loaders	1	8	248	0.360	495	353548.8
Install Drywells	Skid Steer Loaders	1	8	67	0.370	495	98168.4
Test Infiltration rate of drywells	Generator Sets	1	8	9.9	0.740	80	4688.64
Dig/Lay/Bf pre-treatment to Drywell pipes	Excavators	1	8	346	0.380	90	94665.6
Dig/Lay/Bf pre-treatment to Drywell pipes	Rubber Tired Loaders	1	8	248	0.360	90	64281.6
Restore Surfacing	Pavers	1	8	74	0.420	24	5967.36
Restore Surfacing	Rollers	1	8	120	0.380	24	8755.2
Excavate for Diversion Struct (Cut and Cover)	Excavators	1	8	346	0.380	120	126220.8
Excavate for Diversion Struct (Cut and Cover)	Rubber Tired Loaders	1	8	248	0.360	120	85708.8
FRPS Diversion Structure Complete	Cranes	1	8	270	0.290	120	75168
FRPS Diversion Structure Complete	Forklifts	1	8	120	0.200	120	23040
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Stat	Excavators	1	8	346	0.380	165	173553.6
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Stat	Rubber Tired Loaders	1	8	248	0.360	165	117849.6
Shore/Excavate for Pump Station	Excavators	1	8	346	0.380	110	115702.4
Shore/Excavate for Pump Station	Rubber Tired Loaders	1	8	248	0.360	110	78566.4
Set/BF PreCast Pump Station	Cranes	1	8	270	0.290	40	25056
Set/BF PreCast Pump Station	Rubber Tired Loaders	1	8	248	0.360	40	28569.6
Dig/Lay/BF 20" pump sta to pre-treat	Excavators	1	8	346	0.380	44	46280.96
Dig/Lay/BF 20" pump sta to pre-treat	Rubber Tired Loaders	1	8	248	0.360	44	31426.56
Install pump Station Mechanical	Forklifts	1	8	120	0.200	80	15360
Install pump Station Elec - All	Forklifts	1	8	120	0.200	80	15360
Bypass/Demo Trunk Line in Diversion Struct	Generator Sets	1	8	122	0.740	24	17333.76
Bypass/Demo Trunk Line in Diversion Struct	Air Compressors	1	8	122	0.480	24	11243.52

Total >100HP	2,812,793.76
Total <100HP	108,824.40

Notes:
1. CARB, 2017 Off-road Diesel Emission Factors
https://ww3.arb.ca.gov/msei/ordiesel/ordas_ef_fcf_2017_v7.xlsx

Haul Trucks

Onroad Travel Consumption	Value
EMFAC2021 Diesel Fuel Consumption Factor (gal/mi):[1]	0.165
Total VMT (mi):	54,632
Total diesel gallons	**9,024**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.6400
Total Idle-Hours per Year:	227
Total diesel gallons	**145**

Total diesel gallons: 9,169

Phase	Total Truck Trips (In/Out)	Trip Length (miles)	Vehicle Category	VMT	Idle Hours	Onroad Travel Consumption (gal)	Idling Consumption (gal)	Total Fuel Consumption (gal)
SWC: Contractor Mobilization	0	20.10	HHDT	-	-	-	-	-
Excavation for Pre-Treatment Vault	324	20.10	HHDT	6512	27.00	1075.72	17.28	1093.00
FRPS Pre-Treatment Vault Complete	0	20.10	HHDT	-	-	-	-	-
Install Drywells	1044	20.10	HHDT	20984	87.00	3466.21	55.68	3521.89
Test Infiltration rate of drywells	0	20.10	HHDT	-	-	-	-	-
Dig/Lay/Bf pre-treatment to Drywell pipes	298	20.10	HHDT	5990	24.83	989.40	15.89	1005.29
Restore Surfacing	0	20.10	HHDT	-	-	-	-	-
Excavate for Diversion Struct (Cut and Cover)	426	20.10	HHDT	8563	35.50	1414.37	22.72	1437.09
FRPS Diversion Structure Complete	0	20.10	HHDT	-	-	-	-	-
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Dee	260	20.10	HHDT	5226	21.67	863.23	13.87	877.10
Shore/Excavate for Pump Station	292	20.10	HHDT	5869	24.33	969.48	15.57	985.05
Set/BF PreCast Pump Station	0	20.10	HHDT	-	-	-	-	-
Dig/Lay/BF 20" pump sta to pre-treat	74	20.10	HHDT	1487	6.17	245.69	3.95	249.64
Install pump Station Mechanical	0	20.10	HHDT	-	-	-	-	-
Install pump Station Elec - All	0	20.10	HHDT	-	-	-	-	-
Testing/Startup of Pump Station	0	20.10	HHDT	-	-	-	-	-
Bypass/Demo Trunk Line in Diversion Struct	0	20.10	HHDT	-	-	-	-	-
			Total VMT:	**54,632**		**9024.10**	**144.96**	**9,169.06**
			Total Idle-Hours:		**227**			

1. CARB, EMFAC2021 (BAAQMD; HHDT; Annual; CY 2022; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015.
https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

Vendor Trucks

Onroad Travel Consumption	Value
EMFAC2021 Diesel Fuel Consumption Factor (gal/mi):[1]	0.151
Total VMT (mi):	235,793
Total diesel gallons	**35,536**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.6400
Total Idle-Hours per Year:	2,807
Total diesel gallons	**1,797**
Total diesel gallons:	**37,333**

Phase	Days/year	Truck Trips per Day (In/Out)	Trip Length (miles)	Vehicle Category	VMT	Idle Hours	Onroad Travel Consumption (gal)	Idling Consumption (gal)	Total Fuel Consumption (gal)
SWC: Contractor Mobilization	10	12	7.00	HHDT/MHDT	840	10	126.60	6.40	133.00
Excavation for Pre-Treatment Vault	32	6	7.00	HHDT/MHDT	1,344	16	202.55	10.24	212.79
FRPS Pre-Treatment Vault Complete	120	12	7.00	HHDT/MHDT	10,080	120	1519.16	76.80	1595.96
Install Drywells	495	50	7.00	HHDT/MHDT	171,785	2,045	25889.65	1308.83	27198.48
Test Infiltration rate of drywells	80	6	7.00	HHDT/MHDT	3,360	40	506.39	25.60	531.99
Dig/Lay/Bf pre-treatment to Drywell pipes	90	6	7.00	HHDT/MHDT	3,780	45	569.68	28.80	598.48
Restore Surfacing	24	6	7.00	HHDT/MHDT	1,008	12	151.92	7.68	159.60
Excavate for Diversion Struct (Cut and Cover)	120	6	7.00	HHDT/MHDT	5,040	60	759.58	38.40	797.98
FRPS Diversion Structure Complete	120	12	7.00	HHDT/MHDT	10,080	120	1519.16	76.80	1595.96
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Dee	165	6	7.00	HHDT/MHDT	6,930	83	1044.42	52.80	1097.22
Shore/Excavate for Pump Station	110	6	7.00	HHDT/MHDT	4,620	55	696.28	35.20	731.48
Set/BF PreCast Pump Station	40	6	7.00	HHDT/MHDT	1,680	20	253.19	12.80	265.99
Dig/Lay/BF 20" pump sta to pre-treat	44	6	7.00	HHDT/MHDT	1,848	22	278.51	14.08	292.59
Install pump Station Mechanical	80	6	7.00	HHDT/MHDT	3,360	40	506.39	25.60	531.99
Install pump Station Elec - All	80	6	7.00	HHDT/MHDT	3,360	40	506.39	25.60	531.99
Testing/Startup of Pump Station	135	6	7.00	HHDT/MHDT	5,670	68	854.53	43.20	897.73
Bypass/Demo Trunk Line in Diversion Struct	24	6	7.00	HHDT/MHDT	1,008	12	151.92	7.68	159.60
				Total VMT:	**235,793**		**35,536.29**	**1,796.51**	**37,332.80**
				Total Idle-Hours:		**2,807**			

1. CARB, EMFAC2021 (BAAQMD; HHDT/MHDT; Annual; CY 2022; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015. https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

Worker Vehicles

Onroad Travel Consumption	Value
EMFAC2021 Gasoline Fuel Consumption Factor (gal/mi):[1]	0.037
Total VMT (mi):	207,378
Total gasoline gallons	**7,718**

Phase	Days/year	Vehicle Trips per day (In/Out)	Trip Length (miles)	Vehicle Category	VMT	Onroad Travel Consumption (gal)
SWC: Contractor Mobilization	10	0	14.80	LD Fleet Mix	0	0
Excavation for Pre-Treatment Vault	32	8	14.80	LD Fleet Mix	3,789	141
FRPS Pre-Treatment Vault Complete	120	8	14.80	LD Fleet Mix	14,208	529
Install Drywells	495	12	14.80	LD Fleet Mix	87,912	3,272
Test Infiltration rate of drywells	80	4	14.80	LD Fleet Mix	4,736	176
Dig/Lay/Bf pre-treatment to Drywell pipes	90	8	14.80	LD Fleet Mix	10,656	397
Restore Surfacing	24	8	14.80	LD Fleet Mix	2,842	106
Excavate for Diversion Struct (Cut and Cover)	120	8	14.80	LD Fleet Mix	14,208	529
FRPS Diversion Structure Complete	120	8	14.80	LD Fleet Mix	14,208	529
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	165	8	14.80	LD Fleet Mix	19,536	727
Shore/Excavate for Pump Station	110	8	14.80	LD Fleet Mix	13,024	485
Set/BF PreCast Pump Station	40	8	14.80	LD Fleet Mix	4,736	176
Dig/Lay/BF 20" pump sta to pre-treat	44	8	14.80	LD Fleet Mix	5,210	194
Install pump Station Mechanical	80	4	14.80	LD Fleet Mix	4,736	176
Install pump Station Elec - All	80	4	14.80	LD Fleet Mix	4,736	176
Testing/Startup of Pump Station	135	0	14.80	LD Fleet Mix	0	0
Bypass/Demo Trunk Line in Diversion Struct	24	8	14.80	LD Fleet Mix	2,842	106
				Total VMT:	**207,378**	**7,718**

1. CARB, EMFAC2021 (BAAQMD; LDA/LDT1/LDT2; Annual; CY 2022; Aggregate MY; Aggregate Speed,GAS)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015. https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

Idling Fuel Consumption Factors

VEHICLE TYPE	FUEL TYPE	ENGINE SIZE (LITER)	GROSS VEHICLE WEIGHT (GVW) (LBS)	IDLING FUEL USE (GAL/HR WITH NO LOAD)
Compact Sedan	Gas	2	-	0.16
Large Sedan	Gas	4.6	-	0.39
Compact Sedan	Diesel	2	-	0.17
Medium Heavy Truck	Gas	7-May	19,700-26,000	0.84
Delivery Truck	Diesel	-	19,500	0.84
Tow Truck	Diesel	-	26,000	0.59
Medium Heavy Truck	Diesel	10-Jun	23,000-33,000	0.44
Transit Bus	Diesel	-	30,000	0.97
Combination Truck	Diesel	-	32,000	0.49
Bucket Truck	Diesel	-	37,000	0.9
Tractor-Semitrailer	Diesel	-	80,000	0.64

Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015.
https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

This tool provides a quick estimation of the fuel use and emissions for your equipment in a specific year. The results may slightly differ from those from the official inventory model.

Instructions:

Enter the horsepewr, model year, and other details about your equipment in the Input box.

Make sure to update the ***load factor*** for your equipment using the lookup table.

The ***Output*** box gives a quick estimation of the fuel use, NOx, PM, and THC emission for your equipment.

Input	Input Engine Here
Horsepower (hp)	70
Model year	2011
Calendar year	2015
Activity (annual hours)	250
Accumulated hours on equipment (estimate using annual-hours*age if you only know the age of the equipment)	1000
Load factor (check the lookup table)	0.2

Results	
Fuel Used (gallon)	201
NOx Emissions (kg)	9.8
PM Emissions (kg)	0.5
THC Emissions (kg)	0.4
CO2 Emissions (kg)	2050.9
NOx Emission Factor (including deterioration and fuel correction factor): gram/bhp-hr	2.79
PM Emission Factor (including deterioration and fuel correction factor): gram/bhp-hr	0.15
THC Emission Factor (including deterioration and fuel correction factor): gram/ bhp-hr	0.11

Intermediate steps	
HPbin	75
NOx_EF0	2.90
NOx_DR	3.8E-05
NOx_FCF	0.950
PM_EF0	0.16
PM_DR	1.2E-05
PM_FCF	0.90
THC_EF0	0.10
THC_DR	2.5E-05
THC_FCF	0.90
NOx_EF (g/hp-hr)	2.79
PM_EF (g/hp-hr)	0.15
THC_EF (g/hp-hr)	0.11
CO2_EF (kg/gallon-diesel)*	10.21
BSFC (lb/hp-hr)	0.408
Unit conversion (lb/gallon)	7.109

*Reference: www.epa.gov/sites/production/files/2015-07/documents/emission-factors_2014.pdf

Loac Factor Lookup Table

Equipment Category	Equipment Type	Details	Load Factor
Agriculture equipment	Agricultural tractors		0.48
	Combine harvesters		0.44
	Forage & silage harvesters		0.44
	Cotton pickers		0.44
	Nut harvester		0.44
	Other harvesters		0.44
	Balers (self propelled)		0.50
	Bale wagons (self propelled)		0.50
	Swathers/windrowers/hay conditioners		0.48
	Hay Squeeze/Stack retriever		0.42
	Sprayers/Spray rigs		0.42
	Construction equipment		0.40
	Other non-mobile		0.48
	Forklifts		0.40
	Atvs		0.40
	Others		0.40
Portable equipment	All portable equipment		0.31
Cargo Handling Equipment	Construction equipment		0.55
	Container handling equipment		0.59
	Forklift		0.30
	Other general industrial equipment		0.51
	Rtg crane		0.20
	Yard tractor		0.39
Transport Refrigeration Units (TRU)	TRU on trailers	25 HP and over, MY2012 and Older	0.46
	TRU on trailers	25 HP and over, MY2013 and Newer	0.38
	TRU on trailers	23 HP and Over, below 25 HP, All years	0.46
	TRU on trucks	Below 23 HP, All Model years	0.56
	TRU on railcars	25 HP and over, MY2012 and Older	0.33
	TRU on railcars	25 HP and over, MY2013 and Newer	0.27
	TRU on railcars	Below 25 HP, All Model years	0.33
	TRU with generators	25 HP and over, MY2012 and Older	0.46
	TRU with generators	25 HP and Over, MY2013 and Newer	0.38
	TRU with generators	23 HP and Over, below 25 HP, All Model Years	0.46
Ground Support Equipment	Passenger Stand		0.40
	A/C Tug Narrow Body		0.54
	A/C Tug Wide Body		0.54
	Baggage Tug		0.37
	Belt Loader		0.34
	Bobtail		0.37
	Cargo Loader		0.34
	Cargo Tractor		0.36
	Forklift (GSE)		0.20
	Lift (GSE)		0.34
	Other GSE		0.34
	Cranes		0.29
	Crawler Tractors		0.43
	Excavators		0.38
	Graders		0.41
	Off-Highway Tractors		0.44

[redacted]

Construction and Industrial Equipment	Off-Highway Trucks		0.38
	Other Construction Equipment		0.42
	Pavers		0.42
	Paving Equipment		0.36
	Rollers		0.38
	Rough Terrain Forklifts		0.40
	Rubber Tired Dozers		0.40
	Rubber Tired Loaders		0.36
	Scrapers		0.48
	Skid Steer Loaders		0.37
	Surfacing Equipment		0.30
	Tractors/Loaders/Backhoes		0.37
	Trenchers		0.50
	Aerial Lifts		0.31
	Forklifts		0.20
	Other General Industrial Equipment		0.34
	Other Material Handling Equipment		0.40
	Sweepers/Scrubbers		0.46
Oil and Drill Rigs	Drill Rig (Mobile)		0.50
	Workover Rig (Mobile)		0.50
	Bore/Drill Rigs		0.50

[redacted]

Worker Fuel Consumption Factor **Year: 2024**

Vehicle Category	VMT (mi/day)	Fuel Consumption (1000gal/day)	Fuel Consumption Factor (gal/mi)	Fuel Economy (mi/gal)	Fleet Mix	Fuel Consumption Factor (gal/mi)
LDA	218661478.4	7518.83	0.034	29.08	64%	0.037
LDT1	18293108.56	753.63	0.041	24.27	5%	
LDT2	105566684.3	4474.43	0.042	23.59	31%	

Source: EMFAC2021, **Output:** Onroad Emissions, **Model Version:** EMFAC2021 v1.0.0, **Air District:** SCAQMD, **Vehicle Categories:** EMFAC2007, **Model Year:** Aggregate, **Speed:** Aggregate, **Fuel:** All, **Output Unit:** tons/operation day

2024

Vehicle Category	VMT (miles/day)	Fuel Consumption (1000 gal/day)	Fuel Consumption Factor (gal/mi)	Fuel Economy (mi/gal)	Fleet Mix	Fuel Consumption Factor (gal/mi)
HHDT	13368763.56	2208.3	0.165	6.05	73%	0.151
MHDT	5002001.319	560.4	0.112	8.93	27%	

Source: EMFAC2021, **Output:** Onroad Emissions, **Model Version:** EMFAC2021 v1.0.0, **Air District:** SCAQMD, **Vehicle Categories:** EMFAC2007, **Model Year:** Aggregate, **Speed:** Aggregate, **Fuel:** All, **Output Unit:** tons/operation day

PhaseName	PhaseType	PhaseStartDate	PhaseEndDate	NumDaysWeek	NumDays
SWC: Contractor Mobilization		6/13/2024	6/26/2024	5	10
Excavation for Pre-Treatment Vault		6/27/2024	8/11/2024	5	32
FRPS Pre-Treatment Vault Complete		7/3/2024	12/17/2024	5	120
Install Drywells		6/27/2024	5/20/2026	5	495
Test Infiltration rate of drywells		10/9/2024	1/28/2025	5	80
Dig/Lay/Bf pre-treatment to Drywell pipes		10/23/2024	2/25/2025	5	90
Restore Surfacing		11/12/2024	12/15/2024	5	24
Excavate for Diversion Struct (Cut and Cover)		7/3/2024	12/17/2024	5	120
FRPS Diversion Structure Complete		7/25/2024	1/8/2025	5	120
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gra		8/15/2024	4/2/2025	5	165
Shore/Excavate for Pump Station		7/25/2024	12/25/2024	5	110
Set/BF PreCast Pump Station		8/1/2024	9/25/2024	5	40
Dig/Lay/BF 20" pump sta to pre-treat		8/8/2024	10/8/2024	5	44
Install pump Station Mechanical		8/9/2024	11/28/2024	5	80
Install pump Station Elec - All		8/23/2024	12/12/2024	5	80
Testing/Startup of Pump Station		3/5/2025	9/9/2025	5	135
Bypass/Demo Trunk Line in Diversion Struct		3/19/2025	4/21/2025	5	24

Notes:
1. Contractor Mobilization and Testing/Startup would only include Vendor Trips.

	Start	End		
Construction Duration (years)	2024/06/13	2026/05/20	706	1.93

(Millions of Gallons)

County	2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)
Alameda	456	551	476	548	480	568	473	603	341	491	432	542	518	582	521	583	495	569	505	591	400	442
Amador	12	15	12	14	12	14	10	12	11	15	10	13	12	14	13	15	14	17	16	18	12	13
Butte	66	81	70	81	66	78	64	81	59	85	62	78	74	83	78	87	75	86	62	78	58	68
Calaveras	11	14	12	14	10	12	10	13	10	14	11	14	13	15	14	15	13	15	14	15	14	15
Colusa	13	17	9	11	8	10	10	13	7	10	7	9	10	11	11	12	11	13	11	13	12	15
Contra Costa	332	403	344	395	354	419	331	422	272	392	303	380	384	431	385	430	346	397	374	427	304	336
Del Norte	6	8	6	7	6	7	4	5	5	7	5	6	6	7	6	7	6	7	4	6	5	5
El Dorado	55	68	57	67	64	75	56	72	36	52	65	81	72	81	73	82	66	76	64	74	58	62
Fresno	285	342	290	335	288	341	269	344	209	300	264	331	318	358	328	367	320	368	306	376	296	347
Glenn	12	14	12	14	11	12	11	14	11	16	13	16	15	17	17	18	15	17	14	18	13	15
Humboldt	44	54	46	54	45	53	51	64	31	44	47	59	54	61	49	55	51	58	42	53	51	56
Imperial	56	69	51	60	46	54	46	58	58	83	63	79	77	86	74	83	78	89	73	86	59	64
Inyo	16	19	16	18	13	16	12	16	12	17	14	18	16	18	16	18	16	18	14	17	14	16
Kern	293	362	309	359	301	356	287	367	267	384	299	375	362	407	349	390	345	396	340	392	318	364
Kings	42	51	41	48	40	47	38	49	31	45	41	51	50	57	54	60	52	60	67	76	49	52
Lake	20	25	18	22	17	20	19	24	17	25	19	23	19	21	19	21	20	23	18	24	17	20
Lassen	6	7	6	7	5	6	5	6	6	8	7	9	7	8	5	6	4	5	5	7	6	6
Los Angeles	3,005	3,658	3,069	3,554	2,916	3,451	2,700	3,445	2,606	3,749	2,762	3,465	3,184	3,577	3,272	3,659	3,169	3,638	3,189	3,559	2,513	2,770
Madera	47	57	54	61	44	53	43	54	31	45	35	44	52	59	56	62	49	57	44	62	45	63
Marin	78	94	91	103	91	107	83	106	52	75	83	105	91	102	90	101	71	82	86	96	72	77
Mariposa	6	7	6	7	5	6	4	5	6	9	5	6	7	8	5	6	6	7	7	8	4	5
Mendocino	33	41	34	40	36	43	33	42	28	40	32	40	37	42	34	38	35	40	27	44	35	37
Merced	86	106	81	95	78	92	74	94	58	83	84	105	101	114	105	117	115	132	100	119	91	106
Mono	6	7	5	6	2	2	6	8	6	8	6	7	7	8	5	5	6	7	7	8	6	7
Monterey	124	152	134	155	124	147	139	177	87	126	147	184	157	177	155	174	157	181	148	174	123	141
Napa	42	52	42	47	49	58	41	52	27	39	50	63	50	57	47	53	53	61	54	57	40	44
Nevada	34	42	30	35	29	34	19	25	19	27	31	40	36	40	35	39	33	38	29	39	31	36
Orange	1,162	1,406	1,162	1,338	1,145	1,355	1,044	1,332	1,018	1,465	1,092	1,370	1,224	1,375	1,236	1,382	1,222	1,402	1,198	1,325	943	1,029
Placer	154	190	162	189	162	192	131	167	118	170	167	209	181	204	182	203	179	206	177	198	150	163
Plumas	6	7	7	8	6	7	3	4	5	8	5	7	5	5	5	6	5	6	5	6	5	6
Riverside	781	952	792	916	756	895	725	925	702	1,010	828	1,039	921	1,035	941	1,052	916	1,052	921	1,046	799	876
Sacramento	467	566	482	553	473	560	446	568	308	442	465	584	534	600	535	599	511	586	536	600	475	689
San Benito	15	18	14	16	17	20	5	7	10	14	12	15	15	17	18	20	15	17	12	21	10	18
San Bernardino	747	902	761	871	742	878	697	889	659	948	725	909	899	1,010	888	993	862	990	851	977	757	823
San Diego	1,094	1,320	1,122	1,291	1,079	1,277	972	1,241	940	1,352	1,123	1,408	1,221	1,372	1,231	1,377	1,208	1,387	1,197	1,325	973	1,055
San Francisco	112	138	129	151	126	149	126	161	71	102	107	134	119	134	120	134	105	120	107	118	76	91
San Joaquin	248	303	260	301	253	299	254	325	217	312	287	360	303	340	310	347	293	336	289	352	255	292
San Luis Obispo	121	147	123	144	105	124	109	140	101	145	117	147	127	142	127	142	131	150	125	138	103	115
San Mateo	232	275	272	310	258	306	244	311	159	229	243	304	289	325	291	326	264	304	293	322	215	238
Santa Barbara	141	174	140	164	140	166	135	172	124	178	148	186	161	181	152	170	167	191	166	177	136	146
Santa Clara	514	621	600	691	589	697	546	696	460	661	580	727	638	717	613	685	560	643	614	713	446	511
Santa Cruz	84	103	91	106	89	105	79	101	53	77	77	96	85	95	84	94	78	90	72	90	69	74
Shasta	72	88	73	85	77	91	65	83	55	79	76	95	73	82	83	92	76	87	72	82	68	76
Siskiyou	20	25	17	19	19	23	9	12	10	14	21	27	24	27	26	29	25	28	26	27	22	25
Solano	158	190	191	218	180	213	158	202	116	167	160	201	187	210	194	217	188	216	182	216	155	180
Sonoma	157	189	155	178	160	189	163	208	146	210	160	201	186	209	186	208	167	192	169	204	146	167
Stanislaus	191	230	184	212	173	205	144	183	159	229	201	252	217	244	227	253	212	244	196	245	178	197
Sutter	30	37	31	37	34	40	33	42	17	24	30	38	35	39	35	39	35	40	27	38	28	30
Tehama	27	33	24	28	23	27	19	24	18	26	24	30	25	29	26	29	27	31	28	30	25	26
Trinity	3	4	3	4	1	2	3	4	3	4	3	4	4	5	4	5	4	4	2	4	3	4
Tulare	109	132	121	139	120	142	91	116	107	155	114	143	136	152	149	167	147	168	144	174	126	149
Tuolumne	14	17	13	16	15	18	12	15	14	21	18	23	21	23	22	25	22	25	21	23	19	20
Ventura	285	345	290	335	262	310	246	314	249	358	256	321	294	330	302	338	298	342	297	329	242	262
Yolo	82	100	76	87	74	87	75	96	63	90	82	103	98	110	101	113	96	110	97	114	76	91
Yuba	24	29	26	30	22	26	23	30	14	20	24	30	32	36	30	34	40	46	27	32	26	35
Other Counties*	2	3	2	2	1	2	1	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2
Total	**12,238**	**14,860**	**12,644**	**14,596**	**12,241**	**14,486**	**11,396**	**14,540**	**10,220**	**14,701**	**12,044**	**15,108**	**13,785**	**15,491**	**13,936**	**15,584**	**13,475**	**15,471**	**13,473**	**15,365**	**11,174**	**12,572**

[A] 2012 to 2020 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

* Other Counties include Alpine, Modoc and Sierra.

* Other Counties include Alpine, Modoc and Sierra.

iesel Sales by County

(Millions of Gallons)

County	2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)
Alameda	29	32	26	28	30	36	27	34	19	27	38	49	47	54	51	58	56	62	48	55	47	51
Amador	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	2	2	3	3	3	2	2
Butte	9	10	9	10	7	9	8	10	8	10	9	11	11	13	11	13	12	13	12	15	10	11
Calaveras	2	2	2	2	2	2	1	2	1	2	2	2	3	3	3	3	2	3	3	3	3	3
Colusa	3	3	2	3	4	5	4	5	2	2	3	4	4	4	2	3	4	4	7	7	10	11
Contra Costa	15	18	19	21	17	20	17	21	12	17	19	24	23	26	24	28	31	34	24	27	22	23
Del Norte	1	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	2	1	2
El Dorado	6	8	6	7	6	7	5	6	4	6	7	9	8	9	8	10	8	9	8	10	8	8
Fresno	30	33	35	38	33	40	23	29	18	25	39	50	40	46	40	45	46	51	39	49	62	66
Glenn	5	5	4	4	4	5	4	5	4	5	5	6	12	14	16	19	16	17	18	19	17	18
Humboldt	10	12	10	12	10	12	11	14	4	5	10	13	13	14	8	9	7	8	6	7	6	6
Imperial	9	10	8	9	7	8	8	10	8	11	9	11	14	16	11	12	20	22	21	25	22	24
Inyo	3	4	3	4	2	2	3	4	3	3	3	4	3	4	3	4	3	3	3	4	3	4
Kern	111	117	125	129	133	158	118	148	124	171	125	160	131	149	107	121	97	108	96	105	108	116
Kings	7	7	7	8	7	9	5	6	4	6	7	9	5	6	7	7	8	9	8	9	7	7
Lake	3	3	3	3	2	2	2	3	2	3	3	3	1	1	3	3	3	4	3	4	3	4
Lassen	1	1	1	2	1	1	1	1	1	2	3	3	4	4	1	1	1	1	1	2	1	1
Los Angeles	212	235	221	239	205	245	190	239	194	267	257	328	273	309	267	301	228	253	246	276	279	299
Madera	23	24	23	24	24	28	18	23	22	31	26	33	28	31	29	33	28	31	23	24	30	32
Marin	3	4	2	3	3	3	2	3	2	2	2	3	4	4	4	4	3	3	4	4	4	4
Mariposa	1	1	1	1	1	1	-	1	2	2	1	1	1	2	1	1	1	1	1	1	1	1
Mendocino	6	7	7	8	7	9	6	6	4	5	6	7	9	10	6	6	5	6	5	8	9	9
Merced	44	45	37	38	46	55	49	62	49	68	54	69	59	66	38	42	35	39	28	36	28	30
Mono	1	1	1	1	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monterey	21	23	24	26	25	30	22	27	13	18	23	29	24	28	24	27	24	26	23	26	21	22
Napa	2	2	2	2	6	7	2	3	2	3	6	8	6	7	6	7	6	7	6	7	6	6
Nevada	5	5	5	5	4	4	1	2	4	6	7	8	8	9	8	9	7	8	5	8	7	8
Orange	38	47	36	42	38	46	33	42	37	51	46	59	52	59	54	61	49	55	51	56	49	53
Placer	13	16	13	15	12	15	9	12	10	13	13	16	15	17	15	17	16	17	16	17	32	35
Plumas	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1
Riverside	84	93	87	94	89	107	86	109	100	138	119	152	128	145	131	148	119	132	108	122	134	144
Sacramento	33	37	32	35	27	32	18	21	21	29	28	36	38	42	42	48	41	45	37	41	41	44
San Bernardino	141	149	136	142	158	189	164	206	152	210	198	253	223	252	235	265	176	195	165	178	148	159
San Diego	69	80	64	72	62	74	58	73	67	93	87	111	93	105	92	103	92	103	94	110	88	94
San Francisco	3	3	3	3	3	4	4	5	1	2	5	6	6	6	5	6	5	5	5	5	4	4
San Joaquin	73	75	85	87	84	99	90	113	86	119	102	131	116	131	111	126	105	117	101	113	86	93
San Luis Obispo	12	14	16	18	11	13	9	12	12	17	19	24	20	23	19	21	20	22	20	22	19	20

iesel Sales by County

(Millions of Gallons)

County	2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)
Alameda	29	32	26	28	30	36	27	34	19	27	38	49	47	54	51	58	56	62	48	55	47	51
San Mateo	10	12	8	10	8	10	8	10	4	6	15	19	13	14	15	17	16	17	18	19	12	13
Santa Barbara	13	14	16	17	10	13	12	15	13	18	20	26	22	25	17	19	21	24	18	19	16	17
Santa Clara	23	26	26	28	27	32	28	35	25	35	36	47	30	34	32	36	43	48	33	42	32	35
Santa Cruz	4	5	5	6	4	5	4	6	2	3	5	6	5	6	6	6	6	7	4	6	7	8
Shasta	20	23	19	21	16	19	18	22	13	18	21	27	21	24	22	25	21	24	14	16	13	14
Siskiyou	5	6	11	11	16	20	15	19	16	20	20	26	19	22	18	21	16	17	16	17	17	18
Solano	14	17	18	20	14	16	14	17	8	11	14	18	17	19	22	24	23	25	24	27	25	27
Sonoma	14	16	18	19	13	16	14	18	12	17	15	20	20	23	20	23	20	22	28	32	28	30
Stanislaus	33	36	27	29	25	30	15	19	20	27	26	33	20	22	30	34	32	36	33	35	36	39
Sutter	4	5	2	3	3	4	4	5	2	3	4	5	5	6	3	4	4	5	5	6	5	5
Tehama	31	32	38	39	35	42	37	47	25	35	37	48	35	39	34	38	18	20	17	18	7	8
Tulare	23	25	33	35	27	32	31	39	31	43	34	43	37	42	37	41	31	34	42	45	47	51
Tuolumne	2	2	2	2	1	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	3
Ventura	20	23	32	34	23	27	23	29	25	34	27	34	29	32	32	36	30	33	33	35	29	32
Yolo	33	34	26	27	27	33	30	37	29	40	27	35	32	37	27	30	25	28	24	26	21	22
Yuba	4	4	4	5	3	4	3	4	2	3	2	3	4	5	8	9	11	12	4	5	4	4
Other Counties*	1	2	2	2	1	2	1	1	1	2	2	2	3	3	3	3	2	2	2	3	2	2
Total	**1,285**	**1,414**	**1,346**	**1,447**	**1,327**	**1,589**	**1,261**	**1,587**	**1,226**	**1,691**	**1,592**	**2,033**	**1,742**	**1,971**	**1,717**	**1,937**	**1,602**	**1,777**	**1,559**	**1,756**	**1,624**	**1,744**

[A] - 2012-2020 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

* Other Counties include Alpine, Modoc, San Benito, Sierra and Trinity.

Note: Non-Retail diesel sales, which comprise approximately 51% of all diesel sales, are not reported in this chart.

Note: Non-Retail diesel sales, which comprise approximately 52.8% of all diesel sales, are not reported in this chart.

Operations Energy Consumption Summary - 2026 Ops year.

Transportation Fuel

Fuel Type	Gallons/Year
GAS	7
DSL	1

County: Los Angeles

Fuel Type	Gallons (Retail + Non-Retail)[1]	Percent of Project Compared to County
Gas	2,770,000,000	0.0000003%
Diesel	622,916,667	0.0000002%

Electricity

Comparison	GWh/year
Los Angeles County (2020)[2]	42,736.77
Project Electricity	0.12
Project % of Sales	0.0003%

1. California Energy Commission, California Annual Retail Fuel Outlet Report Results (CEC-A15), 2010-2020
https://www.energy.ca.gov/media/3874
Accessed March 2022.Non-Retail diesel sales, which comprise approximately 51% of all diesel sales, are not reported in this total.
2.California Energy Commission, *Electricity Consumption By County - Los Angeles 2020 Non-Residential*
http://www.ecdms.energy.ca.gov/elecbycounty.aspx?msclkid=c6576070a71211ec90029fbdf184242d

Utility Consumption

Electricity[3]

Land Use	kWh/year	GWh/year
Infiltration and Treatment of Water	118,700	0.119
Total	**118,700**	**0.119**

Comparison	GWh/year
Los Angeles County Non-Residential Electricity Consumption	42,736.77
Project Electricity	0.12
Project % of Sales	0.0003%

Notes:

1 California Energy Commission, *Electricity Consumption By County - Los Angeles 2020 Non-Residential*
http://www.ecdms.energy.ca.gov/elecbycounty.aspx?msclkid=c6576070a71211ec90029fbdf184242d

Fuel Consumption - 2026

					Annual Miles			
					199.20			
	Gal/mi		Fuel Distribution			Miles/Vehicle	Gallons of Fuel	
Vehicle Category	DSL	GAS	DSL	GAS	Fleet Mix	Category	DSL	GAS
HHDT	0.16	0.24	100.0%	0.0%	3.12%	6.22	1.00	0.00
LDA	0.02	0.03	0.2%	99.8%	47.94%	95.50	0.00	3.17
LDT1	0.04	0.04	0.0%	99.99%	3.99%	7.95	0.00	0.32
LDT2	0.03	0.04	0.4%	99.6%	24.71%	49.21	0.01	2.00
LHDT1	0.05	0.07	37.1%	62.9%	2.91%	5.79	0.10	0.26
LHDT2	0.06	0.08	64.5%	35.5%	0.74%	1.48	0.05	0.04
MCY	0.00	0.02	0.0%	100.0%	0.37%	0.73	0.00	0.02
MDV	0.04	0.05	1.2%	98.8%	14.53%	28.94	0.01	1.43
MH	0.10	0.21	31.0%	69.0%	0.09%	0.18	0.01	0.03
MHDT	0.11	0.19	79.6%	20.4%	1.44%	2.86	0.25	0.11
OBUS	0.14	0.19	54.6%	45.4%	0.10%	0.20	0.02	0.02
SBUS	0.14	0.11	32.8%	67.2%	0.04%	0.09	0.00	0.01
UBUS	0.15	0.14	1.4%	98.6%	0.02%	0.04	0.00	0.01
					Project	**199.20**	**1.46**	**7.40**
* Six yearly trips with CalEEMod default for Commercial-Work trip lengths.							8.85	0.84

1	2.0	3.0	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
									(Millions of Gallons)													
County	2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)
Alameda	456	551	476	548	480	568	473	603	341	491	432	542	518	582	521	583	495	569	505	591	400	442
Amador	12	15	12	14	12	14	10	12	11	15	10	13	12	14	13	15	14	17	16	18	12	13
Butte	66	81	70	81	66	78	64	81	59	85	62	78	74	83	78	87	75	86	62	78	58	68
Calaveras	11	14	12	14	10	12	10	13	10	14	11	14	13	15	14	15	13	15	14	15	14	15
Colusa	13	17	9	11	8	10	10	13	7	10	7	9	10	11	11	12	11	13	11	13	12	15
Contra Costa	332	403	344	395	354	419	331	422	272	392	303	380	384	431	385	430	346	397	374	427	304	336
Del Norte	6	8	6	7	6	7	4	5	5	7	5	6	6	7	6	7	6	7	4	6	5	5
El Dorado	55	68	57	67	64	75	56	72	36	52	65	81	72	81	73	82	66	76	64	74	58	62
Fresno	285	342	290	335	288	341	269	344	209	300	264	331	318	358	328	367	320	368	306	376	296	347
Glenn	12	14	12	14	11	12	11	14	11	16	13	16	15	17	17	18	15	17	14	18	13	15
Humboldt	44	54	46	54	45	53	51	64	31	44	47	59	54	61	49	55	51	58	42	53	51	56
Imperial	56	69	51	60	46	54	46	58	58	83	63	79	77	86	74	83	78	89	73	86	59	64
Inyo	16	19	16	18	13	16	12	16	12	17	14	18	16	18	16	18	16	18	14	17	14	16
Kern	293	362	309	359	301	356	287	367	267	384	299	375	362	407	349	390	345	396	340	392	318	364
Kings	42	51	41	48	40	47	38	49	31	45	41	51	50	57	54	60	52	60	67	76	49	52
Lake	20	25	18	22	17	20	19	24	17	25	19	23	19	21	19	21	20	23	18	24	17	20
Lassen	6	7	6	7	5	6	5	6	6	8	7	9	7	8	5	6	4	5	5	7	6	6
Los Angeles	3,005	3,658	3,069	3,554	2,916	3,451	2,700	3,445	2,606	3,749	2,762	3,465	3,184	3,577	3,272	3,659	3,169	3,638	3,189	3,559	2,513	2,770
Madera	47	57	54	61	44	53	43	54	31	45	35	44	52	59	56	62	49	57	44	62	45	63
Marin	78	94	91	103	91	107	83	106	52	75	83	105	91	102	90	101	71	82	86	96	72	77
Mariposa	6	7	6	7	5	6	4	5	6	9	5	6	7	8	5	6	6	7	7	8	4	5
Mendocino	33	41	34	40	36	43	33	42	28	40	32	40	37	42	34	38	35	40	27	44	35	37
Merced	86	106	81	95	78	92	74	94	58	83	84	105	101	114	105	117	115	132	100	119	91	106
Mono	6	7	5	6	2	2	6	8	6	8	6	7	7	8	5	5	6	7	7	8	6	7
Monterey	124	152	134	155	124	147	139	177	87	126	147	184	157	177	155	174	157	181	148	174	123	141
Napa	42	52	42	47	49	58	41	52	27	39	50	63	50	57	47	53	53	61	54	57	40	44
Nevada	34	42	30	35	29	34	19	25	19	27	31	40	36	40	35	39	33	38	29	39	31	36
Orange	1,162	1,406	1,162	1,338	1,145	1,355	1,044	1,332	1,018	1,465	1,092	1,370	1,224	1,375	1,236	1,382	1,222	1,402	1,198	1,325	943	1,029
Placer	154	190	162	189	162	192	131	167	118	170	167	209	181	204	182	203	179	206	177	198	150	163
Plumas	6	7	7	8	6	7	3	4	5	8	5	7	5	5	5	6	5	6	5	6	5	6
Riverside	781	952	792	916	756	895	725	925	702	1,010	828	1,039	921	1,035	941	1,052	916	1,052	921	1,046	799	876
Sacramento	467	566	482	553	473	560	446	568	308	442	465	584	534	600	535	599	511	586	536	600	475	689
San Benito	15	18	14	16	17	20	5	7	10	14	12	15	15	17	18	20	15	17	12	21	10	18
San Bernardino	747	902	761	871	742	878	697	889	659	948	725	909	899	1,010	888	993	862	990	851	977	757	823
San Diego	1,094	1,320	1,122	1,291	1,079	1,277	972	1,241	940	1,352	1,123	1,408	1,221	1,372	1,231	1,377	1,208	1,387	1,197	1,325	973	1,055
San Francisco	112	138	129	151	126	149	126	161	71	102	107	134	119	134	120	134	105	120	107	118	76	91
San Joaquin	248	303	260	301	253	299	254	325	217	312	287	360	303	340	310	347	293	336	289	352	255	292
San Luis Obispo	121	147	123	144	105	124	109	140	101	145	117	147	127	142	127	142	131	150	125	138	103	115
San Mateo	232	275	272	310	258	306	244	311	159	229	243	304	289	325	291	326	264	304	293	322	215	238
Santa Barbara	141	174	140	164	140	166	135	172	124	178	148	186	161	181	152	170	167	191	166	177	136	146
Santa Clara	514	621	600	691	589	697	546	696	460	661	580	727	638	717	613	685	560	643	614	713	446	511
Santa Cruz	84	103	91	106	89	105	79	101	53	77	77	96	85	95	84	94	78	90	72	90	69	74
Shasta	72	88	73	85	77	91	65	83	55	79	76	95	73	82	83	92	76	87	72	82	68	76
Siskiyou	20	25	17	19	19	23	9	12	10	14	21	27	24	27	26	29	25	28	26	27	22	25
Solano	158	190	191	218	180	213	158	202	116	167	160	201	187	210	194	217	188	216	182	216	155	180
Sonoma	157	189	155	178	160	189	163	208	146	210	160	201	186	209	186	208	167	192	169	204	146	167
Stanislaus	191	230	184	212	173	205	144	183	159	229	201	252	217	244	227	253	212	244	196	245	178	197
Sutter	30	37	31	37	34	40	33	42	17	24	30	38	35	39	35	39	35	40	27	38	28	30
Tehama	27	33	24	28	23	27	19	24	18	26	24	30	25	29	26	29	27	31	28	30	25	26
Trinity	3	4	3	4	1	2	3	4	3	4	3	4	4	5	4	5	4	4	2	4	3	4
Tulare	109	132	121	139	120	142	91	116	107	155	114	143	136	152	149	167	147	168	144	174	126	149
Tuolumne	14	17	13	16	15	18	12	15	14	21	18	23	21	23	22	25	22	25	21	23	19	20
Ventura	285	345	290	335	262	310	246	314	249	358	256	321	294	330	302	338	298	342	297	329	242	262
Yolo	82	100	76	87	74	87	75	96	63	90	82	103	98	110	101	113	96	110	97	114	76	91
Yuba	24	29	26	30	22	26	23	30	14	20	24	30	32	36	30	34	40	46	27	32	26	35
Other Counties*	2	3	2	2	1	2	1	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2
Total	**12,238**	**14,860**	**12,644**	**14,596**	**12,241**	**14,486**	**11,396**	**14,540**	**10,220**	**14,701**	**12,044**	**15,108**	**13,785**	**15,491**	**13,936**	**15,584**	**13,475**	**15,471**	**13,473**	**15,365**	**11,174**	**12,572**

[A] - 2012 to 2020 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

* Other Counties include Alpine, Modoc and Sierra.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
iesel Sales by County (Millions of Gallons)																						
County	**2010 Survey Responses (Millions of Gallons)**	**2010 Estimated Totals (Millions of Gallons)**	**2011 Survey Responses (Millions of Gallons)**	**2011 Estimated Totals (Millions of Gallons)**	**2012[A] Survey Responses (Millions of Gallons)**	**2012[A] Estimated Totals (Millions of Gallons)**	**2013[A] Survey Responses (Millions of Gallons)**	**2013[A] Estimated Totals (Millions of Gallons)**	**2014[A] Survey Responses (Millions of Gallons)**	**2014[A] Estimated Totals (Millions of Gallons)**	**2015[A] Survey Responses (Millions of Gallons)**	**2015[A] Estimated Totals (Millions of Gallons)**	**2016[A] Survey Responses (Millions of Gallons)**	**2016[A] Estimated Totals (Millions of Gallons)**	**2017[A] Survey Responses (Millions of Gallons)**	**2017[A] Estimated Totals (Millions of Gallons)**	**2018[A] Survey Responses (Millions of Gallons)**	**2018[A] Estimated Totals (Millions of Gallons)**	**2019[A] Survey Responses (Millions of Gallons)**	**2019[A] Estimated Totals (Millions of Gallons)**	**2020[A] Survey Responses (Millions of Gallons)**	**2020[A] Estimated Totals (Millions of Gallons)**
Alameda	29	32	26	28	30	36	27	34	19	27	38	49	47	54	51	58	56	62	48	55	47	51
Amador	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	2	2	3	3	3	2	2
Butte	9	10	9	10	7	9	8	10	8	10	9	11	11	13	11	13	12	13	12	15	10	11
Calaveras	2	2	2	2	2	2	1	2	1	2	2	2	3	3	3	3	2	3	3	3	3	3
Colusa	3	3	2	3	4	5	4	5	2	2	3	4	4	4	2	3	4	4	7	7	10	11
Contra Costa	15	18	19	21	17	20	17	21	12	17	19	24	23	26	24	28	31	34	24	27	22	23
Del Norte	1	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	2	1	2
El Dorado	6	8	6	7	6	7	5	6	4	6	7	9	8	9	8	10	8	9	8	10	8	8
Fresno	30	33	35	38	33	40	23	29	18	25	39	50	40	46	40	45	46	51	39	49	62	66
Glenn	5	5	4	4	4	5	4	5	4	5	5	6	12	14	16	19	16	17	18	19	17	18
Humboldt	10	12	10	12	10	12	11	14	4	5	10	13	13	14	8	9	7	8	6	7	6	6
Imperial	9	10	8	9	7	8	8	10	8	11	9	11	14	16	11	12	20	22	21	25	22	24
Inyo	3	4	3	4	2	2	3	4	3	3	3	4	3	4	3	4	3	3	3	4	3	4
Kern	111	117	125	129	133	158	118	148	124	171	125	160	131	149	107	121	97	108	96	105	108	116
Kings	7	7	7	8	7	9	5	6	4	6	7	9	5	6	7	7	8	9	8	9	7	7
Lake	3	3	3	3	2	2	2	3	2	3	3	3	1	1	3	3	3	4	3	4	3	4
Lassen	1	1	1	2	1	1	1	1	1	2	3	3	4	4	1	1	1	1	1	2	1	1
Los Angeles	212	235	221	239	205	245	190	239	194	267	257	328	273	309	267	301	228	253	246	276	279	299
Madera	23	24	23	24	24	28	18	23	22	31	26	33	28	31	29	33	28	31	23	24	30	32
Marin	3	4	2	3	3	3	2	3	2	2	2	3	4	4	4	4	3	3	4	4	4	4
Mariposa	1	1	1	1	1	1	-	1	2	2	1	1	1	2	1	1	1	1	1	1	1	1
Mendocino	6	7	7	8	7	9	6	6	4	5	6	7	9	10	6	6	5	6	5	8	9	9
Merced	44	45	37	38	46	55	49	62	49	68	54	69	59	66	38	42	35	39	28	36	28	30
Mono	1	1	1	1	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monterey	21	23	24	26	25	30	22	27	13	18	23	29	24	28	24	27	24	26	23	26	21	22
Napa	2	2	2	2	6	7	2	3	2	3	6	8	6	7	6	7	6	7	6	7	6	6
Nevada	5	5	5	5	4	4	1	2	4	6	7	8	8	9	8	9	7	8	5	8	7	8
Orange	38	47	36	42	38	46	33	42	37	51	46	59	52	59	54	61	49	55	51	56	49	53
Placer	13	16	13	15	12	15	9	12	10	13	13	16	15	17	15	17	16	17	16	17	32	35
Plumas	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1
Riverside	84	93	87	94	89	107	86	109	100	138	119	152	128	145	131	148	119	132	108	122	134	144
Sacramento	33	37	32	35	27	32	18	21	21	29	28	36	38	42	42	48	41	45	37	41	41	44
San Bernardino	141	149	136	142	158	189	164	206	152	210	198	253	223	252	235	265	176	195	165	178	148	159
San Diego	69	80	64	72	62	74	58	73	67	93	87	111	93	105	92	103	92	103	94	110	88	94
San Francisco	3	3	3	3	3	4	4	5	1	2	5	6	6	6	5	6	5	5	5	5	4	4
San Joaquin	73	75	85	87	84	99	90	113	86	119	102	131	116	131	111	126	105	117	101	113	86	93
San Luis Obispo	12	14	16	18	11	13	9	12	12	17	19	24	20	23	19	21	20	22	20	22	19	20
San Mateo	10	12	8	10	8	10	8	10	4	6	15	19	13	14	15	17	16	17	18	19	12	13
Santa Barbara	13	14	16	17	10	13	12	15	13	18	20	26	22	25	17	19	21	24	18	19	16	17

Santa Clara	23	26	26	28	27	32	28	35	25	35	36	47	30	34	32	36	43	48	33	42	32	35
Santa Cruz	4	5	5	6	4	5	4	6	2	3	5	6	5	6	6	6	6	7	4	6	7	8
Shasta	20	23	19	21	16	19	18	22	13	18	21	27	21	24	22	25	21	24	14	16	13	14
Siskiyou	5	6	11	11	16	20	15	19	16	20	20	26	19	22	18	21	16	17	16	17	17	18
Solano	14	17	18	20	14	16	14	17	8	11	14	18	17	19	22	24	23	25	24	27	25	27
Sonoma	14	16	18	19	13	16	14	18	12	17	15	20	20	23	20	23	20	22	28	32	28	30
Stanislaus	33	36	27	29	25	30	15	19	20	27	26	33	20	22	30	34	32	36	33	35	36	39
Sutter	4	5	2	3	3	4	4	5	2	3	4	5	5	6	3	4	4	5	5	6	5	5
Tehama	31	32	38	39	35	42	37	47	25	35	37	48	35	39	34	38	18	20	17	18	7	8
Tulare	23	25	33	35	27	32	31	39	31	43	34	43	37	42	37	41	31	34	42	45	47	51
Tuolumne	2	2	2	2	1	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	3
Ventura	20	23	32	34	23	27	23	29	25	34	27	34	29	32	32	36	30	33	33	35	29	32
Yolo	33	34	26	27	27	33	30	37	29	40	27	35	32	37	27	30	25	28	24	26	21	22
Yuba	4	4	4	5	3	4	3	4	2	3	2	3	4	5	8	9	11	12	4	5	4	4
Other Counties*	1	2	2	2	1	2	1	1	1	2	2	2	3	3	3	3	2	2	2	3	2	2
Total	**1,285**	**1,414**	**1,346**	**1,447**	**1,327**	**1,589**	**1,261**	**1,587**	**1,226**	**1,691**	**1,592**	**2,033**	**1,742**	**1,971**	**1,717**	**1,937**	**1,602**	**1,777**	**1,559**	**1,756**	**1,624**	**1,744**

[A] - 2012-2020 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

* Other Counties include Alpine, Modoc, San Benito, Sierra and Trinity.

Note: Non-Retail diesel sales, which comprise approximately 51% of all diesel sales, are not reported in this chart.

Appendix D: Noise and Vibration Analysis Calculations

Table 1. Construction Noise Analysis - SWC: Contractor Mobilization

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
62	Truck, Flat Bed	74.3	0.4	3	8	8	50	hard	0	75.1
	Combined Equipment									***75.1***

Table 2. Construction Noise Analysis - Excavation for Pre-Treatment Vault

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
18	Excavator	80.7	0.4	1	8	8	50	hard	0	76.7
29	Loader (Front End Loader)	79.1	0.4	1	8	8	50	hard	0	75.1
	Combined Equipment									***79.0***

Table 3. Construction Noise Analysis - FRPS Pre-Treatment Vault Complete

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
12	Crane	80.6	0.16	1	8	8	50	hard	0	72.6
72	Forklift (based on front loader)	79.1	0.4	1	8	8	50	hard	0	75.1
41	Pump, Concrete (or concrete p	81.4	0.2	1	8	8	50	hard	0	74.4
	Combined Equipment									***78.9***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or
   "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 4. Construction Noise Analysis - Install Drywells

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
15	Drill Rig, Auger	84.4	0.2	1	8	8	50	hard	0	77.4
29	Loader (Front End Loader)	79.1	0.4	1	8	8	50	hard	0	75.1
70	Skid Steer (based on backhoe)	77.6	0.4	1	8	8	50	hard	0	73.6
	Combined Equipment									***80.4***

Table 5. Construction Noise Analysis - Test Infiltration rate of drywells

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
20	Generator	80.6	0.5	1	8	8	50	hard	0	77.6
40	Pumps	80.9	0.5	1	8	8	50	hard	0	77.9
	Combined Equipment									***80.8***

Table 6. Construction Noise Analysis - Dig/Lay/Bf pre-treatment to Drywell pipes

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
18	Excavator	80.7	0.4	1	8	8	50	hard	0	76.7
29	Loader (Front End Loader)	79.1	0.4	1	8	8	50	hard	0	75.1
	Combined Equipment									***79.0***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or
   "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 7. Construction Noise Analysis - Restore Surfacing

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
34	Paver	77.2	0.5	1	8	8	50	hard	0	74.2
44	Roller	80	0.2	1	8	8	50	hard	0	73.0
	Combined Equipment									***76.7***

Table 8. Construction Noise Analysis - Excavate for Diversion Struct (Cut and Cover)

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
18	Excavator	80.7	0.4	1	8	8	50	hard	0	76.7
29	Loader (Front End Loader)	79.1	0.4	1	8	8	50	hard	0	75.1
	Combined Equipment									***79.0***

Table 9. Construction Noise Analysis - FRPS Diversion Structure Complete

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
12	Crane	80.6	0.16	1	8	8	50	hard	0	72.6
72	Forklift (based on front loader)	79.1	0.4	1	8	8	50	hard	0	75.1
41	Pump, Concrete (or concrete p	81.4	0.2	1	8	8	50	hard	0	74.4
	Combined Equipment									***78.9***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or
   "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 10. Construction Noise Analysis - Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)

Equipment		Typical	Usage			Analysis			Barrier	
Item No.	Description	Level @ 50', dBA[1]	Factor[1,2]	Number of Units	Hours Per Day	Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Attenuation, dB	Leq(h), dBA
18	Excavator	80.7	0.4	1	8	8	50	hard	0	76.7
29	Loader (Front End Loader)	79.1	0.4	1	8	8	50	hard	0	75.1
	Combined Equipment									***79.0***

Table 11. Construction Noise Analysis - Shore/Excavate for Pump Station

Equipment		Typical	Usage			Analysis			Barrier	
Item No.	Description	Level @ 50', dBA[1]	Factor[1,2]	Number of Units	Hours Per Day	Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Attenuation, dB	Leq(h), dBA
18	Excavator	80.7	0.4	1	8	8	50	hard	0	76.7
29	Loader (Front End Loader)	79.1	0.4	1	8	8	50	hard	0	75.1
	Combined Equipment									***79.0***

Table 12. Construction Noise Analysis - Set/BF PreCast Pump Station

Equipment		Typical	Usage			Analysis			Barrier	
Item No.	Description	Level @ 50', dBA[1]	Factor[1,2]	Number of Units	Hours Per Day	Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Attenuation, dB	Leq(h), dBA
12	Crane	80.6	0.16	1	8	8	50	hard	0	72.6
29	Loader (Front End Loader)	79.1	0.4	1	8	8	50	hard	0	75.1
	Combined Equipment									***77.1***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or
   "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 13. Construction Noise Analysis - Dig/Lay/BF 20" pump sta to pre-treat

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
18	Excavator	80.7	0.4	1	8	8	50	hard	0	76.7
29	Loader (Front End Loader)	79.1	0.4	1	8	8	50	hard	0	75.1
	Combined Equipment									***79.0***

Table 14. Construction Noise Analysis - Install pump Station Mechanical

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
72	Forklift (based on front loader)	79.1	0.4	1	8	8	50	hard	0	75.1
	Combined Equipment									***75.1***

Table 15. Construction Noise Analysis - Install pump Station Elec - All

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
72	Forklift (based on front loader)	79.1	0.4	1	8	8	50	hard	0	75
	Combined Equipment									***75***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or
   "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 16. Construction Noise Analysis - Bypass/Demo Trunk Line in Diversion Struct

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours Per Day	Analysis Period (Hours)	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description									
20	Generator	80.6	0.5	1	8	8	50	hard	0	77.6
40	Pumps	80.9	0.5	1	8	8	50	hard	0	77.9
10	Compressor, Air	77.7	0.4	1	8	8	50	hard	0	73.7
25	Hammer, Jack	88.9	0.2	1	8	8	50	hard	0	81.9
	Combined Equipment									***84.7***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or
   "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 17. Calculation of Acoustical Average Distances

Alignment Section ID	Sensitive Receptor ID	Sensitive Receptor Address	Nearest Distance, feet	Farthest Distance, feet	Acoustical Average Distance, feet	Notes
MOL-1	SFR1	14834 Calvert St.	205	575	343.33	
MOL-2	SFR2	14659 Calvert St.	385	790	551.50	
MOL-3	SFR3	14545 Calvert St.	650	1060	830.06	
MOL-4	MFR1	14100 Calvert St.	100	950	308.22	
MOL-4	SFR5	6106 Bessemer St.	145	1120	402.99	
MOL-4	MFR2	14148 Calvert St.	195	590	339.19	
MOL-4	SFR4	14152 Calvert St.	210	620	360.83	
MOL-5	SFR6	13820 Bessemer St.	20	385	87.75	
MOL-6	MRF3	6009 Buffalo Ave.	20	370	86.02	
MOL-7a	SFR7	5645 Fulton Ave.	35	360	112.25	MOL-7a is the northerly portion
MOL-7b	SFR8	13227 Albers Pl.	60	620	192.87	MOL-7b is the southerly portion

Table 18. Calculated Noise Levels at Sensitive Receptors

Distances and Assumptions												
	Reference Distance	**MGL-1, SFR1**	**MGL-2, SFR2**	**MGL-3, SFR3**	**MGL-4, MFR1**	**MGL-4, MFR2**	**MGL-4, SFR4**	**MGL-4, SFR5**	**MGL-5, SFR-6**	**MGL-6, MRF3**	**MGL-7a, SFR7**	**MGL-7b, SFR8**
Distance (acoustical average)	50	343	551	830	308	339	361	403	88	86	112	193
Attenuation Coefficent (X*log)	N/A	25	25	25	25	25	25	25	20	20	20	20
Barrier Attenuation	N/A	0	0	0	0	0	0	0	-5	-5	-5	-5
Construction Phase	**Noise Levels by Phase, Leq dBA**											
SWC: Contractor Mobilization	75.1	54.2	49.0	44.6	55.3	54.3	53.6	52.4	65.2	65.4	63.1	58.4
Excavation for Pre-Treatment Vault	79.0	58.1	52.9	48.5	59.3	58.2	57.5	56.3	69.1	69.3	67.0	62.3
FRPS Pre-Treatment Vault Complete	78.9	58.0	52.9	48.4	59.2	58.2	57.5	56.3	69.1	69.2	66.9	62.2
Install Drywells	80.4	59.5	54.4	49.9	60.7	59.7	59.0	57.8	70.6	70.7	68.4	63.7
Test Infiltration rate of drywells	80.8	59.8	54.7	50.2	61.0	60.0	59.3	58.1	70.9	71.0	68.7	64.0
Dig/Lay/Bf pre-treatment to Drywell pipes	79.0	58.1	52.9	48.5	59.3	58.2	57.5	56.3	69.1	69.3	67.0	62.3
Restore Surfacing	76.7	55.7	50.6	46.1	56.9	55.9	55.2	54.0	66.8	66.9	64.6	59.9
Excavate for Diversion Struct (Cut and Cover)	79.0	58.1	52.9	48.5	59.3	58.2	57.5	56.3	69.1	69.3	67.0	62.3
FRPS Diversion Structure Complete	78.9	58.0	52.9	48.4	59.2	58.2	57.5	56.3	69.1	69.2	66.9	62.2
Dig/Shore/Lay/Bf 20" Pipe : Diversion to pump Station (Gravity,Deep)	79.0	58.1	52.9	48.5	59.3	58.2	57.5	56.3	69.1	69.3	67.0	62.3
Shore/Excavate for Pump Station	79.0	58.1	52.9	48.5	59.3	58.2	57.5	56.3	69.1	69.3	67.0	62.3
Set/BF PreCast Pump Station	77.1	56.1	51.0	46.6	57.3	56.3	55.6	54.4	67.2	67.4	65.0	60.3
Dig/Lay/BF 20" pump sta to pre-treat	79.0	58.1	52.9	48.5	59.3	58.2	57.5	56.3	69.1	69.3	67.0	62.3
Install pump Station Mechanical	75.1	54.2	49.1	44.6	55.4	54.3	53.7	52.5	65.2	65.4	63.1	58.4
Install pump Station Elec - All	75.1	54.2	49.1	44.6	55.4	54.3	53.7	52.5	65.2	65.4	63.1	58.4
Bypass/Demo Trunk Line in Diversion Struct	84.7	63.8	58.7	54.2	65.0	64.0	63.3	62.1	74.9	75.0	72.7	68.0
Minumum Leq:	**75.1**	**54.2**	**49.0**	**44.6**	**55.3**	**54.3**	**53.6**	**52.4**	**65.2**	**65.4**	**63.1**	**58.4**
Maximum Leq:	**84.7**	**63.8**	**58.7**	**54.2**	**65.0**	**64.0**	**63.3**	**62.1**	**74.9**	**75.0**	**72.7**	**68.0**
Average Ambient Noise Level:		57.3	57.3	57.3	53.7	53.7	53.7	53.7	53.7	64.0	54.9	54.9
Ambient + Construction Noise Minimum:		59.0	57.9	57.5	57.6	57.0	56.7	56.1	65.5	67.8	63.7	60.0
Ambient + Construction Noise Maximum:		64.7	61.0	59.0	65.3	64.3	63.7	62.7	74.9	75.4	72.8	68.2
Ambient Noise Increase Minimum:		**1.7**	**0.6**	**0.2**	**3.9**	**3.3**	**3.0**	**2.4**	**11.8**	**3.8**	**8.7**	**5.0**
Ambient Noise Increase Maximum:		**7.4**	**3.8**	**1.7**	**11.6**	**10.6**	**10.0**	**9.0**	**21.2**	**11.4**	**17.8**	**13.3**

Table 19. Construction Vibration Analysis - Potential Building Damage

Vibration attenuation constant (n):		1.5				
		Building Category:	I. Reinforced-concrete, steel or timber (no plaster)	II. Engineered concrete and masonry (no plaster)	III. Non-engineered timber and masonry buildings	IV.Buildings extremely susceptible to vibration damage
Equipment Item	Reference PPV at 25 feet, in/s [a]	Vibration Damage Impact Criteria, PPV, in/s:	0.5	0.3	0.2	0.12
Vibratory roller	0.21	Distance to Impact Criteria, feet:	15	20	26	37
Large bulldozer[b]	0.089		8	12	15	21
Caisson drilling	0.089		8	12	15	21
Jackhammer	0.035		5	6	8	11
Small bulldozer[c]	0.003		1	2	2	3

[a] Obtained from "Transit Noise and Vibration Impact Assessment ", FTA 2018

[b] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

[c] Considered representative of smaller equipment such as mini excavators.

Table 20. Construction Vibration Analysis - Human Response, Distance to Criteria

Vibration attenuation constant (n):		1.5			
	Reference Lv at	Frequency of Occurance:	Frequent Events	Occasional Events	Infrequent Events
Equipment Item	25 feet, VdB [a]	Vibration Annyonce Impact Criteria, Lv, VdB:	72 VdB	75 VdB	80 VdB
Vibratory Roller	94	Distance to Impact Criteria, feet:	135 ft	107 ft	73 ft
Large bulldozer[b]	87		79 ft	63 ft	43 ft
Caisson Drilling	87		79 ft	63 ft	43 ft
Loaded Trucks	86		73 ft	58 ft	40 ft
Small bulldozer[c]	58		9 ft	7 ft	5 ft

[a] Obtained from "Transit Noise and Vibration Impact Assessment ", FTA 2018

[b] Considered representative of any full size/large excavator, dozer, backhoe, etc.

[c] Considered representative of smaller equipment such as mini excavators, skid steers, or Bobcats.

Appendix E: Hydrology and Water Quality Technical Report

DRAFT

HYDROLOGY AND WATER QUALITY TECHNICAL REPORT FOR THE METRO G-LINE WATER INFILTRATION AND QUALITY PROJECT

PREPARED FOR:

Melissa Faigeles Levitt
Los Angeles County Metropolitan Transportation Authority
Senior Environmental Specialist
Environmental Services
(213) 265-0774

PREPARED BY:

ICF
555 West 5th Street, Suite 3100
Los Angeles, CA 90013
Contact: Sarah Baker
(213) 312-1742

April 2022

ICF. 2022. *Hydrology and Water Quality Technical Report for the Metro G-Line Water Infiltration and Quality Project.* Draft. April. (ICF 103784.0.011.01.004.02.) Los Angeles, CA. Prepared for Los Angeles County Metropolitan Transportation Authority, Los Angeles, CA.

Contents

Tables and Figures

Acronyms and Abbreviations

Basin Plan	*Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*
bgs	below ground surface
BMP	Best Management Practice
cfs	cubic feet per second
City	City of Los Angeles
Construction General Permit	General Permit for Construction Activities
County	County of Los Angeles
CWA	Clean Water Act
DWR	Department of Water Resources
EPA	U.S. Environmental Protection Agency
EWMP	Enhanced Watershed Management Program
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GSP	groundwater sustainability plan
HUC	Hydrologic Unit Code
LID	Low Impact Development
LUST	leaking underground storage tank
Metro	Los Angeles County Metropolitan Transportation Authority
MGL	Metro G-Line
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
PCE	perchloroethene
Project	G-Line Water Infiltration and Quality Project
RWQCB	Regional Water Quality Control Board
SGMA	Sustainable Groundwater Management Act
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TCE	trichloroethene
TCP	trichloropropane
TMDL	total maximum daily load
UIC	Underground Injection Control
ULAR	Upper Los Angeles River
µg/L	microgram/liter
VOC	volatile organic compound
WMMS 2.0	Watershed Management System 2.0

Chapter 1
Introduction

The purpose of this report is to document existing water quality conditions within the Los Angeles County Metropolitan Transportation Authority (Metro) G-Line (MGL) Water Infiltration and Quality Project (Project) study area, which includes the project footprint and adjacent areas, pursuant to federal, state, and local regulatory requirements. This report describes the regulatory and environmental setting for hydrology and water quality in the project area, analyzes effects on hydrology and water quality that would result from implementation of the Project, and provides mitigation measures, if applicable, to reduce the effects of any potentially significant impacts.

Chapter 2
Project Description

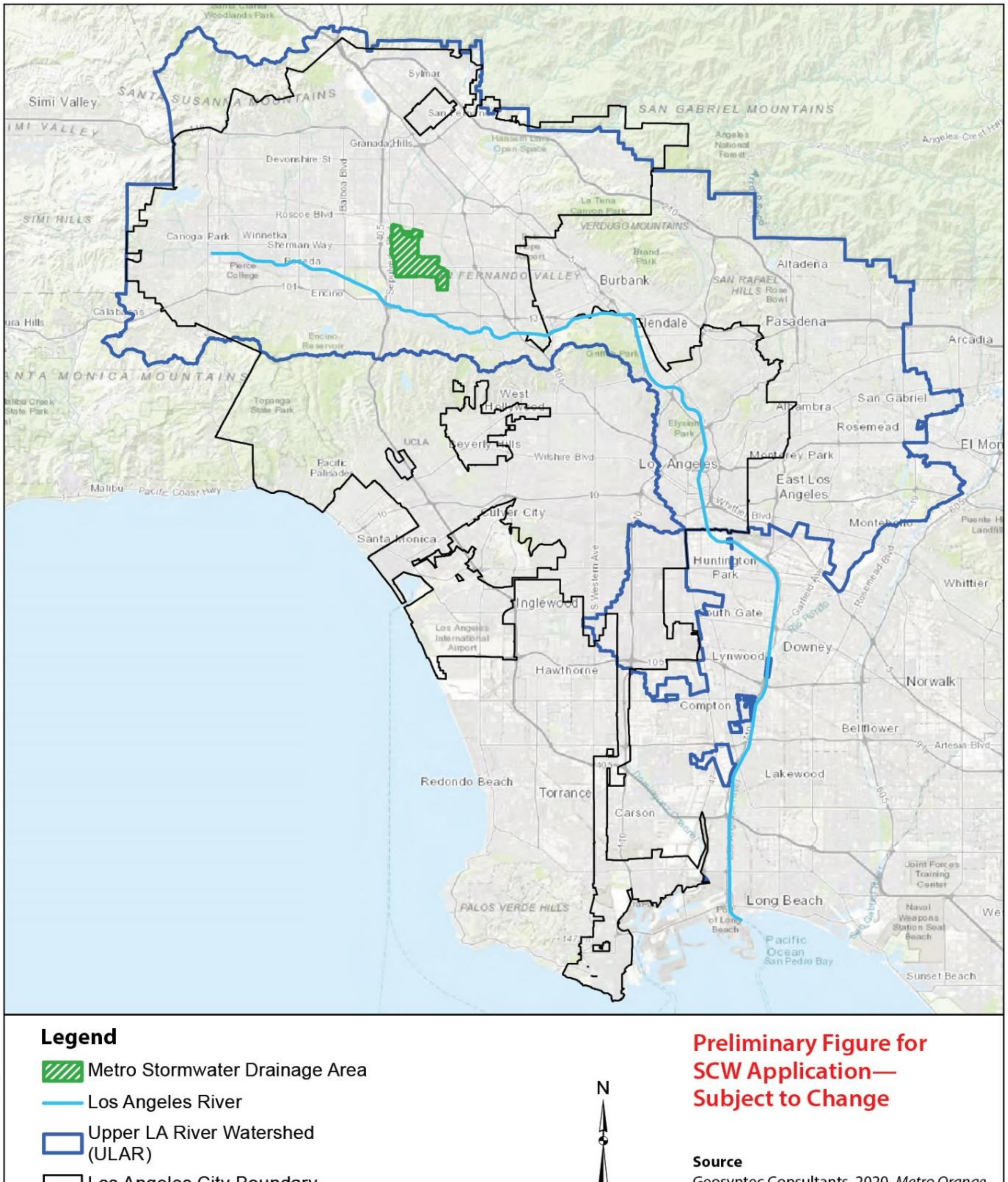
2.1 Project Overview

The Project would divert stormwater runoff from existing regional storm drains and the surface to a network of infiltration drywells across seven locations along the MGL. The Project would consist of pretreatment facilities that would capture, treat, and infiltrate stormwater runoff from 2,319 acres. This would result in an estimated groundwater recharge of 890 acre-feet/year. The primary objective of the Project is to achieve water supply benefits through capture and infiltration. A secondary objective is to reduce the pollutant load on the Los Angeles River and reduce the risk of potential localized flooding by attenuating peak flows.

2.2 Project Location

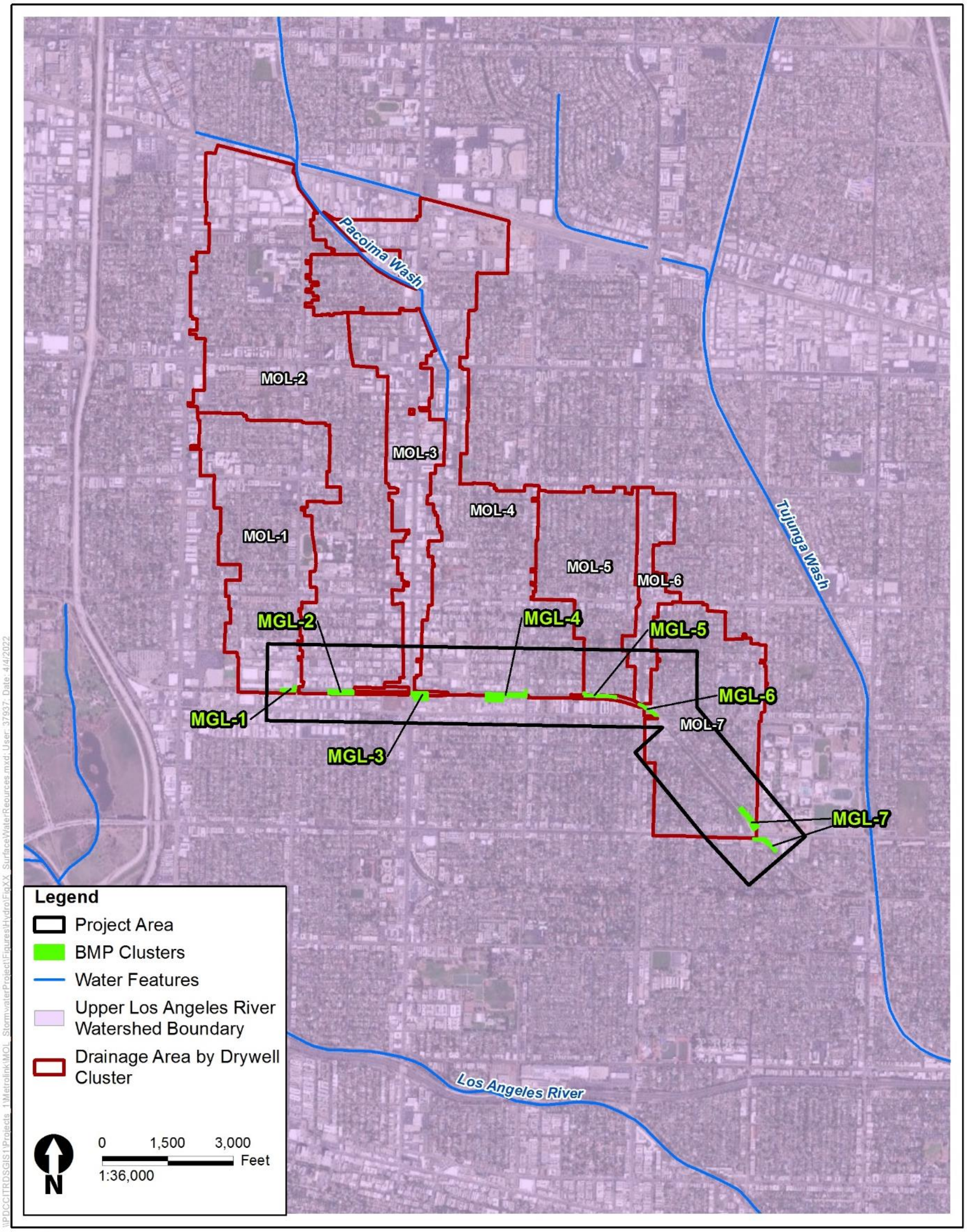
The Project is located within the Upper Los Angeles River (ULAR) Watershed, within the County of Los Angeles (County). The Project traverses along the MGL through the San Fernando Valley area of the City of Los Angeles (City), as shown in the Project Location and Project Vicinity figures (Figure 2-1 and Figure 2-2). Diverted water would infiltrate into the San Fernando Groundwater Basin.

Figure 2-1. Project Location



Source
Geosyntec Consultants. 2020. *Metro Orange Line Water Infiltration and Quality Project—Project Configuration*. October.

Figure 2-2. Project Vicinity



Source: USGS NHD Data 2020; LA County GIS 2017

2.3 Project Components

2.3.1 Physical Improvements

The Project aims to divert stormwater runoff from existing regional storm drains and surface flows to a network of underground pretreatment and infiltration facilities across seven stormwater Best Management Practice (BMP) clusters within Metro-owned properties (Table 2-1). The maximum diversion rates range between 10 to 32 cubic feet per second (cfs) to match the maximum capacity of each infiltration BMP cluster. The capture facility would consist of either gravity-based diversion structures or pump stations, depending on gradient. Potential pretreatment facilities include hydrodynamic separators, trash nets, underground sedimentation basins, and proprietary filtration devices. The average storage capacity of each dry well is 322 cubic feet. The infiltration rate is expected to average 0.8 cfs per well.

Table 2-1. Summary of Proposed Facilities

Stormwater BMP Cluster	Infiltration Facility	Location	Connection to Stormwater Facility	Drainage Area (acres)
MGL-1: Kester Ave	Either an array of drywells or a single infiltration gallery	Underneath the MGL ROW, extending to approximately 500 feet west of Kester Ave	Existing storm drain parallel to Kester Ave (Storm Drain ID: BI0108)	308
MGL-2: Cedros	Drywells or an infiltration gallery	Within the MGL ROW, 800 feet west of Cedros Ave	Parallel to Cedros Ave (Storm Drain ID: Cedros Ave. Drain)	683
MGL-3: Van Nuys Ave	Drywells or an infiltration gallery	Underneath the existing Metro-owned parking lot east of Van Nuys Blvd	Parallel to Van Nuys Ave (Storm Drain ID: BI0056)	197
MGL-4: Hazeltine Ave	Drywells or an infiltration gallery	Underneath the existing Metro-owned parking lot west of Hazeltine Ave	Parallel to Hazeltine Ave (Storm Drain ID: BI9203)	579
MGL-5: Hazeltine Ave	Drywells or an infiltration gallery	Within the MGL ROW, extending to approximately 300 feet east of Ranchito Ave	Parallel to Ranchito Ave (Storm Drain ID: BI0466)	139
MGL-6: Woodman Ave	Drywells or an infiltration gallery	Within the MGL ROW extending to approximately 200 feet east of Woodman Ave	Existing catch basins along both the east and west sides of the Woodman Ave/G Line Busway intersection	67
MGL-7: Fulton Ave	Drywells or an infiltration gallery	Within the MGL ROW, extending to approximately 400 feet southeast and northwest of the Fulton Ave/G Line Busway intersection	Parallel to Fulton Ave (Storm Drain ID: BI9204)	292

MGL = Metro G-Line; ROW = right-of-way

Pretreatment galleries would consist of StormTrap DoubleTrap ® or equivalent, which may involve trash and debris capture, sedimentation, and sand filtration.

2.3.2 Construction

Construction involving modifying the existing storm drain infrastructure—including the diversion structure—would only occur during the dry season (April–September). No groundwater dewatering is anticipated as all elements are designed to be above the groundwater table. A temporary (48-hour) bypass would be used to tie the existing storm drain infrastructure into the new facilities. It is anticipated this would occur outside storm events and the bypass would only convey non-storm runoff flows. As shown in Table 2-2, the Project would disturb approximately 3 acres of ground during construction.

Table 2-2. Area of Ground Disturbance During Construction

BMP	Area (acre)
MGL-1	0.43
MGL-2	0.97
MGL-3	0.26
MGL-4	0.59
MGL-5	0.25
MGL-6	0.10
MGL-7	0.44
Total	3.04

BMP = best management practice; MGL = Metro G-Line

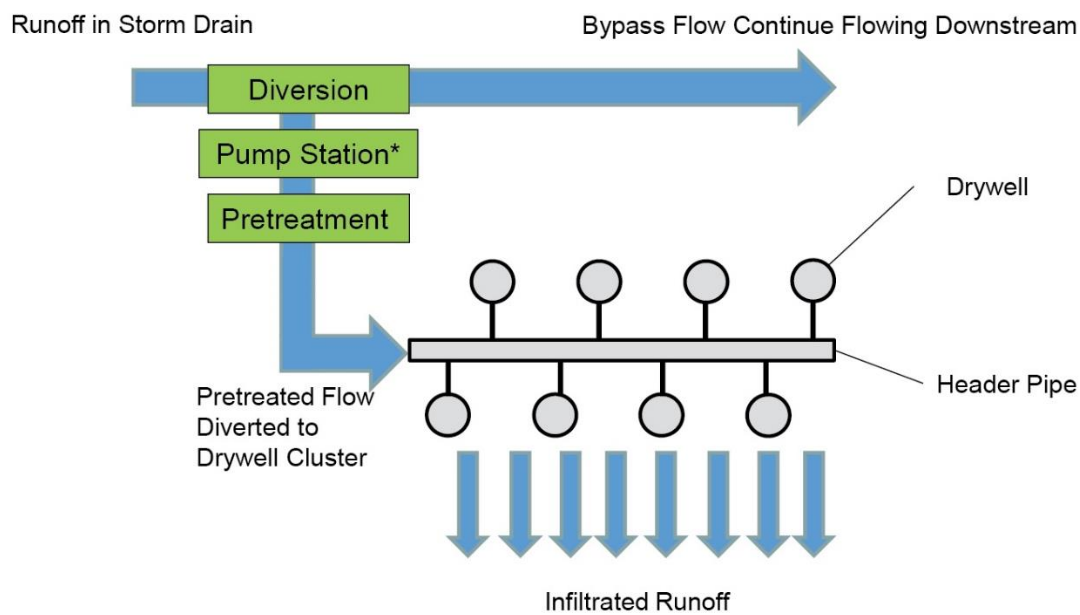
2.3.3 Operations and Maintenance

When the maximum capacity of each infiltration BMP cluster is reached, the pump station would turn off, allowing stormwater to continue flowing in the storm drain. If a hazardous material spill were to occur upstream, the pump station would be shut down to prevent diverting the spill into the infiltration BMPs.

Once operational, the pretreatment facilities and the diversion structures would be inspected four times per year, with maintenance performed twice per year, utilizing vacuum trucks. The infiltration facilities would be inspected twice per year and maintained once every 5 years.

The maintenance operation involves removing and disposing of trash and debris from drywell chambers. If sediment accumulation is greater than 15 percent of the chamber's capacity, a truck-mounted hydrovactor, which applies air and high-pressure water to dislodge built-up silt and sediment, would be used to remove the sediment. The dislodged material is suctioned through a piping system into the hydrovactor truck and disposed of offsite. *Jet-rodding* is used to remove obstructions or accumulated debris in remote inlets and connecting piping. The maintenance operation may involve replacement of the floating absorbent pillows and changing out the filter fabric (Geosyntec Consultants 2020a).

Figure 2-3. Simplified Routing Network



Note

* Not applicable to Site MGL-6 [formerly MOL-6]

Source

Geosyntec Consultants. 2020. *Metro Orange Line Water Infiltration and Quality Project—Project Configuration*. October.

Graphics … LA Metro 103784 (2-3-22) tag

2.4 Permits and Approvals

The only permits needed for the purposes of water quality are the National Pollutant Discharge Elimination System permit administered by the Regional Water Quality Control Board and connection permits for storm drain modifications administered by the Los Angeles County Flood Control District. The Project must also receive infiltration approval from the Upper Los Angeles River Area Watermaster. The Project has already received conceptual review approval from both the County and Watermaster as part of the Measure W feasibility study.

Chapter 3
Regulatory Framework

3.1 Federal Regulations

3.1.1 Clean Water Act

The federal Clean Water Act (CWA) was enacted with the purpose of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. The CWA directs states to establish water quality standards for all waters of the United States and review and update such standards on a triennial basis. "Waters of the United States" is defined as all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide including all interstate waters and interstate wetlands. The California State Water Resources Control Board (SWRCB) and the Los Angeles Regional Water Quality Control Boards (RWQCBs) are responsible for ensuring implementation and compliance with the provisions of the federal CWA in California.

- **Section 303** of the CWA requires states to adopt water quality standards for all surface waters of the United States. The SWRCB prepares a list of waters (the 303(d) list of water quality limited segments) considered to be impaired by not meeting water quality standards nor supporting their beneficial uses. *Impairment* may result from point-source pollutants or nonpoint-source pollutants. The SWRCB, through its nine RWQCBs, assesses water quality and establishes total maximum daily load (TMDL) programs for streams, lakes, and coastal waters that do not meet water quality standards.
- **Section 401** of the CWA requires that any activity that may result in a discharge of a pollutant into waters of the United States obtain a Water Quality Certificate (or Waiver). A Water Quality Certificate requires the evaluation of water quality considerations associated with dredging or placement of fill materials into waters of the United States and ensures that the proposed activity does not violate state and/or federal water quality standards. The RWQCB must issue or waive a Section 401 Water Quality Certification for a project to be permitted under CWA Section 404.
- **Section 402** of the CWA mandates permits for municipal stormwater discharges, which are regulated under the Los Angeles County Municipal Separate Storm Sewer System (MS4) Permit. The 1972 amendments to the federal CWA established the National Pollutant Discharge Elimination System (NPDES) permit program to control discharges of pollutants from point sources. NPDES is the primary federal program that regulates point-source and nonpoint-source discharges to waters of the United States. The 1987 amendments to the CWA added Section 402(p), which established a framework for regulating municipal and industrial stormwater discharges, including discharges associated with construction activities, under the NPDES program. Discharges from construction activity that disturbs 1 acre of land or more are covered under the California Construction General Permit.
- **Section 404** (Discharges of Dredge or Fill Material) of the CWA regulates discharge and placement of dredged or fill materials into the waters of the United States. The U.S. Army Corps

of Engineers administers Section 404 permits. Discharges to waters of the United States must be avoided where possible and minimized and mitigated where avoidance is not possible.

3.1.2 National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries, based on U.S. Army Corps of Engineers studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps (FIRMs), which are used in the National Flood Insurance Program. These maps identify the locations of special flood hazard areas, including the 100-year floodplain. FEMA allows nonresidential development in the floodplain; however, construction activities are restricted within the flood hazard areas, depending on the potential for flooding within each area.

3.1.3 Underground Injection Control Program

Code of Federal Regulations Title 40 Part 144 sets forth requirements for the Underground Injection Control (UIC) Program. There are cases where stormwater infiltration practices are regulated Class V wells under the U.S. Environmental Protection Agency's UIC program. Drywells are classified as Class V injection wells; however, this only requires registration with the UIC program. This requirement applies to deep and shallow subsurface disposal systems as defined in Code of Federal Regulations Title 40 Part 144. Compliance with the federal UIC regulations includes fulfilling two basic requirements: registering injection well(s) and not using injection wells in a manner that would contaminate underground sources of drinking water.

3.2 State Regulations

3.2.1 Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act was established in 1969 and is implemented by the California SWRCB and the nine state RWQCBs. *Waters of the state* are defined more broadly than *waters of the United States*; they are defined as any surface water or groundwater, including saline waters, within the boundaries of the state, as well as waters in both natural and artificial channels. The act requires projects that are discharging, or proposing to discharge, wastes that could affect the quality of the state's water to file a waste discharge report with the appropriate RWQCB. The act also requires that the SWRCB or a RWQCB adopt basin plans for the protection of water quality and beneficial uses of state waters. The *Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) specifies region-wide and waterbody-specific beneficial uses and sets numeric and narrative water quality objectives for several substances and parameters in numerous surface waters in its region. The Basin Plan also establishes beneficial water uses for groundwater basins within the region.

The Project lies within the jurisdiction of the Los Angeles RWQCB.

3.2.2 NPDES Construction General Permit

Construction activities that disturb an acre of soil or more are required to obtain an NPDES General Permit for Construction Activities (Construction General Permit). The State Water Board issued a statewide Construction General Permit (Order No. 2009-0009-DWQ, NPDES No. CAR000002, amended by 2010-0014-DWQ and 2012-0006-DWQ), adopted 2009. Construction activities subject to the Construction General Permit include clearing, grading, stockpiling, or excavation. The Construction General Permit requires the applicant to prepare and implement a stormwater pollution prevention plan (SWPPP) and file a notice of intent to discharge stormwater. The SWPPP requires demonstration of compliance with relevant local ordinances and regulations and a description of the BMPs that would be implemented and maintained to prevent soil erosion and the discharge of other construction-related pollutants that could contaminate nearby water resources. Permittees are required to monitor and report BMP performance to ensure that corrective actions are taken to control the discharge of stormwater-related pollutants effectively.

3.2.3 Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) ensures a sustainable groundwater water supply for California. SGMA authorizes the Department of Water Resources (DWR) to identify high- and medium-priority groundwater basins and provides a framework for sustainable management of groundwater supplies by local authorities. SGMA requires local authorities in high- and medium-priority groundwater basins to form local Groundwater Sustainability Agencies, which are required to develop and adopt groundwater sustainability plans (GSPs) or submit an alternative to a GSP.

The project area overlies the San Fernando Valley groundwater basin, which was designated as a very low-priority basin in 2018. Low- or very low-priority basins are not subject to SGMA, but are encouraged to form Groundwater Sustainability Agencies and GSPs, update existing groundwater management plans, and coordinate with adjacent basins to develop a new groundwater management plan. The San Fernando Valley groundwater basin is managed by the ULAR Area Watermaster and is an adjudicated basin in which all water rights have been defined by a court.

3.3 Local Regulations

3.3.1 Enhanced Watershed Management Program

The project area falls within the ULAR Enhanced Watershed Management Program (EWMP) Area. The City of Los Angeles led a coordinated group of municipalities to develop the ULAR EWMP in order to facilitate a collaborative, comprehensive approach to stormwater management at the watershed scale. EWMPs identify water quality priorities, define strategies, control measures, and BMPs, and provide guidance to municipalities to comply with the MS4 permit, improve water quality, and address water supply challenges. The Los Angeles RWQCB approved the ULAR EWMP (Upper Los Angeles River Watershed Management Group 2016) in 2016.

3.3.2 Los Angeles County Municipal Stormwater NPDES Permit

The Los Angeles RWQCB adopted Order No. R4-2012-0175 (NPDES Permit No. CAS004001), the Los Angeles County MS4 Permit. This permit requires runoff issues to be addressed during major phases of urban development (i.e., planning, construction, and operation) to reduce the discharge of pollutants from stormwater to the maximum extent practicable, effectively prohibit non-stormwater discharges, and protect the beneficial uses of receiving waters. The Los Angeles County MS4 Permit requires implementation of a Stormwater Quality Management Plan.

The Los Angeles County MS4 Permit allows permittees the flexibility to develop Watershed Management Programs or EWMPs to implement the requirements of the permit on a watershed scale through customized strategies, control measures, and BMPs. An EWMP provides guidance for municipalities throughout Los Angeles County to simultaneously comply with federal and state water quality mandates, improve the quality of rivers, creeks, and beaches, and address current and future regional water supply challenges. EWMPs identify current and future multi-benefit projects that would capture, treat, and use or infiltrate as much stormwater as possible.

3.3.3 City of Los Angeles Stormwater Program

The Watershed Protection Division of the City of Los Angeles Department of Public Works, Bureau of Sanitation, is responsible for stormwater pollution control throughout the city in compliance with the Los Angeles County MS4 Permit. The Watershed Protection Division administers the City of Los Angeles's stormwater program, which has two major components: pollution abatement and flood control. The Watershed Protection Division publishes a two-part handbook that provides guidance to developers for compliance with the Los Angeles County MS4 Permit through the incorporation of water quality management into development planning. The City of Los Angeles's Low Impact Development (LID) Best Management Practices Handbook, Part A: Construction Activities (3rd edition, September 2004) reiterates the policies contained within the Construction General Permit, provides specific minimum BMPs for all construction activities, and requires the preparation of a SWPPP and the filing of an NOI to comply with the Construction General Permit requirements with the Los Angeles Regional Water Board. The LID Best Management Practices Handbook provides guidance to developers to ensure the post-construction operation of newly developed and redeveloped facilities complies with the developing planning program regulations of the City of Los Angeles's stormwater program.

3.3.4 City of Los Angeles General Plan

The City of Los Angeles General Plan identifies objectives, goals, and policies in the Conservation and Safety Elements related to water resources, water quality, and flood hazards (City of Los Angeles 2001, 1996), as described below.

Objective: protect the coastline and watershed from erosion and inappropriate sedimentation that may or has resulted from human actions.

- **Policy 1**: support legislation and efforts to secure and retain federal funding for Pacific coast beach protection and renourishment programs.

- **Policy 2**: continue to prevent or reduce erosion that will damage the watershed or beaches or will result in harmful sedimentation that might damage beaches or natural areas.

Objective: protect and enhance the diversity and sustainability of the natural ecologies of the Santa Monica and San Pedro bays, including the bay fishery populations.

- **Policy 1**: continue to reduce pollutant discharge into the bays from both natural and human sources.
- **Policy 2**: continue to support legislation and to seek funding and legislation intended for bay and coastal protection, enhancement and habitat restoration.
- **Policy 3**: continue to support and/or participate in programs to clean bay sediments and/or mitigate potentially harmful effects of contaminants in the sediments and waters of the bays.

Safety Goal 1: A city where potential injury, loss of life, property damage and disruption of the social and economic life of the City due to fire, water related hazard, seismic event, geologic conditions or release of hazardous materials disasters is minimized.

- **Safety Policy 1.1.1 Coordination:** Coordinate information gathering, program formulation and program implementation between City agencies, other jurisdictions and appropriate public and private entities to achieve the maximum mutual benefit with the greatest efficiency of funds and staff.
- **Safety Policy 1.1.4 Health/environmental protection**: Protect the public and workers from the release of hazardous materials and protect City water supplies and resources from contamination resulting from accidental release or intrusion resulting from a disaster event, including protection of the environment and public from potential health and safety hazards associated with program implementation.
- **Safety Policy 1.1.5 Risk reduction:** Reduce potential risk hazards due to natural disaster to the greatest extent feasible within the resources available, including provision of information and training.
- **Safety Policy 1.1.6 State and federal regulations:** Assure compliance with applicable state and federal planning and development regulations, e.g., Alquist-Priolo Earthquake Fault Zoning Act, State Mapping Act and Cobey-Alquist Flood Plain Management Act.

3.3.5 City of Los Angeles Manuals and Standards

Per the City of Los Angeles Special Order No. 007-1299 of December 3, 1999, the City of Los Angeles has adopted Public Works' Hydrology Manual as its basis of design for storm drainage facilities. Drainage and flood control structures and improvements within the city are subject to review and approval by the City of Los Angeles Department of Public Works, Bureau of Engineering, and Department of Building and Safety. As required by the City of Los Angeles Department of Public Works, all public storm facilities must be designed in conformity with the standards set forth by Los Angeles County. The City of Los Angeles Department of Public Works reviews and approves storm drain plans prior to construction. Other City of Los Angeles manuals relevant to the Project include the Storm Drain Design Manual, Standards Plans, and Stormwater Pollution Abatement Handbooks and Publications.

3.3.6 City of Los Angeles Stormwater LID Ordinance

In November 2011, the City of Los Angeles adopted the Stormwater LID Ordinance (Ordinance #181899, updated September 2015 (Ordinance #183833) with the purpose of:

- Requiring the use of LID standards and practices in future developments and redevelopments to encourage the beneficial use of rainwater and urban runoff
- Reducing stormwater/urban runoff while improving water quality
- Promoting rainwater harvesting
- Reducing offsite runoff and providing increased groundwater recharge
- Reducing erosion and hydrologic impacts downstream
- Enhancing the recreational and aesthetic values in our communities

The Los Angeles County MS4 permit also adopts LID principals and requires development and redevelopment projects to incorporate similar requirements as those outlined in the City's LID Ordinance. The Stormwater LID Ordinance requires LID measures be incorporated into the design of all development and redevelopment projects that have a land disturbance activity and add, create, or replace 500 square feet or more of impervious area.

3.3.7 City of Los Angeles Municipal Code

Article 1, Division 70 Grading, Excavation, and Fills: This article provides provision regulating grading. All grading would be performed in accordance with the provisions of this division and with rules and regulations as established by the Superintendent of Building, and in accordance with the zoning, private street, and division of land regulations contained in Chapter I of the Los Angeles Municipal Code, and the requirements of the approved General Plan for the area in which the grading is to be done.

Article 4.4, Section 64.70 Stormwater and Urban Runoff Pollution Control: This article provides stormwater requirements, prohibits discharge, and places of discharge into the storm drain system and receiving waters necessary to adequately enforce and administer all federal and state laws, legal standards, orders, and/or special orders that provide for the protection, enhancement, and restoration of water quality. This article guides the control and regulation of discharges to the storm drain system and receiving waters, through a program of education and enforcement of general and specific prohibitions and requirements.

Chapter 4
Methodology for Effects Analysis

The following information sources were used to describe the affected environment:

- **Climate and Topography**: Information regarding climate originated from the National Oceanic and Atmospheric Administration and the U.S. Bureau of Reclamation.
- **Surface Water Resources:** Information regarding hydrologic features, such as rivers and creeks, originated from the U.S. Geological Survey National Hydrographic Database, ULAR EWMP, the 2018 Integrated Report list of water quality-impaired reaches, and stormwater runoff and pollutant loading analyses provided in the project-specific Feasibility Study Report (Geosyntec Consultants 2020a).
- **Groundwater Resources:** Information regarding groundwater aquifers, originated from the Basin Plan, Department of Water Resources Bulletin 118, SGMA Basin Prioritization Dashboard and SGMA Data Viewer, project-specific correspondence, and technical publications regarding the effectiveness of water quality mitigation BMPs.
- **Existing Floodplain Conditions**: Information regarding floodplains originated from FEMA special flood-hazard areas for Los Angeles County as shown on FEMA FIRMs (2008).

Chapter 5
Environmental Setting

This section provides a discussion of the existing conditions related to hydrology and water quality on the project site.

5.1 Climate and Topography

The climate consists of hot, dry summers and cool, moist winters. Most of the annual precipitation occurs between November and April, during high intensity storms, with an annual storm depth of 2.5 inches falling in a 24 hour period (NOAA 2022a). The total annual rainfall measuring approximately 16.5 inches (NOAA 2022b). Estimated median change in precipitation with climate change by the end of the century ranges from -11 percent to +3 percent and -8 percent to -11 percent, depending on model and emissions scenario (USBR 2016). However, the variability in minimum and maximum projections for median total rainfall ranges from -42 percent to +47 percent by the end of the twenty-first century (USBR 2016). The topography of the project area is a flat, inland valley of mostly paved residential and commercial use.

5.2 Surface Water Hydrology

The Project is within the Tujunga Wash-Los Angeles River sub-watershed (Hydrologic Unit Code [HUC] 180701050208), within the larger ULAR Watershed (HUC 1807010502), in the midwestern portion of Los Angeles County. The watershed ultimately flows into the Pacific Ocean via the Los Angeles River. ULAR headwaters are in the mountains surrounding the San Fernando Valley. The ULAR Watershed has two very different landscapes, the undeveloped, steep terrain surrounding Pacoima Canyon Valley, Bear Canyon, and Colby Canyon in the upper reaches of the watershed and the urban, highly developed San Fernando Valley in the lower portion of the watershed. The major tributaries to the ULAR include Caballero Creek, Tujunga Wash, Burbank Western Channel, Burbank Eastern Channel, Verdugo Wash, Sycamore Wash, and the Arroyo Seco Channel. Tujunga Wash headwaters in the San Gabriel Mountains and flows west through Tujunga Canyon to the Hansen flood-control basin. Tujunga Wash intersects the ULAR approximately 9.3 miles below Hansen Dam. Tujunga Wash primarily serves as a flood-control conduit through the eastern San Fernando Valley, carrying flows during and after storm events and staying dry the remainder of time. The major tributary to Tujunga Wash is Pacoima Wash (USACE 2005).

The project area does not contain any water features other than stormwater pipelines (USGS 2022). The project area overlaps with seven ULAR EWMP sub-watersheds—six of which drain to the Los Angeles River and one that drains to the Tujunga Wash.

5.3 Surface Water Quality

Water quality in Los Angeles County, including the project area, is affected by various sources of pollution, including point and nonpoint sources, but primarily urban runoff, which drains from outfalls, roads, sidewalks, exposed soils, roofs, parking lots, and industrial sites. Rain and/or irrigation can convey materials found on top of these surfaces, such as automobile and traffic pollutants (e.g., oil, grease, metals), pesticides, bacteria, sediment with associated pollutants from soil erosion, toxic chemicals from industrial processes, trash, and other contaminants. Pollutants accumulate on impervious areas, then become mobilized during precipitation events. “First flush” storm events have the greatest impact on water quality in receiving waters because the accumulated pollutants are concentrated, with little dilution by the initial storm event of the season.

The Basin Plan specifies beneficial uses that apply to water bodies the Project has the potential affect, as shown in Table 5-1. The 303(d)-listed impairments for the Project are shown in Table 5-2 and based on the *2018 California Integrated Report* (California SWRCB 2018).

Table 5-1. Beneficial Uses of Water Bodies with Potential to Be Affected by the Project

Waterbody	Beneficial Use
Tujunga Wash (LA River to Hansen Dam)	Municipal and domestic supply[p], groundwater recharge[i], warm and cold freshwater habitat[p], wildlife habitat[p], water contact recreation[p1], non-contact recreation[i], high flow suspension[3]
Los Angeles River Reach 4 (Sepulveda Dr to Sepulveda Dam)	Municipal and domestic supply[p2], industrial process supply[p], groundwater recharge, warm freshwater habitat, wildlife habitat, wetland habitat, water contact and non-contact recreation, high flow suspension[3]

Source: Los Angeles RWQCB 2014.
[1] Access prohibited by Los Angeles County Department in the concrete-channelized areas.
[2] Designated under SB 88-63 and RB 89-03. Some designations may be considered for exemption at a later date.
[3] Currently dry and no plans for restoration. The high flow suspension only applies to water contact recreational activities associated with the swimmable goal as expressed in the CWA and the associated bacteriological objectives. Other REC-2 uses involving the aesthetic aspects of water shall remain in effect at all times.
CWA = Clean Water Act; [i] = Intermittent beneficial use; [p] = Potential beneficial use; SB = Senate Bill

Table 5-2. Water Quality Impairments near the Project Area

Waterbody	303(d) Listed Impairment	Source	EPA TMDL Report Completion
Tujunga Wash (LA River to Hansen Dam)	• Ammonia • Copper • Indicator bacteria • Trash	• Nonpoint source • Nonpoint source • Source unknown • Nonpoint source, surface runoff, urban runoff/storm sewers	• 2004 • 2005 • 2012 • 2008
Los Angeles River Reach 4 (Sepulveda Dr to Sepulveda Dam)	• Nutrients (algae) • Toxicity • Indicator bacteria • Trash	• Nonpoint source, point source • Unknown • Unknown • Nonpoint source, surface runoff, urban runoff/storm sewers	• 2004 • 2027 • 2019[1] • 2008

Source: California SWRCB 2018.
[1] A TMDL Report was not completed or approved by the EPA at the anticipated completion date
EPA = U.S. Environmental Protection Agency; TMDL = total maximum daily load

Existing-condition local stormwater runoff volumes and pollutant loading for the watersheds that the Project may affect were modelled over a 10-year simulation period using 2008 to 2018 data and the Los Angeles Flood Control District's Loading Simulation Program in C++ (Geosyntec 2020a). Results are summarized in Table 5-3. Mean climate projections show stormwater runoff and peak flows increasing with climate change by 13 percent and 28 percent respectively (USBR 2016).

Table 5-3. Modelled Existing Condition Average Annual Stormwater Quantity and Quality

Metric	Dry Weather	Wet Weather
Average inflow rate (cfs)	0.1	98.4
Runoff volume (ac-ft)	17.0	1,410.0
Total zinc (µg/l)	244.0	–
Total zinc (lbs)	898.0	–
Total copper (ug/l)	59.0	–
Total copper (lbs)	218.0	–
Total lead (µg/l)	32.0	–
Total lead (lbs)	117.0	–
Total nitrogen (mg/l)	1.4	–
Total nitrogen (lbs)	5,290.0	–
Total phosphorous (mg/l)	0.2	–
Total phosphorous (lbs)	844.0	–

Source: Geosyntec Consultants 2020a.
ac-ft = acre-feet; cfs = cubic square feet; lbs= pounds; mg/l = milligrams per liter; µg/l = microgram/liter

5.4 Groundwater Hydrology

Portions of the project area overlie the San Fernando Valley Groundwater Basin. The basin encompasses 145,000 acres (226 square miles) and is bound on the north and northwest by the Santa Susana Mountains, the San Gabriel Mountains to the north and northeast, the San Rafael Hills to the east, the Santa Monica Mountains and Chalk Hills to the south, and the Simi Hills to the west. The basin includes the water-bearing sediments beneath the San Fernando Valley, Tujunga Valley, Browns Canyon, and the alluvial areas surrounding the Verdugo Mountains near La Crescenta and Eagle Rock, although several geological structures disturb the flow of groundwater through the basin. Recharge occurs through spreading of imported water and runoff in the Pacoima, Tujunga, and Hansen Spreading Grounds, as well as infiltration from precipitation, runoff, and water flowing in surface washes, particularly in the eastern portion of the basin (DWR 2004). Long-term hydrographs indicate groundwater level decline. Groundwater declines are likely due to increased urbanization and runoff leaving the basin, reduced artificial recharge, and continued groundwater extractions by major pumping parties in the basin (SGMA 2020, 2021). The San Fernando Valley Groundwater Basin is used to supply large demands for potable water and also stores large volumes of groundwater that can be pumped during droughts and recharged during years of surplus surface-water supplies. However, the discovery of significant pollution in the basin (summarized below) has reduced groundwater production substantially, as well as the potential for conjunctive use, thereby increasing dependence on imported supplies of water (Los Angeles RWQCB 2014). Approximately 475 groundwater wells are in the basin, of which approximately 101 are water-supply wells.

Groundwater accounts for approximately 19 percent of the basin's water supply (Groundwater Exchange 2018).

Boring logs and cone penetration tests were collected to evaluate hydraulic characteristics for other projects in the Project vicinity. Although historical high groundwater elevations in the project area are reported between approximately 15 and 20 feet below ground surface (bgs), more recent data indicate that the top of the groundwater table beneath the site typically is more than 77 feet bgs (Mott MacDonald 2020 in Geosyntec Consultants 2020a; Geosyntec Consultants 2020b in Geosyntec Consultants 2020a).

5.5 Groundwater Quality

Beneficial uses of groundwater in the San Fernando Valley groundwater basin include municipal and domestic supply[1], industrial service and process supply, and agricultural supply. In the early 1980s, significant contamination was detected in the basin. The primary contaminants of concern are nitrates, volatile organic compounds (VOCs) including solvents, and hexavalent chromium. Due to the extensive contamination the U.S. Environmental Protection Agency (EPA) declared the area a Superfund site (Los Angeles RWQCB 2014; ULAR Area Watermaster 2003). In 2014, basin prioritization was designated as medium by DWR. However, in 2018, the final basin prioritization evaluation conducted by DWR changed the basin priority from medium to very low (Groundwater Exchange 2018).

In the San Fernando Valley groundwater basin, organic constituents were present at high concentrations in 18 percent and at moderate concentrations in about 43 percent of the primary aquifers. In the San Fernando Valley groundwater basin study area, solvents were present at high concentrations in about 18 percent of the primary aquifers. The solvents detected at high concentrations were trichloroethene (TCE), perchloroethene (PCE), carbon tetrachloride, 1,2-dichloroethane, cis-1,2-dichloroethene, and 1-dichloroethane. Solvents were present at moderate concentrations in about 40 percent of the primary aquifers. Many inorganic constituents occur naturally in groundwater and can be affected by both natural processes and human activities. One or more inorganic constituents was present at high concentrations in about 9 percent of the primary aquifers and moderate concentrations in about 33 percent of aquifers. Inorganic constituents with human-health benchmarks includes nutrients such as nitrate and nitrite, which naturally present at low concentrations in groundwater. However moderate to high concentrations occur as a result of human activities, such as fertilizer use. Nitrate was present at moderate and high concentrations in about 27 percent and 9 percent of the primary aquifers, respectively. Other contamination present in the basin includes sulfate and heavy metals (Kulongoski 2012; DWR 2004).

"Geotracker" is the State Water Board's database system used to track and archive compliance data from authorized or unauthorized discharges of waste to land, or unauthorized releases of hazardous substances from underground storage tanks. Potential groundwater contaminants were reviewed for the Safe Clean Water Program (Measure W) Application by searching for active GeoTracker sites within 0.5 miles of all project sites and reviewing Environmental Database Reports (Geosyntec

[1] Nitrite pollution in the groundwater of the Sunland–Tujunga area currently precludes direct municipal and domestic supply uses. Because groundwater in the area can be treated or blended (or both), it retains the municipal and domestic supply designation.

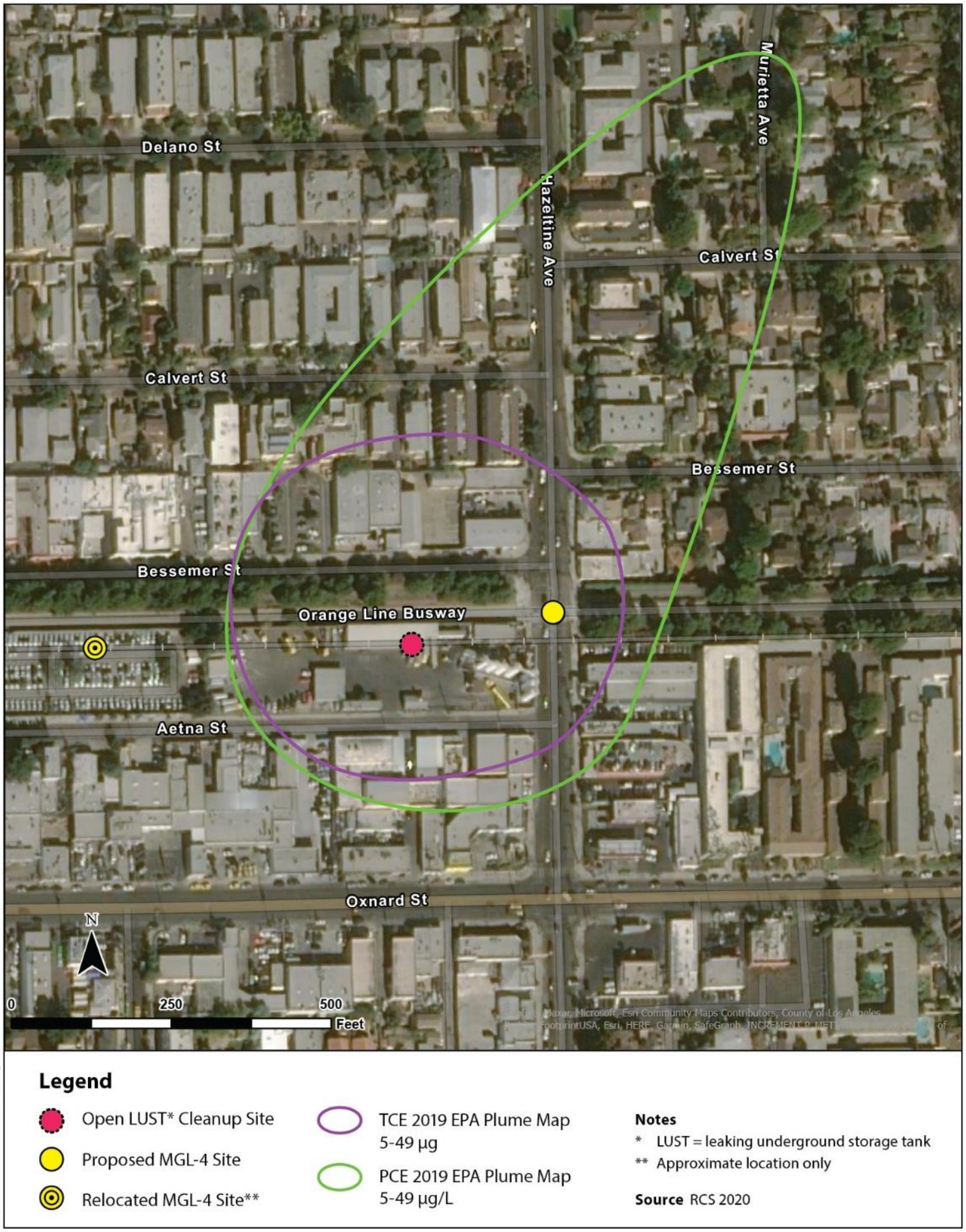
Consultants 2020a). Table 5-4 summarizes active sites with potential groundwater contaminants near the project site. The proposed dry well cluster location designated as MGL-4 is an open leaking underground storage tank (LUST) cleanup site (known as the L. T. Sawyer, Inc., site). This site is located within an area of known groundwater contamination, including the EPA-defined plume area for PCE and TCE, as shown in Figure 5-1. PCE and TCE concentrations in the plume area in the vicinity of the proposed dry well location range from 5 to 49 micrograms/liter (μg/L) for PCE and TCE, respectively. These values are at or above the MCL for PCE (5 μg/L) and TCE (5 μg/L) for drinking water. A portion of the Project site (the diversion structure/conveyance pipe) is within the plume area. However, the drywells would be sited outside the PCE and TCE plume area, and infiltration would be designed to occur outside the area of concern. Additional contaminant plumes in the local groundwater known to be present from VOCs include PCE, 1,2,3-trichloropropane (TCP), TCE, 1,4-dioxane, nitrate, total chromium, and hexavalent chromium (ULAR Area Watermaster 2020).

Table 5-4. Summary of Potential Groundwater Contaminants Near the Project Area

Site Name	Systron Donner (Former)	L. T. Sawyer, Inc.
Site Type	Cleanup Program Site	Open LUST cleanup site
GeoTracker ID	SL184281411	T0603702406
Address	14837 Califa Street Van Nuys, CA 91411	14117 Aetna Street Van Nuys, CA 91401
Status	Open: Remediation as of 5/20/2019	Open: Verification monitoring as of 1/15/2021
Potential Contaminants of Concern	VOCs (TCE[1])	VOCs, other solvents, or non-petroleum hydrocarbons (benzene, MTBE, PCE, TCE)[2]
Distance from Drywell Location	0.22 miles southeast of MGL-1	0.10 miles west of MGL-4
Located within Drainage Area	No	No
Depth to Groundwater, feet	137.01–176.96	169.16–176.96
Groundwater Flow Direction	Northeast	Southeast
Rate of flow, feet per foot	0.0019	0.033

Source: MugenKioku Corporation 2020 in Geosyntec Consultants 2020a; California SWRCB 2022.
[1] Values were below the SWRCB Primary MCL for TCE (5 μg/L) for drinking water.
[2] Maximum concentrations detected in groundwater samples collected beneath this site were above the SWRCB MCL for benzene (1 μg/L), MTBE (13 μg/L), PCE (5 μg/L), and TCE (5 μg/L) for drinking water.
MCL = maximum contaminant level; MGL = Metro G-Line; MTBE = methyl tertiary butyl ether; PCE = perchloroethene; LUST = leaking underground storage tank; TCE = trichloroethene; μg/L = microgram/liter VOC = volatile organic compound

Figure 5-1. Groundwater Contamination Plumes in the Project Area



5.6 Flooding

The Los Angeles River, as well as major dams and reservoirs, provides flood control throughout the Los Angeles River Watershed. Hansen Dam and Lake on the Tujunga Wash is approximately 6 miles northeast of the project site, and Lopez Dam and Pacoima Dam and Reservoir are approximately 9 and 11 miles north of the project site, respectively. The potential for flooding, and the severity, due to a dam breach is very small and depends on the speed of inundation, the location and nature of the dam failure, and topography. These dams are continually monitored to protect against the threat of dam failure. Catastrophic failure of a major dam related to an earthquake is unlikely due to ongoing review and as-needed modifications. The potential for inundation as a result of dam failure is considered low.

Localized flooding occurs throughout the watershed. The project area is outside the 100-year floodplain, within FEMA Zone X (unshaded) (FEMA 2008). FEMA Zone X (unshaded) is an area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level, and none of the project area overlaps with a floodway. The Project is approximately 11 miles northeast of the Pacific Ocean. According to California Emergency Management Agency tsunami mapping, the Project is not subject to inundation by a tsunami (CalEMA 2021). There are no large reservoirs near the project site. Therefore, there is no potential for seiche risks.

Chapter 6
Effects Analysis

6.1 Surface Water Hydrology

During construction, stormwater drainage patterns could be temporarily altered. Because project construction would involve a total area of approximately 3 acres, a SWPPP would be implemented. Construction BMPs, as required in the SWPPP, would be implemented to minimize the potential for erosion or siltation in nearby storm drains and temporary changes in drainage patterns during construction. Construction BMPs would capture and infiltrate small amounts of sheet flow into the ground so that offsite runoff from the construction site would not increase, ensuring that drainage patterns would not be altered significantly. Measures required by the NPDES Construction General Permit would limit site runoff during construction, but would not alter stormwater drainage patterns. Measures would be implemented to control construction-site runoff, ensure proper stormwater control and treatment, and reduce the discharge of pollutants to the storm-drain system. During construction, sandbags would be placed at the upstream construction limit to temporarily detain dry weather flow. The detained flow would be pumped downstream of the construction limit. Therefore, construction would not alter the existing drainage pattern of the area substantially, in a manner that would result in substantial erosion or siltation or increase the rate or amount of surface runoff in a manner that would result in flooding on- or offsite.

The Project includes drywells, which allow for small pockets of very high infiltration. High infiltration enables the area to mimic a natural stormwater behavior in a space-efficient manner without needing to remove large amounts of existing impervious surface. As a result, there would be no change in the impervious area following implementation of the Project (the pre- and post-project impervious area would both total 1,473 acres). The Project consists of seven BMP sites contained within independent drainage areas that drain to the Los Angeles River. The runoff from frequently recurring storms would be captured and infiltrated into a series of distributed stormwater BMPs, thereby reducing the runoff to surface channels to downstream surface water features. Stormwater would be collected from rainfall that flows as sheet flow across nonpermeable paved areas within the project area. The collected stormwater would be directed to one of the proposed drywell clusters (the infiltration systems, made available for deep percolation) for infiltration into the subsurface. The proposed infiltration systems would be constructed within seven dry-well cluster locations throughout the proposed Project area and connect to six County-operated storm drains. Furthermore, the drainage area of the Project does not overlap with other existing or proposed infiltration projects. As a result, the extent of the Project is unique and intentional, as it would supplement other existing and proposed infiltration projects in the ULAR watershed (Geosyntec Consultants 2020a).

The BMP configuration was developed in accordance with existing drainage as-built, local drainage patterns, and utility mapping. Locations of the proposed drywells were evaluated for compatibility with existing streetscapes, storm-drain infrastructure, utilities, surface-flow patterns, and known localized-flooding patterns. Minor alterations to existing storm drain infrastructure within Metro rights-of-way would be required to construct the BMPs. The ULAR EWMP cumulative 24-hour runoff management target for all applicable ULAR EWMP jurisheds[2] is 106.5 acre-feet (Geosyntec Consultants 2020a). Annual average runoff quantity and pollutant loading was characterized to assess project performance during a 24-hour, 85th-percentile storm and assess the long-term water quality and water supply benefits of the Project over a 10-year period. Using the Los Angeles County's Watershed Management System 2.0 (WMMS 2.0) model, the Project is estimated to capture 91 percent runoff volume from a 24-hour, 85th-percentile design storm or 268 acre-feet of 24-hour runoff on an annual basis (Geosyntec Consultants 2020a). The design exceeds the runoff targets set by the ULAR EWMP for runoff management and therefore has no adverse effect on surface-water hydrology.

Six of the BMP clusters would require diversion from County-owned storm drains and active pumping to overcome the hydraulic head and divert stormwater to the BMP clusters. Six of the seven proposed BMP clusters (MGL-1, -2, -3, -4, -5, and -7) include active diversion structures (i.e., pumpstations), where stormwater runoff would be diverted and pumped from the storm drain to the infiltration BMPs. The maximum diversion rates range between 10 to 32 cfs to match the maximum capacity of each infiltration BMP cluster. MGL-6 includes gravity-based diversion of stormwater runoff from surface street gutters along Woodman Ave. The diversion pipe would cross existing sewer lines at MGL-4 and MGL-7. For these two locations, the diversion pipes would be placed deeper than the sewer lines to avoid interference. No other utility conflicts have been identified to date. When the maximum capacity of each infiltration BMP cluster is reached, the pump station would turn off, allowing stormwater to continue flowing into the storm drain. If a hazardous material spill were to occur upstream, the pumpstation would be shut down to prevent diverting the spill into the infiltration BMPs. At a later design stage, the Project may replace the proposed pump stations with gravity-driven diversions, pending further hydraulic gradient analysis. A detailed hydraulic analysis would be completed to demonstrate that the proposed diversion structures would not affect storm-drain conveyance capacity. Wet- and dry-weather runoff volume and flowrates would be measured by installing flow meters between the drywells, their associated pretreatment galleries, and diversion structure at selected clusters to monitor the effectiveness of the Project (Geosyntec Consultants 2020a).

6.2 Surface Water Quality

Project construction and earth-disturbing activities could result in short-term water quality impacts associated with soil erosion and sediment transport to adjacent properties, roadways, or watercourses via storm drains. Sediment transport to local drainage facilities, such as drainage inlets, culverts, and storm drains, could result in reduced stormflow capacity and localized ponding or flooding during storm events. Construction activities could also generate dust, sediment, litter, oil, and other pollutants that could temporarily contaminate runoff from the project site.

Construction activities would comply with the NPDES Construction General Permit, the County's MS4 permit, the City of Los Angeles General Plan, and local ordinances, which contain standards to ensure that water quality is not degraded. As part of the Construction General Permit, standard erosion-control measures and BMPs would be identified in a SWPPP and implemented during construction to reduce sedimentation in waterways. Compliance with the applicable grading permit

[2] The proposed Project captures, treats, and infiltrates stormwater runoff from the following ULAR EWMP jurisdictional sub-watersheds (jurisheds): 685949, 686149, 685049, 685649, 684449 and 683949.

and the Construction General Permit would require BMPs to restrict soil erosion and sedimentation, as well as non-stormwater discharges from the construction site and the release of hazardous materials. As a performance standard, the BMPs to be selected would represent the best available technology that is economically achievable and best conventional pollutant control technology to reduce pollutants.

The infiltration BMPs would use natural materials, such as gravels for natural filtration of the captured stormwater. The Project would not introduce additional runoff into the storm drains. By capturing and infiltrating the untreated runoff into a series of distributed stormwater BMPs, the Project would reduce metal and nutrient pollutant loading to downstream surface-water features. The annual pollutant target load reduction of the jurisdictional sub-watersheds containing the project area ranges from 7 percent to 63 percent (Geosyntec Consultants 2020a). The Project is projected to achieve an approximately 65 percent pollutant-load reduction on an annual basis (Geosyntec Consultants 2020a). In addition, landscape areas disturbed by project construction would be restored with native, drought-tolerant shrubs and trees. Water quality benefits achieved by the Project include reduction in metal (i.e., total zinc, total copper, and total lead), bacteria (*e. coli*), and nutrients (i.e., total nitrogen and total phosphorus).

The Project Team is coordinating with ULAR Watershed Management Group to ensure that the project complies with the ULAR EWMP performance target for its drainage area. Continuous and grab-sample monitoring and reporting would be established to measure water-quality-control performance and coordinate with water-quality regulators (Geosyntec Consultants 2020a). Operation and maintenance of the Project are not expected to affect trash, toxicity, or bacteria pollutant loading adversely. The Project may capture trash, and maintenance procedures involve offsite trash disposal. Construction could cause an increase in trash, toxicity, metals, or fecal bacteria through construction activities. Controls would be specified in the construction specifications, such as the SWPPP. Operation and maintenance would include drywells, pretreatment facilities, and diversion structures/pumpstations.

The Project would be designed and maintained in accordance with the water quality requirements of the County and the Los Angeles RWQCB (e.g., Basin Plan, Los Angeles County MS4, and City of Los Angeles General Plan policies). Therefore, the Project would not violate any water-quality standards or degrade water quality. Through compliance with these policies and requirements, impacts on surface water quality from project implementation would be minimized.

6.3 Groundwater Hydrology and Recharge

During construction, excavation depths are anticipated to be no more than 70 feet. Generally, the depth to groundwater at the project site is more than 77 feet bgs (Mott MacDonald 2020 in Geosyntec Consultants 2020a). Therefore, groundwater dewatering is not expected. In the event that groundwater is encountered during construction, dewatering would be conducted on a one-time or temporary basis during the construction phase and would not result in a loss of water that would deplete groundwater supplies substantially. After dewatering activities are completed, water levels would return to pre-construction conditions. No groundwater would be used during construction. The water supply for construction activities (e.g., dust control, material washing) would most likely come from reclaimed water when available, or potable when no reclaimed water supply is available.

The drywells would be constructed to a depth of approximately 45 feet bgs; therefore, there would be an approximate 32-foot minimum separation between the bottom of the well and the top of the groundwater table. As a result, water infiltrated through the proposed drywells is not anticipated to substantially raise the groundwater elevation because a separation of more than 10 feet between the bottom of the drywells and the groundwater table is expected. On this basis, the proposed drywells are not expected to increase the risk of liquefaction to the adjacent existing improvements substantially. Although liquefaction may cause some damage to the drywells, it would not lead to a safety concern to the public. Based on other drywell projects implemented in the San Fernando Valley area and given the separation distance between the average groundwater table elevation and the bottom of the drywell, infiltration constraints are not anticipated. Groundwater mounding may occur beneath stormwater management structures designed to infiltrate stormwater runoff. Concentrating recharge in a small area can cause groundwater mounding that affects the basements of nearby homes and other structures. The proposed drywells and associated pretreatment facilities are not anticipated to increase surcharge (or pressure) on adjacent structures or foundations. A groundwater mounding analysis is recommended as part of the geotechnical investigation during the project design (Geosyntec Consultants 2020a).

As discussed previously, effective infiltration enables the area to mimic natural stormwater behavior without needing to remove large amounts of existing impervious surface. As a result, there would be no change in the impervious area following implementation of the Project. However, the water supply benefits through increased capture and rate of infiltration would improve groundwater recharge. The Project is estimated to recharge 890 acre-feet of runoff into the San Fernando Groundwater Basin on an annual basis (Geosyntec Consultants 2020a). The Project would not increase groundwater demand because operation of the Project would not utilize groundwater supplies. Because one of the primary goals of the Project includes increased groundwater recharge, the Project would result in beneficial groundwater impact. Therefore, the Project would not decrease groundwater supplies, interfere with groundwater recharge, or impede sustainable groundwater management of the basin.

6.4 Groundwater Quality

Due to the EPA-defined plume area for PCE and TCE in the vicinity of the dry well cluster location designated as MGL-4, the Project would relocate the proposed MGL-4 location approximately 500 feet to the west of the open LUST site and the EPA-defined plumes, as shown on Figure 2-3. As a result, the MGL-4 dry well cluster location would be located sufficiently outside of both the VOC-affected groundwater associated with a LUST cleanup site and the EPA-defined plume, and there would be no groundwater quality concerns regarding stormwater infiltration in the new proposed location. No additional or considerable contaminant plume was identified beneath the proposed BMP sites. Therefore, the risk of the proposed BMP introducing additional contaminants into the San Fernando Valley Groundwater Basin is low.

6.5 Flooding

The project site is not within a planned tsunami inundation area, and therefore would not be subject to inundation by a tsunami. There are no reservoirs adjacent to the project site; therefore, the

Project would not be prone to inundation by a seiche. The project area is located outside the designated FEMA 100-year floodplain and would not be subject to inundation by a flood.

Based on the project design, the Project would increase infiltration, reducing stormwater discharge to the surface water features, and therefore have no adverse effect on flooding. Based on the County's Department of Public Works "HydroCalc Calculator," peak discharge from the project area would be reduced by approximately 9 percent during a 24-hour, 2-year storm (Geosyntec Consultants 2020a).

Chapter 7
Compliance and Mitigation Measures

The Project would implement and comply with construction best management practices based on guidance from several resources, including the Construction General Permit. Implementation of water quality measures (i.e., management measures and mitigation measures) would be required to address project-related water quality impacts during construction, operation, and maintenance of the Project. A site-specific drainage study is recommended as part of the final engineering design.

7.1 SWPPP Requirements

The SWPPP would be prepared by a Qualified SWPPP Developer in accordance with the requirements of the Construction General Permit (Order No. 2012-0006-DWQ). The SWPPP would include construction-phase BMPs for erosion and sediment control, site management/ housekeeping/waste management for control of contaminants, management of non-stormwater discharges, runon and runoff controls, and BMP inspection/maintenance/repair activities. Erosion-control BMPs will include source control measures, such as wetting of dry and dusty surfaces to prevent fugitive dust emissions, preservation of existing vegetation, and effective soil cover (e.g., geotextiles, straw mulch, hydroseeding) for inactive areas and finished slopes to prevent sediments from being dislodged by wind or rain. Sediment-control BMPs include measures such as installation of fiber rolls and sediment basins to capture and remove particles that have already been dislodged. The SWPPP would establish good housekeeping measures, such as construction vehicle storage and maintenance, handling procedures for hazardous materials, and waste management BMPs, which include measures to prevent the release of wastes and materials used at the site. The SWPPP must also detail spill prevention and control measures to identify the proper storage and handling techniques of fuels and lubricants and the procedures to follow in the event of a spill.

BMP implementation would be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association's *Stormwater Best Management Handbook*. The SWPPP would include a construction site monitoring program that identifies requirements for dry-weather visual observations of pollutants at all discharge locations and, as appropriate (depending on the risk level), sampling of the site effluent and receiving waters. A Qualified SWPPP Practitioner would be responsible for implementing the BMPs at the site and performing all required monitoring and inspection/maintenance/repair activities.

The SWPPP would include the following elements.

- **Project Description**: The project description would include maps and other information related to construction activities and potential sources of pollutants.
- **Minimum Construction Control Measures**: These measures may include limiting construction access routes, stabilizing areas denuded by construction, and using sediment controls and filtration.

- **Erosion and Sediment Control**: The SWPPP is required to contain a description of soil-stabilization practices, control measures to prevent a net increase in sediment load in storm water, controls to reduce tracking sediment onto roads, and controls to reduce wind erosion.
- **Non-Storm Water Management**: The SWPPP would include provisions to reduce and control discharges other than storm water.
- **Post-construction Storm Water Management**: The SWPPP would include a list of storm-water control measures that provide ongoing (i.e., permanent) protection for water resources.
- **Waste Management and Disposal**: The SWPPP would include a waste-management section, including, for example, equipment-maintenance waste, used oil, and batteries. All waste must be disposed of as required by state and federal law.
- **Maintenance, Inspection, and Repair**: The SWPPP requires an ongoing program to ensure that all controls are in place and operating as designed.
- **Monitoring**: This provision requires documented inspections of the control measures.
- **Reports**: The contractor would prepare an annual report on the construction project and submit this report on July 15 each year. This report would be submitted to the California SWQCB on the Storm Water Multiple Application and Report Tracking System website (smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.xhtml).
- **Training**: The SWPPP would provide documentation on the training and qualifications of the designated Qualified SWPPP Developer and Qualified SWPPP Practitioner. Trained personnel must perform inspections, maintenance, and repair of construction site BMPs.
- **Construction Site Monitoring Program**: The SWPPP would include a Construction Site Monitoring Program detailing the procedures and methods related to the visual monitoring and sampling and analysis plans for nonvisible pollutants, sediment and turbidity, and pH and bioassessment.

Chapter 8
Conclusions

During construction, the Project could temporarily alter stormwater-drainage patterns and result in erosion with the potential to degrade surface-water quality, but such impacts would be controlled with the implementation of the SWPPP. Stormwater runoff would be captured and infiltrated into a series of distributed stormwater BMPs, thereby reducing the runoff to surface channels and downstream surface water features. The Project would improve surface water quality at downstream receiving water (i.e., Los Angeles River), reduce the risk of localized flooding by mitigating peak flow rates, and increase groundwater supplies. No adverse impacts would result from project implementation.

Chapter 9
References

California Department of Water Resources (DWR). 2004. Bulletin 118 San Fernando Valley Groundwater Basin. February 27. Available: water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/4_012_SanFernandoValley.pdf. Accessed: January 20, 2022.

California Emergency Management Agency (CalEMA). 2021. Los Angeles County Tsunamic Hazard Areas. Available: www.conservation.ca.gov/cgs/tsunami/maps/los-angeles. Accessed: January 24, 2022.

California State Water Resources Control Board (California SWRCB). 2018. GeoTracker. Available: geotracker.waterboards.ca.gov Accessed: January 24, 2022.

City of Los Angeles. 2001. Conservation Element of the City of Los Angeles General Plan. Approved by the City Planning Commission March 10, 2001.

———. 1996. Safety Element of the Los Angeles City General Plan. Adopted by the City Council November 26, 1996.

County of Los Angeles. 2017. Open Data. Available: data.lacounty.gov/browse?q=sub%20 watersheds&sortBy=relevance. Accessed: January 2022.

Federal Emergency Management Agency (FEMA). 2008. FEMA's National Flood Hazard Layer (NFHL) Viewer. Map Numbers 06037C1315F and 06037C1320F, dated September 26, 2008. Available: hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd. Accessed: January 24, 2022.

Geosyntec Consultants. 2020a. *Metro Orange Line a Water Infiltration and Quality Project Safe Clean Water Feasibility Study Repor*t. Safe, Clean Water Program Regional Program Projects Module. October 15. Prepared for Metro.

Geosyntec Consultants. 2020b. Geotechnical Review Metro Orange Line Water Infiltration and Quality Project. October.

Groundwater Exchange. 2018. San Fernando Valley. Available: groundwaterexchange.org/basin/san-fernando-valley-4-012/. Accessed: January 21, 2022.

Kulongoski, J. T., and Belitz, Kenneth. 2012. Groundwater quality in the San Fernando–San Gabriel groundwater basins, California. U.S. Geological Survey Fact Sheet 2011-3139, 4 pp.

Los Angeles Department of Public Works (DPW). 2014. *Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*. Updated in 2019.

Los Angeles Regional Water Quality Control Board (LA RWQCB). 2021. GIS Files and Maps for the Watershed Management Programs. Available: www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/watershed_management/gisfiles_and_maps/index.html. Accessed: January 2022.

Mott MacDonald. 2020. *Metro Orange Line Improvement Sepulveda Station and Grade Separation – 30% Geotechnical Design Memorandum*. September 11. Prepared for Metro.

MugenKioku Corporation. 2020. *Geotracker Data and Environmental Database Report (EDR) Report Review Memo Metro TO5 – Hazard and Hazardous Waste Research Task*. October 8. Prepared for Metro.

National Oceanic and Atmospheric Administration (NOAA). 2022a. Point Precipitation Frequency Estimates. Precipitation Frequency Data Server. NOAA Atlas 14, Volume 6, Version 2. National Weather Service, Silver Spring, Maryland. Available: hdsc.nws.noaa.gov/hdsc/pfds/pfds_printpage.html?lat=34.1769&lon=-118.4440&data=depth&units=english&series=pds. Accessed: January 2022

———. 2022b. NOAA Online Weather Data. National Weather Service. Available: www.weather.gov/wrh/Climate?wfo=lox. Accessed: January 2022

Sustainable Groundwater Management Act (SGMA). 2021. SGMA Data Viewer. Available: sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels. Accessed: January 20, 2022.

———. 2020. SGMA Basin Prioritization Dashboard. Available: gis.water.ca.gov/app/bp-dashboard/final/. Accessed: January 20, 2022.

U.S. Army Corps of Engineers (USACE). 2005. *Los Angeles County Drainage Area Upper Los Angeles River and Tujunga Wash HEC-RAS Hydraulic Models Final Report*. Los Angeles District Engineering Division, Hydrology and Hydraulics Branch Hydrology and Hydraulics Section. July.

U.S. Bureau of Reclamation (USBR). 2016. *Summary Report – Los Angeles Basin Study*. Available: www.usbr.gov/watersmart/bsp/docs/fy2017/LABasinStudySummaryReport.pdf. Accessed: January 2022.

U.S. Geological Survey (USGS). 2020. National Hydrography Dataset. Available: www.usgs.gov/national-hydrography/access-national-hydrography-products. Accessed: January 2022.

Upper Los Angeles River (ULAR) Area Watermaster. 2020. Low Impact Development Improvements Proposed Multi-Neighborhood Stormwater Infiltration Development Project Metro Orange Line Busway. Letter memo. Job No. 500-LAS04. December 4.

———. 2003. *Watermaster Special Report Concerning the History and Occurrence of Hexavalent Chromium Contamination in the San Fernando Basin and Related Watermaster Conclusions and Recommendations.* January.

Upper Los Angeles River (ULAR) Watershed Management Group. 2016. *Enhanced Watershed Management Program (EWMP) for the Upper Los Angeles River Watershed*.