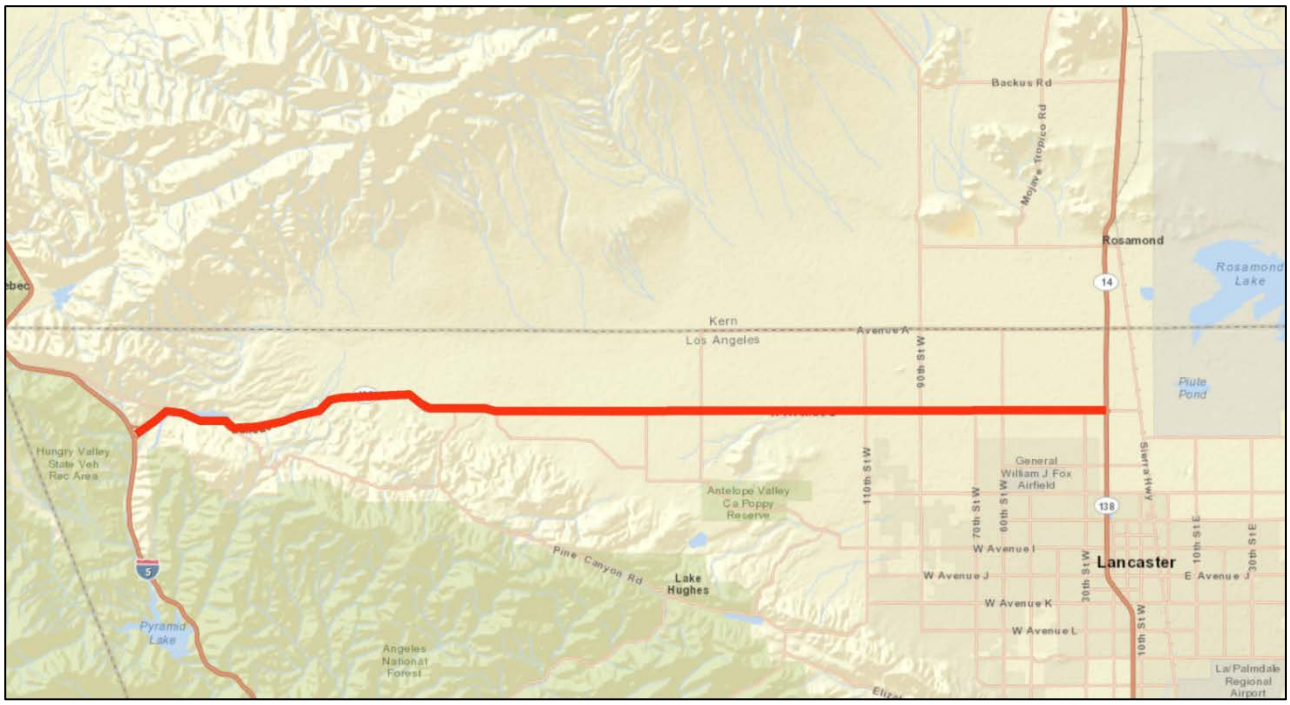
WATER QUALITY ASSESSMENT REPORT

Northwest 138 Corridor Improvement Project



State Route 138 Widening Project

Los Angeles County, California

District 07 – LA –138 – PM 0.0/ 36.8

07-LA-05-PM 79.5/83.1

07-LA-14-PM 73.4/74.4

EA 26510K

November 2015

Water Quality Assessment Report

Northwest State Route 138 Corridor Improvement Project

Los Angeles County

07-LA-138-PM 0.0/36.8
07-LA-05-PM 79.5/83.1
07-LA-14-PM 73.4/74.4

EA 265100

November 2015

STATE OF CALIFORNIA
Department of Transportation

Prepared By: _____
Jeanne Ogar, Associate Environmental Planner
(310) 792-2690
231 California Street, El Segundo, CA 90245
GPA Consulting

Approved By: _____
John Moreno, Associate Environmental Planner
(310) 792-2690
231 California Street, El Segundo, CA 90245
GPA Consulting

Approved By: _____
Richard Galvin, Principal Environmental Planner
(310) 792-2690
231 California Street, El Segundo, CA 90245
GPA Consulting

Executive Summary

The proposed project would improve State Route 138 (SR-138) between the Interstate 5 (I-5) interchange and the State Route 14 (SR-14) interchange. The project corridor spans east to west approximately 36.8 miles (Post Mile [PM] 0.0 to PM 36.8) in the northwest (NW) portion of Los Angeles County, just south of the Kern County border. The existing SR-138 is a 2-lane rural highway that contributes to the local circulation network and provides an alternate route for east-west traffic in northwest Los Angeles County. The NW SR-138 Corridor Improvement Project (project) would upgrade SR-138 and provide operational and safety improvements.

The primary purpose of a Water Quality Assessment Report (WQAR) is to fulfill the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and provide information, to the extent possible, for the National Pollution Discharge Elimination System (NPDES) permitting.

This WQAR includes a discussion of the project, the physical setting of the project area, and the regulatory framework with respect to water quality. It also provides data on surface water and groundwater resources within the project area and existing water quality, describes water quality impairments and beneficial uses, identifies potential water quality impacts/benefits associated with the project, and recommends avoidance and/or minimization measures.

The project area extends east-west across the Antelope Valley Watershed. The proposed improvements cross the California Aqueduct system at two locations. There are no major streams in the project area; however, numerous unnamed drainages descend from the mountains along the southerly margin of the valley and pass under SR-138. A portion of the project area discharges to Quail Lake and then to Pyramid Lake from Lower Quail Canal and Gorman Creek. Pyramid Lake is located approximately five miles south of the SR-138/I-5 interchange. The ultimate receiving water body for this portion of the project area is the Pacific Ocean from the Santa Clara River. The remaining portion of the project area discharges to Amargosa Creek and eventually to Rosamond Dry Lake in the Mojave Desert. Rosamond Dry Lake is located approximately four miles northeast of the SR-138/SR-14 interchange.

In the 2010 Integrated Report (Clean Water Act 303(d) List/305(b) Report), the Los Angeles RWQCB listed Pyramid Lake as an impaired water body with mercury as the pollutant. The Los Angeles RWQCB has not developed a mercury TMDL for Pyramid Lake.

The project would require the disturbance of 2,347 acres under Build Alternative 1; 2,307 acres under Build Alternative 1 (Antelope Acres Bypass), and 1,889 acres under Build Alternative 2. During construction, the project would have the potential to result in increased construction-related pollutants and turbidity within the lakes, creeks, and drainages in the project area, and eventually into receiving bodies. In addition, the project would result in a net added impervious surface area of 414 acres under Build Alternative 1; 425 acres under Alternative 1 (Antelope Bypass Option) and 402 acres under Build Alternative 2. The additional impervious areas proposed under the build alternatives may increase the volume and velocity of the storm water discharge, which could carry additional pollutants into receiving waterways.

With the implementation of the proposed avoidance and minimization measures, direct and indirect impacts on water quality would be minimized. In addition, no substantial or adverse changes in the physical, chemical, or biological characteristics of the aquatic environment are anticipated to result from the project.

The project includes Best Management Practices (BMP) to reduce pollutants of concern in runoff from the project area, and the proposed storm drain system would be sized to accommodate the build-out of the project.

There are potential wetlands and waters of the United States (U.S.) and state in the project area, which are protected under federal (Clean Water Act (CWA) Section 404) and state (CWA Section 401 and California Fish and Game Code Section 1602) regulations. A pre-construction notification under CWA Section 404 Nationwide Permit 14 from the U.S. Army Corps of Engineers (USACE), a CWA Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB), and a California Fish and Game Code Section 1602 Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW) would be required for the project.

Table of Contents

EXECUTIVE SUMMARY ..... **I**
Table of Contents ..... **iii**
List of Figures ..... **iv**
List of Tables ..... **v**

1.0 INTRODUCTION **1**
1.1 Project Description **1**
1.1.1 Project Purpose and Need 1
1.1.2 No Build Alternative 1
1.1.3 Build Alternatives 2
1.1.3.1 Alternative 1 (Freeway/Expressway) 2
1.1.3.2 Alternative 2 (Expressways Conventional Highway) 2
1.2 Approach to Water Quality Assessment **9**

2.0 REGULATORY SETTING **10**
2.1 Federal Laws and Requirements **10**
2.1.1 Clean Water Act 10
2.1.2 Clean Water Action Plan 11
2.2 State Laws and Requirements **11**
2.2.1 Porter-Cologne Water Quality Control Act 11
2.2.2 State Water Resources Control Board and Regional Water Quality Control Boards 11
2.2.2.1 National Pollution Discharge Elimination System Program 12
2.2.2.2 Municipal Separate Storm Sewer Systems (MS4) 12
2.2.2.3 Construction General Permit 13
2.2.2.4 Section 401 Permitting 13
2.2.3 California Fish and Game Code Section 1602 13
2.3 Regional and Local Requirements **14**
2.3.1 Basin Plans for the Lahontan and Los Angeles Regions 14
2.3.2 Los Angeles RWQCB WDRs for Municipal Separate Storm Sewer System 14
2.3.3 Los Angeles County Code and Flood Control District Code 14
2.3.4 Los Angeles County General Plan 17

3.0 AFFECTED ENVIRONMENT **18**
3.1 Introduction **18**
3.2 General Setting **18**
3.2.1 Population and Land Use 18
3.2.2 Topography 18
3.2.3 Hydrology 19
3.2.3.1 Regional Hydrology 19
Antelope-Fremont Valley Watershed 19
3.2.3.1.2 Santa Clara Watershed 23
3.2.3.2 Local Hydrology 23
3.2.3.2.1 Precipitation and Climate 24
3.2.3.2.2 Surface Streams 24
3.2.3.2.3 Flood Plains 24
3.2.3.2.4 Municipal Supply 25
3.2.3.3 Groundwater Hydrology 25

3.2.4 Geology/Soils 25
3.2.4.1 Soil Erosion Potential 28
3.2.5 Biological Communities 29
3.2.5.1 Aquatic Habitat 29
3.2.5.1.1 Antelope-Fremont Valley Watershed 29
3.2.5.1.2 Santa Clara Watershed 30
3.2.5.2 Special Status Species 31
3.2.5.3 Stream and Riparian Habitats 32
3.2.5.3.1 Antelope-Fremont Valley Watershed 32
3.2.5.4.2 Santa Clara Watershed 32
3.2.5.4 Wetlands 32
3.2.5.4.1 Antelope-Fremont Valley Watershed 32
3.2.5.4.2 Santa Clara Watershed 32
3.2.5.5 Fish Passage 32
3.2.5.6 Wildlife Passage 32
3.3 Water Quality Objectives/Standards and Beneficial Uses 33
3.3.1 Surface Water Quality Objectives/Standards and Beneficial Uses 33
3.3.2 Groundwater Quality Objectives/Standards and Beneficial Uses 42
3.4 Existing Water Quality 43
3.4.1 Regional Water Quality 43
3.4.2 List of Impaired Waters 44
3.4.2.1 Santa Clara River 44
3.4.2.2 Pyramid Lake 44
3.4.3 Areas of Special Biological Significance 44

4.0 ENVIRONMENTAL CONSEQUENCES 45
4.1 Introduction 45
4.2 Potential Water Quality Impacts 45
4.2.1 Anticipated Changes to the Physical/Chemical Characteristics of the Aquatic Environment 45
4.2.2 Anticipated Changes to the Biological Characteristics of the Aquatic Environment 45
4.2.3 Short-Term Construction Impacts 45
4.2.4 Long-Term Operational Impacts 46
4.3 Cumulative Impacts 48

5.0 AVOIDANCE AND MINIMIZATION MEASURES 49

REFERENCES 52
Works Cited 52
Preparer Qualifications 53

List of Figures

Figure 1: Regional Location Map 5
Figure 2: Project Location Map 7
Figure 3: Lahontan and Los Angeles RWQCBs 15
Figure 4: Watershed Area Map 21
Figure 5: FEMA Flood Map 27

List of Tables

Table 1: Hydrologic Units in Project Area 23
Table 2: Surface Water Quality Objectives for Inland Waters in the Lahontan Region..... 33
Table 3: Surface Water Quality Objectives for Inland Waters in the Los Angeles Region..... 36
Table 4: Regional Objectives for Ground Waters in the Lahontan Region 42
Table 5: Regional Objectives for Ground Waters in the Los Angeles Region 43
Table 6: Added Impervious Surface Area..... 46

This page has been intentionally left blank.

1.0 INTRODUCTION

1.1 Project Description

The California Department of Transportation (Caltrans), in cooperation with the Los Angeles County Metropolitan Transportation Authority (Metro), propose to widen and improve approximately 36.8 miles of State Route 138 (SR-138) between the Interstate 5 (I-5) interchange and the State Route 14 (SR-14) interchange. The existing facility is a 2-lane highway that contributes to the local circulation network and provides an alternate route for east-west traffic in northwest (NW) Los Angeles County. The NW SR-138 Corridor Improvement Project (project) would widen SR-138 and provide operational and safety improvements. The project corridor spans east-west approximately 36.8 miles (Post Mile [PM] 0.0 to PM 36.8) in the NW portion of Los Angeles County, just south of the Kern County border. (see **Figure 1**, Regional Location Map and **Figure 2**, Project Location Map).

This section describes the proposed action and the project alternatives that were developed to achieve the identified purpose and need of the project while avoiding or minimizing environmental impacts. The alternatives are the No Build Alternative, Alternative 1 (Freeway/Expressway) with or without a design option for a bypass around Antelope Acres, and Alternative 2 (Expressway/ Conventional Highway). SR-138 is an undivided 2-lane highway that travels from I-5 around the south side of Quail Lake and east to SR-14. SR-138 is not a controlled-access facility; access and egress points include at-grade intersections with paved and unpaved roads and driveways. The existing roadway consists of two 12-foot lanes with variable shoulders ranging from 2- to 4-foot paved to 8 foot unpaved non-standard shoulders.

1.1.1 Project Purpose and Need

The purpose and need of a project defines the objectives of the project and the transportation deficiencies. The project purpose aids decision-making by providing clear objectives and a basis for comparing alternatives.

The purpose of this project is to:

- Improve mobility and operations in northwest Los Angeles County;
- Enhance safety within the SR-138 Corridor based on current and future projected conditions;
- Accommodate foreseeable increases in travel and goods movement within northern Los Angeles County.

The need for the proposed project is derived from foreseeable increases in travel demand that would exceed the current capacity of SR-138 and higher than average state-wide fatal accident rates at several locations.

1.1.2 No Build Alternative

Implementation of the No-Build Alternative would maintain the existing configuration of SR-138 and would not result in improvements to the route. However, additional residential, commercial, and interregional development is anticipated to occur in Antelope Valley in the future. With Los Angeles to the southeast and Bakersfield to the northwest, this area is poised for large-scale growth, which is anticipated to result in increased traffic demands beyond the capacity of the existing system (Caltrans, 2008).

The No-Build Alternative would not accommodate the projected population growth or expected substantial increase in goods movement truck traffic in Northern Los Angeles County and the existing corridor would not be improved. As discussed in the Project Study Report/ Project Development Study (PSR/PDS), the existing SR-138 corridor is projected to degrade and operate consistently at a Level of Service (LOS) E and F for 2040 conditions (Caltrans, 2008). The No-Build Alternative could result in indirect impacts on air quality, mobility, safety, and the economy within Northern Los Angeles County. There would be increased maintenance costs to maintain the route without any other improvements.

1.1.3 Build Alternatives

1.1.3.1 Alternative 1 (Freeway/Expressway)

Alternative 1 (Freeway/Expressway) would include a 6-lane freeway from the I-5 interchange connector ramps to County Road 300th Street West , and a 4-lane expressway from County Road 300th Street West to the SR-14 interchange generally following the existing alignment of SR-138. There would also be improvements to the I-5/SR-138 and SR-138/SR-14 freeway connections and structure over the SR-14. Study limits on I-5 are from PM 79.5 to PM 83.1 and on SR -14 the limits are from PM 73.4 to PM 74.4.

Alternative 1 with Antelope Acres Bypass

There is a design option with this alternative to include a bypass route around the Antelope Acres community. This option was developed to reduce the impacts to the existing residences of Antelope Acres due to the proposed four-lane expressway along the existing alignment of SR-138. The alignment would bypass the community to the north along West Avenue C and going from west to east, the alignment would begin to deviate from the existing SR-138 near 100th Street West and continue in a northeasterly direction towards West Avenue C. After paralleling West Avenue C for approximately one mile, the alignment would continue in a southeasterly direction back towards the existing SR-138, and eventually join the existing SR-138 near 70th Street West. The existing highway would be relinquished to the County as a local roadway between 100th Street West and 70th Street West, with additional speed reduction measures proposed to reduce cut-through traffic.

1.1.3.2 Alternative 2 (Expressways Conventional Highway)

Alternative 2 (Expressway/Highway) would include a 6-lane freeway from the I-5 interchange connector ramps to Gorman Post Road, a 6-lane expressway from the Gorman Post Road interchange to County Road 300th Street West, a 4-lane expressway from 300th Street West to County Road 240th Street West, and a 4-lane limited access Conventional Highway from County Road 240th Street West to the SR-14 interchange, generally following the existing alignment of SR-138. There would also be improvements to the I-5/SR-138 and SR-138/SR-14 freeway connections and the structure over the SR-14. The study limits on these connectors would be the same as Alternative 1; on I-5 from PM 79.5 to PM 83.1 and on SR -14 the limits are from PM 73.4 to PM 74.4.

For Alternative 1 (with or without the Antelope Acres Bypass design option), and Alternative 2, new overcrossings would also be considered at various intersections with local roads including 60th Street West, 90th Street West, 110th Street West, 170th Street West, 190th Street West, 210th Street West, and Three Points Road to enhance traffic safety and improve local vehicular, pedestrian and bicycle circulation.

<u>Note on the TSM Alternative</u>

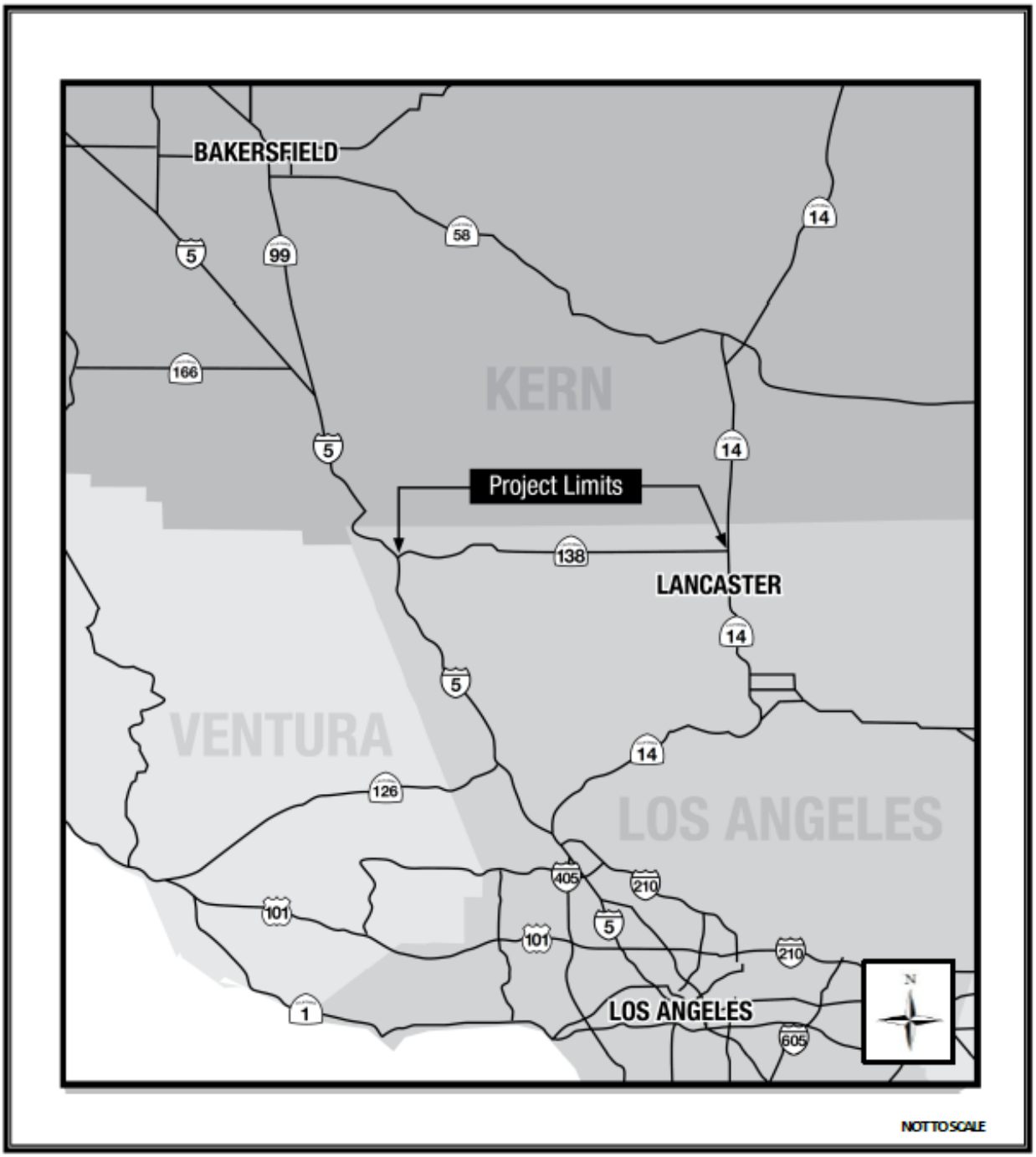
The TSM Alternative was developed to strategize improvements to the facility without major changes to the overall capacity. This alternative had improvements to the vertical and horizontal roadway alignment in areas that are currently non-standard, shoulder widening, localized improvements at accident locations, intersection improvements, and additional lanes to improve safety and traffic flow at focused areas. Upgrades to signage and lighting were also evaluated to improve safety and operations.

A TSM Alternative was proposed originally as a result of agency and public input during circulation of the Notice of Intent (NOI)/Notice of Preparation (NOP) in 2013 and subsequent public meetings.

The TSM Alternative was studied and evaluated in all of the technical studies for the proposed project but the TSM Alternative was not recommended for further analysis and it was ultimately rejected from further study because it did not fully address the project's purpose and need. For that reason, the TSM Alternative is included in this technical study analysis but not included in the project description seen above. Please refer to the NW SR-138 Draft EIR/EIS for more information on the TSM Alternative.

This page has been intentionally left blank.

Figure 1: Regional Location Map



Metro

Figure 1: Regional Location Map
Northwest 138 Corridor Improvement Project

Caltrans

This page has been intentionally left blank.

Figure 2: Project Location Map

Metro

Figure 2: Project Location Map
Northwest 138 Corridor Improvement Project

Caltrans

This page has been intentionally left blank

.

1.2 Approach to Water Quality Assessment

The Water Quality Assessment Report (WQAR) includes a discussion of the project, the physical setting of the project area, and the regulatory framework with respect to water quality; it also provides a description of existing water quality and designated beneficial uses of Bear Creek. As part of this analysis, reviews were conducted of the Basin Plan for the Sacramento River and San Joaquin River Basins, the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Merced County, the Hydrology and Hydraulic Analysis, and the project plans. In order to determine the impacts on water quality, the increase in impervious surface area of the new bridge was calculated, and impacts of the water diversion and construction activities were considered. This document provides an analysis of the potential short-term and long-term water quality impacts/benefits associated with the project, and recommends whether avoidance and/or minimization measures would be recommended.

2.0 REGULATORY SETTING

2.1 Federal Laws and Requirements

2.1.1 Clean Water Act

In 1972 the United States Congress (Congress) amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Important CWA sections are:

- Sections 303 and 304 require states to put into effect water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the U.S., to obtain certification from the state that the discharge will comply with other provisions of the act. This is required concurrently with a Section 404 permit request.
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and Municipal Separate Storm Sewer Systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The USACE issues two types of 404 permits: Standard and General permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and result in minimal environmental effects. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects. There are also two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits.

For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (EPA) Section 404 (b)(1) guidelines (U.S. EPA CFR 40 Part 230), and whether permit approval is in the public interest. The 404(b)(1) guidelines were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative that would have less adverse effects. The guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA), to the proposed discharge that would have fewer effects on waters of the U.S., and not have any other substantial adverse environmental consequences. Per the guidelines, documentation is needed that indicating that a sequence of avoidance, minimization, and compensation measures have been followed, in that order. The guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or

result in "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the guidelines, must meet general requirements (see 33 CFR 320.4).

2.1.2 Clean Water Action Plan

The Clean Water Action Plan (Action Plan) was an initiative announced by President Bill Clinton in 1998 to restore and protect waters within the U.S. EPA and the Department of Agriculture worked with other agencies and the public to develop the Action Plan and provide an outline of actions needed to restore and protect water resources. The Action Plan includes actions to protect public health, control polluted runoff, protect coastal waters, expand citizens' right to know, and enhance federal stewardship (EPA, 2014). A key goal of the Action plan is to have a United Watershed Assessment (UWA) and take a cooperative approach to restoring and protecting water quality in which state, federal, tribal, and local governments work with stakeholders and interested citizens to identify watersheds not meeting clean water and other natural resource goals, and to work cooperatively to focus resources and implement effective strategies to solve these problems (EPA, 2008).

2.2 State Laws and Requirements

2.2.1 Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDR) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA, and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB basin plan. In California, the RWQCBs designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use.

The SWRCB identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-source point controls (NPDES permits or Waste Discharge Requirements), the CWA requires the establishment of Total Maximum Daily Loads (TMDL). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

2.2.2 State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB determines water rights, sets water pollution control policy, issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving

basin plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

2.2.2.1 National Pollution Discharge Elimination System Program

The RWQCB administers the National Pollutant Discharge Elimination System (NPDES) storm water permitting program, under Section 402(p) of the CWA. Under Section 402 of the CWA, a NPDES permit is required for any point source discharge of pollutants into waters of the U.S., and establishes monitoring and reporting requirements. Construction activities that involve disturbance of more than one acre require compliance with the statewide NPDES storm water general permit for construction activities. Construction activity that results in soil disturbances of less than one acre is subject to this permit if there is potential for substantial water quality impairment resulting from the activity as determined by the RWQCB. The project would involve more than one acre of grading, land shaping, and disturbance, and is therefore subject to requirements of the statewide permit.

2.2.2.2 Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water dischargers, including MS4s. The EPA defines an MS4 as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water." The SWRCB has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. Caltrans' MS4 permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit No. CAS000003, Order No. 2012-0011-DWQ came into effect on July 1, 2013 contains these basic requirements:

1. Caltrans must comply with the requirements of the CGP (see below);

2. Caltrans must implement a year-round program in all parts of the state to effectively control storm water and non-storm water discharges; and

3. Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs) to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

4. Caltrans is required to implement control measures to achieve 1650 Compliance Units ("CUs") per year where o]ne CU is equivalent to one acre of the Caltrans right of way (ROW), from which runoff is retained, treated, or otherwise controlled prior to discharge.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing

storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The project would be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

2.2.2.3 Construction General Permit

The CGP (Order No. 2009-009-DWQ, as amended by 2010-0014-DWG), adopted on November 16, 2010, became effective on February 14, 2011. The permit regulates storm water discharges from construction sites which result in a DSA of one acre or greater, and/or smaller sites that are part of a larger common plan of development. For all projects subject to the CGP, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP).

By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the CGP. Construction activity that results in soil disturbances of less than one acre is subject to this CGP if there is potential for substantial water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the CGP.

The CGP separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and pre- and post-construction aquatic biological assessments during specified seasonal windows.

2.2.2.4 Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project would be in compliance with state water quality standards. The most common federal permit triggering 401 Certification is a CWA Section 404 permit, issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDR) under the Porter-Cologne Act that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

2.2.3 California Fish and Game Code Section 1602

In compliance with California Fish and Game Code Section 1602, the California Department of Fish and Wildlife (CDFW) issues agreements for any alteration of a river, stream or lake where fish or wildlife

resources may be adversely affected. Streams and rivers are defined by the presence of a channel bed, banks, and perennial, intermittent, or ephemeral flow of water. CDFW typically extends the limits of their jurisdictional laterally beyond the channel banks for streams to the outer edges of riparian vegetation.

2.3 Regional and Local Requirements

2.3.1 Basin Plans for the Lahontan and Los Angeles Regions

Section 13240 of the Porter-Cologne Water Quality Control Act requires each RWQCB to formulate and adopt water quality control plans, or basin plans, for all areas within the region. The majority of the project area is under the jurisdiction of the Lahontan RWQCB's Victorville Office (see **Figure 3**). This portion of the project area is included in the planning area for the *Water Quality Control Plan for the Lahontan Region* (Lahontan RWQCB Basin Plan) (California Regional Water Quality Control Board, Lahontan Region, 1994). A small portion of the project area at the western end of the SR-138 Corridor along I-5 and at the I-5/SR-13 interchange is under the jurisdiction of the Los Angeles RWQCB. This portion of the project area is included in the planning area for the *Water Quality Control Plan, Los Angeles Region* (Los Angeles RWQCB Basin Plan) (California Regional Water Quality Control Board, Los Angeles Region, 1994).

The basin plans list the beneficial uses of surface waters and ground waters in the region. Beneficial uses are uses that may be protected against quality degradation. These uses include and are not limited to domestic, municipal, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. The beneficial uses of surface waters and ground waters in the basin are designated in the water quality control plans.

The basin plans also include water quality objectives, which are the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.

2.3.2 Los Angeles RWQCB WDRs for Municipal Separate Storm Sewer System

Phase I of the SWRCB's MS4 program, issued in 1990, requires medium and large cities or certain counties with populations of 100,000 or more to obtain NPDES permit coverage for their storm water discharges. A municipal NPDES storm water permit was issued to the County of Los Angeles and 84 incorporated cities (with the exception of the City of Long Beach) under Order No. R4-2012-0175, NPDES Permit No. CAS004001 by the Los Angeles RWQCB on November 8, 2012 (Los Angeles RWQCB, 2012). The portion of the project area on unincorporated County land, which includes the western end of the project area (west of Quail Lake from PM 0 to PM 2.4), is covered under the Los Angeles County Phase I MS4 permit.

2.3.3 Los Angeles County Code and Flood Control District Code

The Los Angeles County Code applies to the unincorporated areas that are directly impacted by the build alternatives. Chapter 21 (Storm water and Runoff Pollution Control) sets forth standards to regulate the storm water and non-storm water discharges to the facilities of the Los Angeles County Flood Control District in order to protect those facilities, the water quality of the waters in and downstream of those facilities, and the quality of the water that is being stored in underground water-bearing zones (County of Los Angeles, 2013).

Figure 3: Lahontan and Los Angeles RWQCBs

Metro

Figure 3: Lahontan and Los Angeles RWQCBs
Northwest 138 Corridor Improvement Project

Caltrans

This page has been intentionally left blank.

2.3.4 Los Angeles County General Plan

The Los Angeles County General Plan (County's General Plan) contains the County's goals related to land use, and is designed to serve as the basis for development decisions. The following objective and policy from the County's General Plan, Conservation and Open Space Element are applicable to the project (County of Los Angeles, 1980):

- Objective: To conserve water and protect water quality.
- Policy 5: Encourage the maintenance, management, and improvement of the quality of imported domestic water, ground water supplies, natural runoff, and ocean water.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

This section describes the existing environmental conditions in the project area, and includes a description of population and land use, topography, hydrology, geology/soils, and biological communities.

3.2 General Setting

3.2.1 Population and Land Use

Existing land uses in the project area include agriculture, residential, commercial, municipal, and undeveloped land. The project alignment traverses predominantly undeveloped land covered by tumbleweeds, low grasses and scattered stands of juniper and Joshua trees. Several irrigated areas are located along the project alignment. Scattered single family residences and the unincorporated communities of Three Points/Liebre Mountain, Neenach/Oso, Fairmont, and Antelope Acres are located in the area. A large solar facility is located on both sides of the alignment between about 180th Street and 150th Street. Electrical transmission lines are located adjacent to the existing roadway and cross the roadway at several locations.

A description of the unincorporated communities in the project area are as follows:

- Three Points/Liebre Mountain: This community is a sparsely populated settlement (a population of 200 persons in 2008) and includes an historic homestead (Los Angeles times, 1991).
- Neenach/Oso: This community is currently a small agricultural settlement with a population of 800 persons (Gold, 2008).
- Fairmont: Approximately 1,700 acres within this community were dedicated in 1977 as the Antelope Valley California Poppy Reserve. Population information for this community was not readily available from U.S. Census data or other online sources.
- Antelope Acres: With a population of approximately 2,800 persons, the community has become the home to many commuters who work in nearby cities; however, there are still substantial ongoing agricultural operations in this community, including livestock and field crops (Wikipedia, 2015).

3.2.2 Topography

The project area is in the western part of the Mojave Desert geomorphic province[1], which is bounded to the northwest by the Garlock Fault and the Tehachapi Mountains, and to the southwest by the San Andreas Fault zone and the San Gabriel Mountains. The Mojave Desert has interior enclosed drainage and several playas (dry lake beds). The valley floor contains several erosion resistant bedrock hills such as the Fairmont, Antelope, and Little Buttes.

[1] A geomorphic province is a naturally defined geologic region that displays a distinct landscape or landform.

The project area extends east-west across the Antelope Valley, which is bounded on the south by the southeast trending San Andreas Fault zone and the Transverse Ranges. The western portion of the alignment crosses the San Andreas Fault zone and is located in the foothills of the Transverse Ranges.

The Antelope Valley is generally characterized by flat, sandy terrain with widely scattered hills and isolated peaks comprised of erosion resistant bedrock formations. Drainage across the valley area is generally to the northeast and east, with the general elevation gradually decreasing to the east at a gradient of less than 0.5%. The total elevation difference along the 36.7 miles of project area is approximately 1,090 feet. The highest point along the alignment is about 3,410 feet above sea level at the eastern end of the Quail Lake Sky Park Airport, while the lowest point is at the SR-138/SR-14 interchange with an elevation of approximately 2,320 feet.

3.2.3 Hydrology

3.2.3.1 Regional Hydrology

The project is located in the Lahontan and Los Angeles regions. The Lahontan region includes the highest (Mount Whitney) and lowest (Death Valley) points in the contiguous United States, and the topography of the remainder of the region is diverse. The region includes the eastern slopes of the Warner Mountains and the Sierra Nevada, the northern slopes of the San Bernardino and San Gabriel Mountains; the southern slopes of the Tehachapi Mountains, and all or part of other ranges including the White, Providence, and Granite Mountains and the western slopes of the New York and Ivanpah Mountains. Topographic depressions include the Madeline Plains, Surprise, Honey Lake, Bridgeport, Owens, Antelope, and Victor Valleys. The Lahontan region includes over 700 lakes, 3,170 miles of streams and 1,581 square miles of ground water basins.

The Los Angeles region encompasses all coastal drainages flowing to the Pacific Ocean between Rincon Point (on the coast of the western Ventura County) and the eastern Los Angeles County line, as well as the drainages of the five coastal islands (Anacapa, San Nicolas, Santa Barbara, Santa Catalina, and San Clemente). In addition, the Los Angeles region includes all coastal waters within three miles of the continental and island coastlines.

The majority of the project area is located within the Antelope-Fremont Valleys Watershed, with only the far west end lying within the Santa Clarita Watershed (see **Figure 4**).

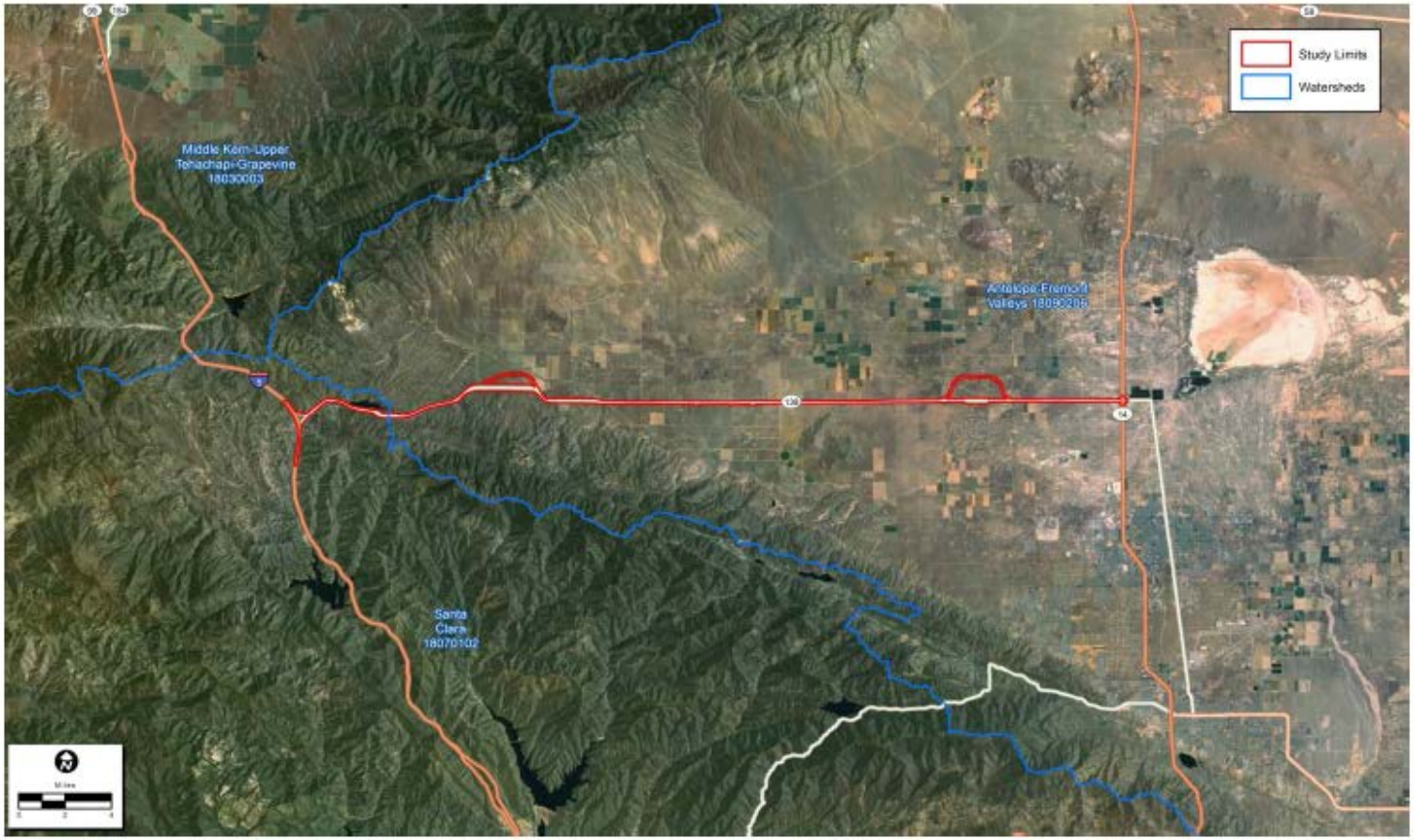
Antelope-Fremont Valley Watershed

The Antelope-Fremont Valleys Watershed (2,160,629 acres) is predominantly within Kern and Los Angeles counties, and extends from the community of Boron west to the community of Mojave and south to the Lancaster-Palmdale area (ECORP Consulting, Inc., 2014). The most hydrologically important streams in the Antelope Valley region begin in the San Gabriel Mountains on the southwestern edge of the Antelope Valley Region and include, from east to west, Big Rock Creek, Little Rock Creek, Amargosa Creek, and Oak Creek from the Tehachapi Mountains.

Within the project area, the Antelope-Fremont Valley Watershed extends approximately from Old Ridge Route Road east to the end of the project area at the SR-138/SR-14 interchange. All of the drainages recorded within the Antelope-Fremont Valleys Watershed within the project area are thought to be isolated and flow toward the three dry lakes on Edwards Air Force Base (ECORP Consulting, Inc., 2014). Except during the largest rainfall events of a season, surface water flows quickly percolate into stream beds and

recharge the groundwater basin. Surface water flows that reach the dry lakes are generally lost to evaporation.

Figure 4: Watershed Area Map



Source: ECORP Consulting, Inc., 2014

Metro

Figure 4: Watershed Area Map
Northwest 138 Corridor Improvement Project

Caltrans

This page has been intentionally left blank.

3.2.3.1.2 Santa Clara Watershed

The Santa Clara Watershed (1,032,382 acres) is predominantly within Los Angeles County, with over approximately 786 square miles in Los Angeles County, approximately 243 square miles within Ventura County, and one square mile within Kern County (ECORP Consulting, Inc., 2014). The Santa Clara Watershed is one of the last free-flowing natural riparian systems left in California, flowing approximately 86 miles from the Santa Clara River in the San Gabriel Mountains to the Pacific Ocean.

The Santa Clara Watershed drains approximately 1,600 square miles or 1.7 million acres of the San Gabriel, Castaic, Santa Susana, and Sierra Madre Mountains. The drainage area includes Ventura and Los Angeles Counties and smaller portions of Santa Barbara and Kern Counties. Five major tributaries are present in the watershed, and include Piru Creek, Castaic Creek, San Francisquito Creek, Bouquet Canyon, and Mint Canyon. Within the project area, the Santa Clara Watershed extends approximately from Old Ridge Route Road west to the end of the project area at the SR-138/I-5 interchange (ECORP Consulting, Inc., 2014).

3.2.3.2 Local Hydrology

The project area is located within two Hydrologic Units (HU), Santa Clara-Calleguas HU on the west (Santa Clara River watershed) and Antelope HU on the east. The details for the hydrologic units in the project area are summarized in **Table 1**.

Table 1: Hydrologic Units in Project Area

Portion of Project Area	Hydrologic Unit	Hydrologic Area	Hydrologic Sub-Area (HSA)	HAS Number
PM 0.0 to PM 2.4	Santa Clara - Calleguas	Piru	Undefined	403.43
PM 2.4 to 27.7	Antelope	Neenach	Undefined	626.40
PM 27.7	Antelope	Lancaster	Undefined	626.50

Source: Metro and Caltrans District 7, 2015

From PM 0.0 (I-5) to PM 2.4, the project is within the Santa Clara-Calleguas HU and the Piru Hydrologic Area, Sub-Area 403.43. This area discharges to Quail Lake and then to Pyramid Lake from Lower Quail Canal and Gorman Creek. Pyramid Lake is located approximately five miles south of the SR-138/I-5 interchange. The ultimate receiving water body for this portion of the project area is the Pacific Ocean from the Santa Clara River.

From PM 2.4 to 27.7, the project is within the Antelope HU and the Neenach Hydrologic Area, Sub-Area 626.40. There is no identified water body for this sub-area according to the Lahontan RWQCB Basin Plan. From PM 27.7 to 36.8 (SR-14), the project is also within the Antelope HU and the Lancaster Hydrologic Area, Sub-Area 626.50. This area discharges to Amargosa Creek and eventually to Rosamond Dry Lake in the Mojave Desert. Rosamond Dry Lake is located approximately four miles northeast of the SR-138/SR-14 interchange.

The collective watersheds that drain to SR-138 and regions that may overflow to SR-138 (i.e., near the SR-138/SR-14 interchange) is an expansive area. The cumulative drainage area is approximately 548 square

miles (mi^2), 29 mi^2 of which is identified as the Gorman Creek Watershed (to the west) and 519 mi^2 to the east towards SR-14.

3.2.3.2.1 Precipitation and Climate

The climate of the project region is arid. The average annual high temperature is about 76 degrees Fahrenheit (°F). The hottest months are June through September when high temperatures average about 95°F and low temperatures average about 58°F. The maximum high temperature is 114°F recorded in August 1939.

Coolest temperatures occur in the winter months of December and January when the average high is about 56°F and average low is 30°F. The minimum temperature 2°F recorded in December 1984. Extreme low temperatures occur from November to March when freezing is possible. Snowfall is possible from December through March with an annual average up to about 7 inches of snow during these months. The maximum recorded snowfall of 27 inches was recorded in 1916.

Annual precipitation is about 7.4 to 8.5 inches with most of the rain falling between December and February. The driest months are June, July, and August when rainfall is generally less than 0.1 inch per month. Monsoon-type rains occasionally occur during the summer months and cause local flooding.

3.2.3.2.2 Surface Streams

The project area is within an arid region, and therefore, there is little natural perennial surface water. As a result of the variability of rainfall, surface hydrology is dominated by ephemeral washes, flowing only during storm events and remaining dry for most of the year.

The proposed improvements cross the California Aqueduct system at two locations. The first location is near Quail Lake, a regulated storage body for the West Branch of the California Aqueduct, which passes under SR-138 in two reinforced concrete box culverts. The second location is near 245th Street where SR-138 passes over the East Branch on a single span bridge. Both branches of the aqueduct are contained in an open, concrete-lined channel.

There are no major streams in the project area; however, numerous unnamed drainages descend from the mountains along the southerly margin of the valley and pass under SR-138. Most of these drainages do not experience flow except during heavy rainfall and are not confined to manmade channels. Scour potential exists at these locations during flash flood conditions.

3.2.3.2.3 Flood Plains

A preliminary floodplain analysis indicates that the project area is within three flood zone types, as defined by Federal Emergency Management Association (FEMA) Flood Insurance Rate Maps (FIRMs):

- Zone A – areas of 100-year flood, base flood elevations, and flood hazard factors not determined;
- Zone B – areas between the limits of the 100-year flood and 500- year flood, or certain areas subject to 100-year flooding with average depths less than 1 ft, or where the contributing drainage areas less than one square mile or protected by levees from the base flood; and
- Zone C – areas of minimal flooding.

The source of flows in the ephemeral, intermittently flowing streams is storm water runoff and sheet flow from nearby hillsides. These flows can be concentrated in canyons and washes to create short-term flood impacts.

Figure 5 shows the limits of the 100-year floodplains within the project area at 3 Points Road, 170th Street, 110th Street and SR-14. The limits of floodplain are shown in blue, and the project area is shown in red.

3.2.3.2.4 Municipal Supply

The major source of public drinking water in the Antelope Valley area is groundwater. Another important source of water is imported water through the California Water Project. In addition, many private wells serve as domestic drinking water and irrigation supplies. There are groundwater wells along SR-138. There are no drinking water reservoirs or recharge facilities in the project area.

3.2.3.3 Groundwater Hydrology

The project area is in the Antelope Valley Groundwater Basin, and is within the West Antelope, Neenach, and Lancaster sub-basins. According to groundwater data collected since 1947, which was available from the California Department of Water Resources for existing wells located along SR-138, the depth to groundwater in the area ranges from approximately 35 to 400 feet below ground surface (California Department of Water Resources, 2004). Groundwater in the area flows from south to north (United States Geological Survey, 2015). The *Preliminary Geotechnical Design Report* (Earth Mechanics, Inc., 2014) prepared for the project states that groundwater is typically approximately 140 feet below ground level along the alignment. At the western end of the alignment, groundwater may be locally shallower in the vicinity of the San Andreas Fault Zone. This is further supported by Lahontan RWQCB in a memorandum dated December 3, 2013 stating that "shallow groundwater occurring along the fault zone is known to support numerous perennial springs and associated wetlands."

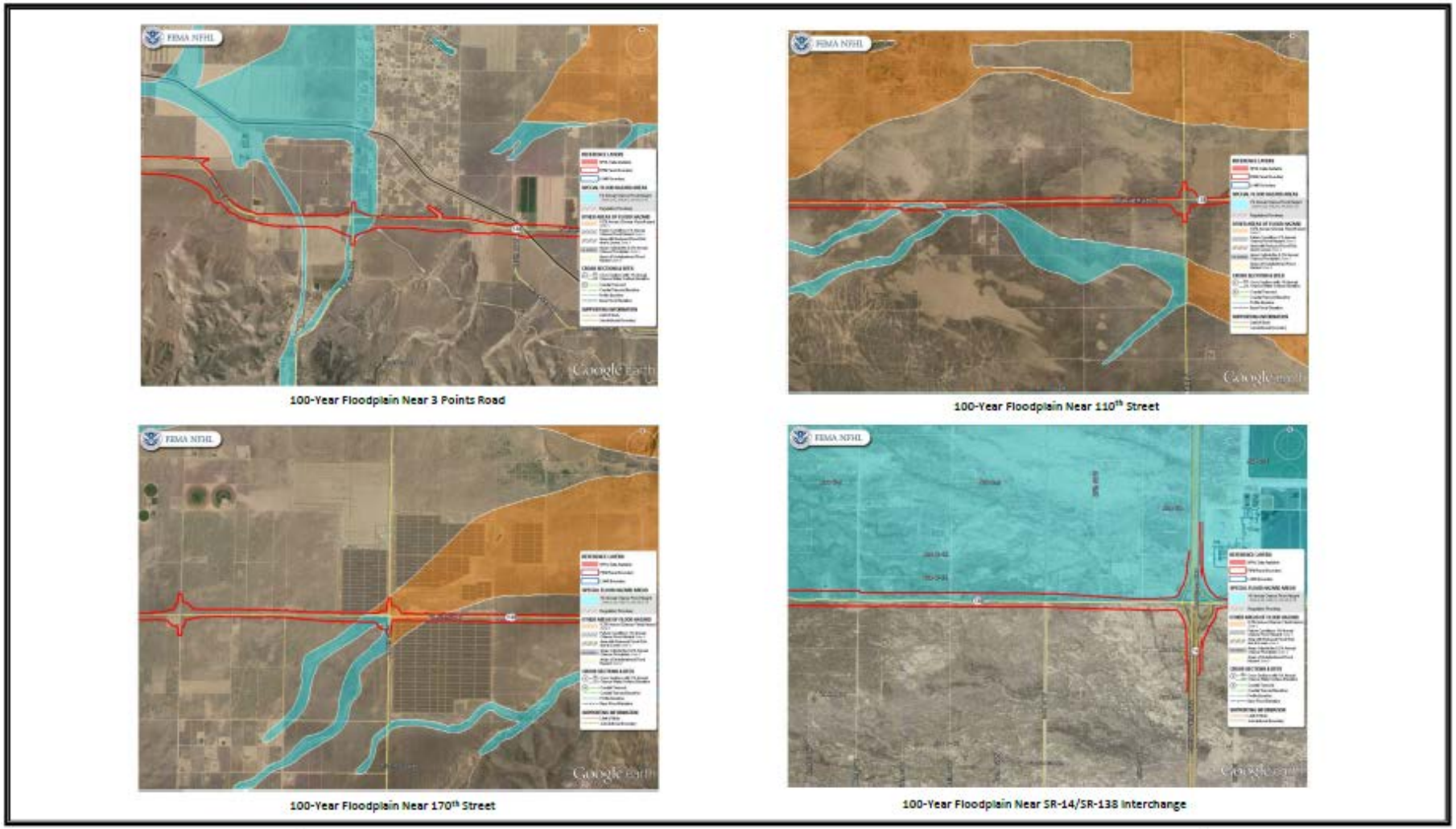
3.2.4 Geology/Soils

Within the project area, much of the desert floor is composed of alluvial (derived from flowing streams) deposits (ECORP Consulting, Inc., 2014). These areas contain coarse-textured, well-drained soils developed from alluvium that is derived primarily from granite and other related rock sources. The following soil series and complexes occur within the proposed alignments: Cajon, Chino, Gaviota, Gorman, Greenfield, Hanford, Hesperia, Millsholm, Oak Glen, Oban, Pond, Ramona, Rosamond, Saugas, Sunrise, Temescal, Tray, and Vernalis. Landform types with poorly developed soil profiles also occur within the project area: Gullied land, terrace escarpments, gravel pits, and sandy alluvial.

The Antelope Valley is part of a wedge-shaped structural basin that has been down-dropped between the Garlock fault to the northwest and San Andreas Fault to the southwest. The basin is underlain at depth by pre-Tertiary age (approximately 65 million years old) igneous and metamorphic rocks overlain by Tertiary-age sedimentary rocks. These rocks outcrop in the surrounding mountains and foothills. The basin is infilled by Pliocene- to Holocene-age (5.3 million years old to 11,500 years old) alluvial and lacustrine (derived from lakes) deposits. These sediments can reach depths of several thousand feet; however, under the project area it is estimated that they are a maximum of several hundred feet thick.

This page has been intentionally left blank.

Figure 5: FEMA Flood Map



Metro

Figure 5: FEMA Flood Map
Northwest 138 Corridor Improvement Project

Caltrans

The Antelope Valley is underlain by a thick sequence of unconsolidated and uncemented alluvial and fan deposits with lesser areas of eolian (derived from wind) deposits. The alluvial and fan deposits are Quaternary age (2.5 to 11,500 years old) and generally consist of alluvial gravels, sands and silts. The eolian deposits primarily consist of thin (less than 10 feet) deposits of very fine to medium grained sand with minor silt. In the western portion of the project area, SR-138 enters the foothills of the central Transverse Ranges. These hills are underlain by Tertiary age marine and non-marine sedimentary rocks of the Quail Lake, Hungry Valley, Oso Canyon and Ridge Route Formations (Earth Mechanics, Inc., 2014).

These sedimentary rocks consist of sandstones, shales, conglomerates, and claystones. Subsurface information obtained from the as-built log of test borings (LOTB) sheets and bulk samples indicates that the project alignment is underlain primarily by medium dense to very dense sand with gravel and scattered pebbles down to the boring termination depths.

The San Andreas fault is a major active fault in the project area capable of generating a magnitude 7.9 earthquake. The San Andreas fault trends northwest-southeast for about 700 miles from the Gulf of California to the Cape Mendocino area of northern California. The Neenach and Randsburg-Mojave Faults bisect the Antelope Valley forming groundwater barriers between the West Antelope, Neenach and Lancaster hydrologic sub-basins. These faults are inferred by groundwater data and are not considered active.

The terrain in the project area is relatively flat, and therefore, there is little potential for slope instabilities, such as landslides or rock falls. Existing cut slopes along the alignment are generally in good condition with little erosion and no major slope failures.

3.2.4.1 Soil Erosion Potential

The *Preliminary Geotechnical Design Report* (Earth Mechanics, Inc., 2014) provides a detailed summary of the soils and geology within the project area. The condition and type of soil are major factors affecting infiltration and runoff. The Natural Resources Conservation Service (NRCS) has classified soils into four general categories (A, B, C, and D) for comparing infiltration and runoff rates. The categories are based on properties that influence runoff, such as water infiltration rate, texture, natural discharge and moisture condition. The runoff potential is based on the water runoff at the end of a long-duration storm that occurs after wetting and swelling of soil not protected by vegetation.

Soil types on the western third of the project area consist mainly of Oak Glen, Gorman, and Chino series soil, according to the NRCS. These soils range from hydrologic B to group C. The middle third of the project area consists mainly of Greenfield, Hanford, and Oak Glen series soil, with the majority of the soils falling into hydrologic soil group B. The eastern third of the project consists mainly of Greenfield, Hesperia, Pond-Oban Complex, Romona, Rosamond series soils. Hydrologic soil groups in this portion of the project range from group A to group C.

The average soil erodibility factor, k, for the soils within the project area ranges from 0.15 to 0.25, with a weighted average of 0.20. The soil is generally more susceptible to erosion towards the western end of SR-138 and less susceptible towards the eastern end.

Since the native soils are anticipated to be predominantly granular soils, the soils can suffer moderate to severe erosion. However, by incorporating selective grading and adhering to provisions for site drainage, and slope planting, the potential for surface soil erosion can be minimized.

3.2.5 Biological Communities

Undeveloped portions of the project area include several different vegetation communities with varying levels of disturbance. The dominant vegetation communities in the project area are allscale scrub and rubber rabbitbrush scrub. Through the project area, these communities are mixed frequently with several other vegetation communities, including California juniper woodland, big sagebrush, shadscale scrub, and cheatgrass grassland. Riparian habitats, such as Fremont cottonwood forest, black willow thickets, and sandbar thickets, are in the western portion of the project area.

Many locations throughout the project area have been disturbed by previous land uses. These areas are generally dominated by non-native plant species, including cheatgrass, filaree, and Russian thistle. Three of the vegetation communities identified in the project area (Fremont cottonwood forest, black willow thickets, and sandbar willow thickets) are equivalent to the CDFW sensitive communities of southern cottonwood willow riparian forest and southern willow scrub. Few ephemeral tributaries and washes bisect these communities within the project area and are typically un-vegetated.

3.2.5.1 Aquatic Habitat

The following discussion incorporates the results of a jurisdictional delineation that was conducted for the project to determine where jurisdictional waters are located in the project area (ECORP Consulting, Inc., 2014). The jurisdictional delineation included field surveys from March 17 to March 20, 2014, and a delineation of wetlands was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2008).

As discussed below, there are potential wetlands and waters of the U.S. and state in the project area, which are protected under federal (CWA Section 404) and state (CWA Section 401 and California Fish and Game Code Section 1602) regulations. A pre-construction notification under CWA Section 404 Nationwide Permit 14 from the USACE, a CWA Section 401 Water Quality Certification from the RWQCB, and a California Fish and Game Code Section 1602 Streambed Alteration Agreement from the CDFW would be required for the project.

3.2.5.1.1 Antelope-Fremont Valley Watershed

All of the streams located in the Antelope-Fremont Valley Watershed portion of the project area are ephemeral. An ephemeral stream has flowing water only during and for a short period after precipitation events in a typical year. Groundwater is not a source of water for the streams, but rather, the streams are primarily supported by runoff from rainfall.

Several types of ephemeral streams are located in the project area, including natural drainage features of varying sizes and man-made drainage channels. Both types of features support similar types of indicators of hydrology, and their main differences are in the morphology. Man-made features tend to have a more defined bed and bank than natural features and run immediately parallel to roadways. Natural features in the project area often connect with man-made features that consist of a drainage trench created to reduce roadway flooding.

Based on site-specific field observations as well as regional factors, the man-made features likely perform the following functions in the watershed: energy dissipation, infiltration of floodwaters, and retention of particulates. These features do not support a unique plant community or a spatial habitat structure useful to

local fauna for forage or cover. Indicators of hydrology that were observed include riverine sediment deposits, drift deposits, drainage patterns, and defined channels and banks. The characteristics observed within these features suggest that they channel surface water, and therefore are likely jurisdictional as waters of the state and regulated by the RWQCB and CDFW.

Seasonal pools associated with drainage channels were mapped as jurisdictional. These features are in depressional areas that concentrate water from defined upslope channels, but also have downstream channels with ordinary high water mark (OHWM) indicators (demarcating the extent of federal jurisdiction in non-tidal waters of the U.S.).

Non-jurisdictional features in the project area include man-made, un-vegetated channels and un-vegetated roadside ditches. These features also flow ephemerally during and shortly after rain events. One unique feature is the California Aqueduct, which crosses the project area at approximately 245th Street and SR-138. As a conveyance that is part of the California State Water Project, the aqueduct is entirely manmade with neither a headwaters nor a natural flow path. Water flows are entirely dependent on human intervention, and they terminate within manmade reservoirs or other artificial features. Therefore, the aqueduct is not considered a natural feature and is non-jurisdictional to either state or federal entities.

3.2.5.1.2 Santa Clara Watershed

The portion of the project area in the Santa Clara Watershed includes several waterways, including non-wetland waters and streambeds, Gorman Creek, and the Quail Lake Spillway/West Branch of the California Aqueduct.

Non-Wetland Waters and Streambeds

Non-wetland features in the project area are predominantly natural, un-vegetated channels bisecting undeveloped areas. In contrast to the features within the Antelope-Fremont Valley Watershed, only minor portions of the features identified in the Santa Clara Watershed are associated with road infrastructure. Features within the watershed, east of Quail Lake, consist of channels with OHWM indicators connected by culverts under SR-138. The upstream portions of the channels to the south of SR-138 are likely jurisdictional and regulated by RWQCB, CDFW, and USACE.

Several smaller streams traverse the project area west of Quail Lake. Most of these features are the result of local ephemeral streams that drain local hills and canyons during storms, and many have been altered and re-directed during road and highway construction. These also include conveyances for local runoff and immediate flood control for highway features, such as a concrete v-ditch along I-5 and SR-138. These features typically convey runoff for local storm events and are only considered to be active for the duration of the storm event itself and for a short time afterwards. They vary in length from less than 200 feet to over 2,000 feet, and their flows all eventually reach Gorman Creek.

Most of the natural bottom ephemeral streams support little to no vegetation, and vegetation that is present consists primarily of upland species. The drainage bottoms for all of these features are dominated by a scoured surface with defined bed and banks. The flows within some of the features are infrequent enough that various grasses and forbes, or even shrub species, encroach upon the drainage bottom. Surrounding vegetation consists of various shrub species, such as California buckwheat, white sage, and rabbitbrush, with an understory of nonnative grasses. The concrete v-ditch that is present supports no vegetation, except for a few herbaceous species that have been able to grow on deposited sediment.

The drainage area for most of these features is relatively small and consists of upland shrub and grassland vegetation. Downstream flows from these features enter into Gorman Creek. Since the features are relatively small, and do not support riparian plant communities, the potential for importance to wildlife species of the features tends to be similar to that found in surrounding upland vegetation communities.

Gorman Creek

In the project area, Gorman Creek follows its natural, historic course until it reaches the southern portion of the project area along I-5, where it once again becomes channelized (concrete-lined) for another three miles to the south until it again enters a natural stream channel. From that point, Gorman Creek flows another two miles south into Pyramid Lake. Gorman Creek becomes a third-order stream (Strahler Stream Order) approximately one mile north of the SR-138 project area, where it is joined by two larger second-order streams. However, due to the lack of seasonal moisture and overall dry characteristics, Gorman Creek is mapped as an ephemeral stream within the project area.

In the project area, Gorman Creek flows along the east side of I-5 and contains natural vegetation within a natural stream course. There are three culverts where the creek crosses under two sets of SR-138 on- and off- ramps to I-5 and where it crosses under Quail Lake Road. Box culverts at these locations are 40 to 50 feet in width with multiple 4-foot wide channels. The entire creek was dry at the time of the survey. Vegetation along the stream course within the project area consists of thick willow cover with a sparse overhanging canopy of Fremont cottonwoods. There are also mule fat individuals in patches along the stream, as well as a few other riparian herbaceous species, such as curly dock and western ragweed. During the survey, the vegetation community showed signs of drought stress, with a high amount of dead plant material.

Quail Lake Spillway/West Branch of California Aqueduct

Quail Lake is a natural lake that was expanded to provide recreational opportunities and to provide a regional storage facility for waters of the West Branch of the California Aqueduct. The water flowing out of Quail Lake enters into a wide, concrete-lined spillway that flows across SR-138 and south towards I-5. The aqueduct enters into an underground pipeline approximately 0.5 mile east of I-5, where it ultimately flows into Pyramid Lake and Castaic Lake. A smaller side channel of the aqueduct is engineered to release a portion of aqueduct flows into the natural stream channel of Castaic Creek before it crosses under I-5.

Portions of the aqueduct within the project area are concrete-lined, approximately 220 feet in width and 30 feet in depth. They do not support either upland or riparian vegetation. As a conveyance that is part of the California State Water Project, the aqueduct is entirely manmade with neither a headwaters nor a natural flow path. Water flows are entirely dependent on human intervention, and they terminate within manmade reservoirs or other artificial features. Therefore, the aqueduct is not considered a natural feature and is nonjurisdictional to either state or federal entities.

3.2.5.2 Special Status Species

Gorman Creek supports a riparian plant community and is likely a valuable resource for wildlife species, with limited potential to support sensitive riparian species, such as the least Bell's vireo (ECORP Consulting, Inc., 2014). In addition, during four seasonal field surveys conducted from September 2014 through March 2015, five special status species were observed in the project area, including bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), loggerhead shrike (*Lanius ludovicianus*),

northern harrier (*Circus cyaneus*), and Swainson's hawk (*Buteo swainsoni*) (ECORP Consulting, Inc., June 2015).

3.2.5.3 Stream and Riparian Habitats

3.2.5.3.1 Antelope-Fremont Valley Watershed

The drainage features within this watershed do not support riparian vegetation (ECORP Consulting, Inc., 2014).

3.2.5.4.2 Santa Clara Watershed

Gorman Creek supports a riparian plant community and is part of a regional stream corridor that traverses many habitat types. In addition, several of the un-vegetated portions of the wetland and non-wetland features in this watershed have riverine elements with riparian canopies that extend beyond the bank-to-bank limits.

3.2.5.4 Wetlands

3.2.5.4.1 Antelope-Fremont Valley Watershed

There are two locations in the project area identified as a potential wetlands (ECORP Consulting, Inc., 2014). The first location is immediately east of SR-14 and just north of SR-138 and appears to be inundated with standing water for long periods after rain events, and the second location is a freshwater marsh area on the Tejon Ranch property. The characteristics observed within these features suggest that they channel surface water, and are therefore likely jurisdictional as waters of the state and regulated by RWQCB and CDFW. Field investigations of hydrology, soil, and vegetation conditions are needed in these areas before a wetland/non-wetland determination can be made.

3.2.5.4.2 Santa Clara Watershed

Wetland waters have been identified in portions adjacent and alongside Quail Lake. Observed characteristics within features south of SR-138 satisfy the soil, vegetation, and hydrology criteria for jurisdictional wetlands. Mapped wetland areas between SR-138 and the lake boundary are assumed to also meet all three wetland parameters. Features within this zone are likely jurisdictional wetlands and regulated by RWQCB, CDFW, and USACE.

3.2.5.5 Fish Passage

It is unlikely that the highly disturbed, predominantly nonvegetated, ephemeral flow of the drainages within the project area would provide the necessary habitat to support fish.

3.2.5.6 Wildlife Passage

Gorman Creek is a natural wildlife corridor for small to large mammal species, birds, and other wildlife (ECORP Consulting, Inc., 2014). A Wildlife Corridor Study prepared for the project determined that there are 20 locations within the project area that are high use areas for wildlife passage. The high use areas were found to be more densely clustered in the western and eastern portions of the project area, with not as much wildlife movement activity in the central portion of the project area (roughly between the entrance to the High Desert Hunt Club and 160th Street West). In addition, nine target mammal species were observed during field surveys, including black-tailed jackrabbit, bobcat, coyote, desert kit fox, gray fox, mountain lion, mule deer, pronghorn, and raccoon.

3.3 Water Quality Objectives/Standards and Beneficial Uses

3.3.1 Surface Water Quality Objectives/Standards and Beneficial Uses

Surface water quality objectives for all inland waters in the Lahontan and Los Angeles regions, as documented in the Lahontan and Los Angeles RWQCB Basin Plans, are listed in **Table 2** and **Table 3** below.

Table 2: Surface Water Quality Objectives for Inland Waters in the Lahontan Region

Constituent	Concentration
Ammonia	Ammonia concentrations shall not exceed the values listed in Tables 3-1 and 3-4 of the Basin Plan. For temperature and pH values not explicitly in these tables, the most conservative value neighboring the actual value may be used or criteria can be calculated from numerical formulas developed by the EPA, as listed in the Basin Plan.
Bacteria, Coliform	Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes. The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 milliliters (ml), nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml.
Biostimulatory Substances	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect the water for beneficial uses.
Chemical Constituents	Waters designated for us as Domestic or Municipal Supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in the following provisions of Title 22 of the California Code of Regulations which are incorporated by reference into the Basin Plan: Table 64431-A of Section 64431 (Inorganic Chemicals), Table 64431-B of Section 64431 (Fluoride), Table 64444-A of Section 64444 (Organic Chemicals), Table 64449-A of Section 64449 (Secondary Maximum Contaminant Levels Consumer Acceptance Limits), and Table 64449-B of Section 64449 (Secondary Maximum Contaminant Levels-Ranges). Waters designated for use as Agricultural Supply (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes).

	Waters shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses.
Chlorine, Total Residual	For the protection of aquatic life, total chlorine residual shall not exceed either a median value of 0.002 milligrams per liter (mg/L) or a maximum value of 0.003 mg/L. Median values shall be based on daily measurements taken within any six-month period.
Color	Waters shall be free of coloration that causes nuisance or adversely affects the water for beneficial uses.
Dissolved Oxygen	The dissolved oxygen concentration, as percent saturation, shall not be depressed by more than 10 percent, nor shall the minimum dissolved oxygen concentration be less than 80 percent of saturation. For waters with the beneficial uses of Cold Freshwater Habitat (COLD), COLD with Fish Spawning (SPWN), Warm Freshwater Habitat (WARM), and WARM with SPWN, the minimum dissolved oxygen concentration shall not be less than that specified in Table 3-6 of the Basin Plan.
Floating Materials	Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect the water for beneficial uses. For natural high quality waters, the concentrations of floating material shall not be altered to the extent that such alterations are discernable at the 10 percent significance level.
Oil and Grease	Waters shall not contain oils, greases, waxes or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect the water for beneficial uses. For natural high quality waters, the concentration of oils, greases, or other film or coat generating substances shall not be altered.
Nondegradation of Aquatic Communities and Populations	All wetlands shall be free from substances attributable to wastewater or other discharges that produce adverse physiological responses in humans, animals, or plants; or which lead to the presence of undesirable or nuisance aquatic life. All wetlands shall be free from activities that would substantially impair the biological community as it naturally occurs due to physical, chemical and hydrologic processes.
Pesticides	Pesticide concentrations, individually or collectively, shall not exceed the lowest detectable levels, using the most recent detection procedures available. There shall not be an increase in pesticide concentrations found in bottom sediments. There shall be no detectable increase in bioaccumulation of pesticides in aquatic life. Waters designated as MUN shall not contain concentrations of pesticides or herbicides in excess of the limiting concentrations

	specified in Table 64444-A of Section 64444 (Organic Chemicals) of Title 22 of the California Code of Regulations which is incorporated by reference into the Basin Plan.
pH	In fresh waters with designated beneficial uses of COLD or WARM, changes in normal ambient pH levels shall not exceed 0.5 pH units. For all other waters of the Lahontan region, the pH shall not be depressed below 6.5 nor raised above 8.5.
Radioactivity	Radionuclides shall not be present in concentrations which are deleterious to human, plant, animal, or aquatic life or which result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life. Waters designated as MUN shall not contain concentrations of radionuclides in excess of the limits specified in Table 4 of Section 64443 (Radioactivity) of Title 22 of the California Code of Regulations which is incorporated by reference into the Basin Plan.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect the water for beneficial uses.
Settleable Materials	Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or that adversely affects the water for beneficial uses. For natural high quality waters, the concentration of settleable materials shall not be raised by more than 0.1 milliliter per liter.
Suspended Materials	Waters shall not contain suspended materials in concentrations that cause nuisance or that adversely affects the water for beneficial uses. For natural high quality waters, the concentration of total suspended materials shall not be altered to the extent that such alterations are discernible at the 10 percent significance level.
Taste and Odor	Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish or other edible products of aquatic origin, that cause nuisance, or that adversely affect the water for beneficial uses. For naturally high quality waters, the taste and odor shall not be altered.
Temperature	The natural receiving water temperature of all waters shall not be altered unless it can be demonstrated to the satisfaction of the Lahontan RWQCB that such an alteration in temperature does not adversely affect the water for beneficial uses. For waters designated WARM, water temperature shall not be altered by more than five degrees Fahrenheit (5°F) above or below the natural temperature. For waters designated COLD, the temperature shall not be altered.

	Temperature objectives for COLD interstate waters and WARM interstate waters are as specified in the "Water Quality Control Plan for Control of Temperature in The Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" including any revisions.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary, for other control water that is consistent with the requirements for "experimental water" as defined in Standard Methods for the Examination of Water and Wastewater (American Public Health Association, et al. 1998).
Turbidity	Waters shall be free of changes in turbidity that cause nuisance or adversely affect the water for beneficial uses. Increases in turbidity shall not exceed natural levels by more than 10 percent.

Source: California Regional Water Quality Control Board, Lahontan Region, 1994

The Lahontan RWQCB Basin Plan also includes following additional water quality objectives for Amargosa Creek downstream of the Los Angeles County Sanitation District No. 14 discharge point, and the Piute Ponds and associated wetlands.

- Ammonia, Total: Concentrations of total ammonia in lower Amargosa Creek and the Piute Ponds and wetlands, expressed "as Nitrogen" or "as N," shall not exceed the acute and chronic limits listed for the corresponding temperature and pH conditions in Tables 3-19a and 3-19b in the Lahontan RWQCB Basin Plan more often than once every three years, on the average. In addition, the highest four-day average concentration of total ammonia within the 30-day period shall not exceed 2.5 times the chronic toxicity limit. For temperature and pH values not explicitly in Table 3-19a and Table 3-19b, the most conservative ammonia value neighboring the actual value may be used, or the acute and chronic ammonia limits for waters with salmonids absent and chronic ammonia limits for waters with fish early life stages present can be calculated from the formulas from the EPA's 1999 freshwater ammonia criteria document.

Table 3: Surface Water Quality Objectives for Inland Waters in the Los Angeles Region

Constituent	Concentration
Ammonia	In order to protect underlying groundwater basins, ammonia shall not be present at levels that when oxidized to nitrate, pose a threat to groundwater quality.
Bacteria, Coliform	In Marine Waters Designated for Water Contact Recreation (REC-1): 1) <u>Geometric Mean Limits</u> a) Total coliform density shall not exceed 1,000/100 milliliters (ml).

	b) Fecal coliform density shall not exceed 200/100 ml. c) Enterococcus density shall not exceed 35/100 ml. 2) Single Sample Limits a) Total coliform density shall not exceed 10,000/100 ml. b) Fecal coliform density shall not exceed 400/100 ml. c) Enterococcus density shall not exceed 104/100 ml. d) Total coliform density shall not exceed 1,000/100 ml, if the ratio of fecal-to-total coliform exceeds 0.1. In Fresh Waters Designated for Water Contact Recreation (REC-1): 1) Geometric Mean Limits a) Escherichia (E.) coli density shall not exceed 126/100 ml. 2) Single Sample Limits a) E. coli density shall not exceed 235/100 ml. In Fresh Waters Designated for Limited Contact Recreation (LREC-1): 1) Geometric Mean Limits a) E. coli density shall not exceed 126/100 ml. 2) Single Sample Limits a) E. coli density shall not exceed 576/100 ml. In waters designated for non-water contact recreation (REC-2) and not designated for water contact recreation (REC-1), the fecal coliform concentration shall not exceed a log mean of 2000/100 ml (based on a minimum of not less than four samples for any 30-day period), nor shall more than 10 percent of samples collected during any 30- day period exceed 4000/100 ml. In all waters where shellfish can be harvested for human consumption (SHELL), the median total coliform concentration throughout the water column for any 30-day period shall not exceed 70/100 ml, nor shall more than ten percent of the samples collected during any 30-day period exceed 230/100 ml for a five-tube decimal dilution test or 330/100 ml when a three-tube decimal dilution test is used.
Bioaccumulation	Toxic pollutants shall not be present at levels that will bioaccumulate in aquatic life to levels which are harmful to aquatic life or human health.
Biochemical Oxygen Demand (BOD_5)	Waters shall be free of substances that result in increases in the BOD which adversely affect beneficial uses.
Biostimulatory Substances	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.

Chemical Constituents	Surface waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use. Water designated for use as Domestic or Municipal Supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in the provisions of Title 22 of the California Code of Regulations which are incorporated by reference into the Basin Plan: Table 64431-A of Section 64431 (Inorganic Chemicals) and Table 64444-A of Section 64444 (Organic Chemicals).
Chlorine, Total Residual	Chlorine residual shall not be present in surface water discharges at concentrations that exceed 0.1 milligrams per liter (mg/L) and shall not persist in receiving waters at any concentration that causes impairment of beneficial uses.
Color	Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.
Exotic Vegetation	Exotic vegetation shall not be introduced around stream courses to the extent that such growth causes nuisance or adversely affects beneficial uses
Floating Material	Waters shall not contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
Methylene Blue Activated Substances (MBAS)	Waters shall not have MBAS concentrations greater than 0.5 mg/L in waters designated MUN.
Mineral Quality	Numerical mineral quality objectives for individual inland surface waters are contained in Table 3-10 of the Basin Plan.
Nitrogen (Nitrate, Nitrite)	Waters shall not exceed 10 mg/L nitrogen as nitrate-nitrogen plus nitrite-nitrogen (NO_3-N + NO_2-N), 45 mg/L as nitrate (NO_3), 10 mg/L as nitrate-nitrogen (NO_3-N), or 1 mg/L as nitrite-nitrogen (NO_2-N) or as otherwise designated in Table 3-10 of the Basin Plan.
Oil and Grease	Waters shall not contain oils, greases, waxes or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.
Oxygen, Dissolved (DO)	At a minimum, the mean annual dissolved oxygen concentration of all waters shall be greater than 7 mg/L, and no single determination shall be less than 5.0 mg/L, except when natural conditions cause lesser concentrations. The dissolved oxygen content of all surface waters designated as WARM shall not be depressed below 5 mg/L as a result of waste discharges. The dissolved oxygen content of all surface waters designated as COLD shall not be depressed below 6 mg/L as a result of waste discharges.

	The dissolved oxygen content of all surface waters designated as both COLD and SPWN shall not be depressed below 7 mg/L as a result of waste discharges.
Pesticides	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life. Waters designated for use as MUN shall not contain concentrations of pesticides in excess of the limiting concentrations specified in Table 64444-A of Section 64444 (Organic Chemicals) of Title 22 of the California Code of Regulations which is incorporated by reference into the Basin Plan.
pH	The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0.5 units from natural conditions as a result of waste discharge The pH of bays or estuaries shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0.2 units from natural conditions as a result of waste discharge.
Polychlorinated Biphenyls (PCBs)	The purposeful discharge of PCBs (the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260) to waters of the Region, or at locations where the waste can subsequently reach waters of the Region, is prohibited. Pass-through or uncontrollable discharges to waters of the Los Angeles region, or at locations where the waste can subsequently reach water of the region, are limited to 70 pg/L (30 day average) for protection of human health and 14 ng/L and 30 ng/L (daily average) to protect aquatic life in inland fresh waters and estuarine waters respectively.
Radioactive Substances	Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life. Waters designated for use as MUN shall not contain concentrations of radionuclides in excess of the limits specified in Table 64442 of Section 64442 (Gross Alpha Particle Activity, Radium-226, Radium-228, and Uranium) and Table 64443 of Section 64443 (Beta Particle and Photon Radioactivity) of Title 22

	of the California Code of Regulations which are incorporated by reference into the Basin Plan.
Solid, Suspended, or Settleable Materials	Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.
Taste and Odor	Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible aquatic resources, cause nuisance, or adversely affect beneficial uses.
Temperature	The natural receiving water temperature of all regional waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses. Alterations that are allowed must meet the requirements below. For waters designated WARM, water temperature shall not be altered by more than 5 °F above the natural temperature. At no time shall these WARM-designated waters be raised above 80 °F as a result of waste discharges. For waters designated COLD, water temperature shall not be altered by more than 5 °F above the natural temperature. Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" (Thermal Plan), including any revisions thereto.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life. The survival of aquatic life in surface waters, subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same waterbody in areas unaffected by the waste discharge or, when necessary, other control water. There shall be no acute toxicity in ambient waters, including mixing zones. There shall be no chronic toxicity in ambient waters outside mixing zones.
Turbidity	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in natural turbidity attributable to controllable water quality factors shall not exceed the following limits: Where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases shall not exceed percent.

	Where natural turbidity is greater than 50 NTU, increases shall not exceed 10 percent. Allowable zones of dilution within which higher concentrations may be tolerated may be defined for each discharge in specific Waste Discharge Requirements.

Source: California Regional Water Quality Control Board, Los Angeles Region, 1994

In addition to the regional objectives for inland surface waters (including wetlands), the following narrative objectives apply for the protection of wetlands in the Los Angeles region.

Hydrology

Natural hydrologic conditions necessary to support the physical, chemical, and biological characteristics present in wetlands shall be protected to prevent significant adverse effects on:

- Natural temperature, pH, dissolved oxygen, and other natural physical/chemical conditions,
- Movement of aquatic fauna,
- Survival and reproduction of aquatic flora and fauna, and water levels.

Habitat

Existing habitats and associated populations of wetlands fauna and flora shall be maintained by:

- Maintaining substrate characteristics necessary to support flora and fauna which would be present naturally,
- Protecting food supplies for fish and wildlife,
- Protecting reproductive and nursery areas, and
- Protecting wildlife corridors.

The Lahontan RWQCB Basin Plan lists the following beneficial uses for the receiving water bodies in the project area:

- Amargosa Creek: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC1), Non-contact Water Recreation (REC2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (Warm), Cold Fresh Water Habitat (COLD), and Wildlife Habitat (WILD).
- Rosamond Dry Lake Creek: (GWR), (REC2), (WARM), Inland Saline Water Habitat (SAL), and (WILD).

The Los Angeles RWQCB Basin Plan lists the following beneficial uses for the receiving water bodies in the project area:

- Pyramid Lake (as identified on the Basin Plan of Los Angeles RWQCB): MUN, Industrial Service Supply (IND), Industrial Process Supply (PRO), AGR, GWR, Hydropower Generation (POW), Warm, COLD, WILD, and Rare, Threatened, or Endangered Species (RARE).

3.3.2 Groundwater Quality Objectives/Standards and Beneficial Uses

The objectives shown in **Table 4** and **Table 5** below apply to all ground waters in the Lahontan and Los Angeles regions.

Table 4: Regional Objectives for Ground Waters in the Lahontan Region

Constituent	Concentration
Bacteria, Coliform	In ground waters designated for use as Domestic or Municipal Supply (MUN), the median concentration of coliform organisms over any seven-day period shall be less than 1.1/100 milliliters.
Chemical Constituents	Ground waters designated as MUN shall not contain concentrations of chemical constituents in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in the following provisions of Title 22 of the California Code of Regulations which are incorporated by reference into the Basin Plan: Table 64431-A of Section 64431 (Inorganic Chemicals), Table 64431-B of Section 64431 (Fluoride), Table 64444-A of Section 64444 (Organic Chemicals), Table 64449-A of Section 64449 (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits), and Table 64449-B of Section 64449 (Secondary Maximum Contaminant Levels-Ranges). Waters designated for use as Agricultural Supply (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes). Ground waters shall not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.
Radioactivity	Ground waters designated as MUN shall not contain concentrations of radionuclides in excess of the limits specified in Table 4 of Section 64443 (Radioactivity) of Title 22 of the California Code of Regulations which is incorporated by reference into the Basin Plan.
Taste and Odor	Ground waters shall not contain taste or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses. For ground waters designated as MUN, at a minimum, concentrations shall not exceed adopted secondary maximum contaminant levels specified in Table 64449-A of Section 64449 (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits), and Table 64449-B of Section 64449 (Secondary Maximum Contaminant Levels Ranges) of Title 22 of the California Code of Regulations which is incorporated by reference into the Basin Plan.

Source: California Regional Water Quality Control Board, Lahontan Region, 1994

Table 5: Regional Objectives for Ground Waters in the Los Angeles Region

Constituent	Concentration
Bacteria	In ground waters used for use as Domestic or Municipal Supply (MUN), the concentration of coliform organisms over any seven day period shall be less than 1.1/100 milliliters (ml).
Chemical Constituents and Radioactivity	Ground waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents and radionuclides in excess of the limits specified in the provisions of Title 22 of the California Code of Regulations which are incorporated by reference into the Basin Plan: Table 64431-A of Section 64431 (Inorganic chemicals), Table 64444-A of Section 64444 (Organic Chemicals), Table 64442 of Section 64442 (Gross Alpha Particle Activity, Radium-226, Radium-228, and Uranium), and Table 64443 of Section 64443 (Beta Particle and Photon Radioactivity). Ground waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use.
Mineral Quality	Numerical mineral quality objectives for individual groundwater basins are contained in Table 3-13 of the Basin Plan.
Nitrogen (Nitrate, Nitrite)	Ground waters shall not exceed 10 milligrams per liter (mg/L) nitrogen as nitrate-nitrogen plus nitrite-nitrogen (NO_3-N + NO2-N), 45 mg/L as nitrate (NO3), 10 mg/L as nitrate-nitrogen (NO3-N), or 1 mg/L as nitrite-nitrogen (NO2-N).
Taste and Odor	Ground waters shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

Source: California Regional Water Quality Control Board, Los Angeles Region, 1994

3.4 Existing Water Quality

3.4.1 Regional Water Quality

Although high quality water supplies are available near streams in desert areas of the Lahontan region, many desert waters have naturally poor quality (e.g., high concentrations of salts, and minerals such as arsenic and selenium) (California Regional Water Quality Control Board, Lahontan Region, 1994). Threats to beneficial uses from naturally high concentrations of salts, toxic minerals, or radioactive substances can be aggravated by geothermal and agricultural discharges, ground water overdraft which concentrates salts, and disposal of storm water under conditions where it is unlikely to receive adequate treatment by soils and vegetation.

Water quality problems in the Lahontan region are largely related to nonpoint sources (including erosion from construction, timber harvesting, and livestock grazing), storm water, acid drainage from inactive mines, and individual wastewater disposal systems.

Major surface waters in the Los Angeles region flow from head waters in mountain areas, through urbanized foothill and valley areas, high density residential and industrial coastal areas, and terminate at highly utilized recreational beaches and harbors. Uncontrolled pollutants from nonpoint sources are considered to be the greatest threats to rivers and streams in the region (California Regional Water Quality Control Board, Los Angeles Region, 1994).

The general quality of ground water in the Los Angeles region has degraded substantially because of agricultural uses from the use of fertilizers and pesticides (California Regional Water Quality Control Board, Los Angeles Region, 1994). In addition, nitrogen and pathogenic bacteria have leaked from septic tanks, and other hazardous substances have leaked into groundwater from aboveground and underground storage tanks at industrial and commercial facilities.

3.4.2 List of Impaired Waters

3.4.2.1 Santa Clara River

In the 2010 Integrated Report (Clean Water Act 303(d) List/305(b) Report), portions of the Santa Clara River are listed as an impaired water body. The Upper Santa Clara River Chloride TMDL, Santa Clara River Nitrogen Compounds TMDL, and TMDLs for the Santa Clara River Estuary/Surfers' Knoll, McGrath State Beach, and Mandalay Beach Coliform and Beach Closures are in effect. Caltrans is not the responsible party for all three TMDLs.

The TMDLs for Indicator Bacteria in the Santa Clara River Estuary and Reaches 3, 5, 6, and 7 became effective on March 21, 2012. Caltrans is identified as a non-MS4 permittee. The TMDL requires Caltrans and other non-MS4 permittees to comply with the Waste Load Allocations (WLA) of zero exceedance days for both dry and wet weather, and for geometric mean in the Santa Clara River Estuary and targeted reaches.

3.4.2.2 Pyramid Lake

In the 2010 Integrated Report (Clean Water Act 303(d) List/305(b) Report), the Los Angeles RWQCB listed Pyramid Lake as an impaired water body with mercury as the pollutant. The Los Angeles RWQCB has not developed the mercury TMDL for Pyramid Lake.

3.4.3 Areas of Special Biological Significance

Areas of Special Biological Significance (ASBS) are a subset of state water quality protection areas, and require special protection as determined by the SWRCB pursuant to the California Ocean Plan. There are no ASBS, as defined by the SWRCB, in the project area. There are a total of six ASBS in Los Angeles County, but only one (Laguna Point to Latingo Point ASBS) is located along the coast of the mainland (SWRCB, 2015). This ASBS is located along the coastlines of both Los Angeles County and Ventura County. It is the largest mainland ASBS in Southern California and is comprised of 24 miles of coastland from north of Point Mugu State Park to south of Malibu. Runoff from the project area does not drain into this ASBS.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This section describes the anticipated changes to the aquatic environment and potential short-term, long-term, and cumulative impacts on water quality during construction and operation of the project.

4.2 Potential Water Quality Impacts

4.2.1 Anticipated Changes to the Physical/Chemical Characteristics of the Aquatic Environment

During construction, there is the potential for increased turbidity in waterways near the project area as a result of disturbed soils, and there is potential for minor fuel and oil spills from construction equipment; however, potential impacts would be temporary and would not result in a permanent change in water quality within these waterways. In addition, with implementation of BMPs, substantial soil erosion or the release of pollutants within waterways is not anticipated. The project would not result in impacts on water temperature or cause oxygen depletion within waterways during construction. Therefore, no substantial or adverse changes in the physical/chemical characteristics of the aquatic environment are expected to result from the project.

4.2.2 Anticipated Changes to the Biological Characteristics of the Aquatic Environment

The project would not result in the loss of aquatic habitat, and would not result in changes to waterways that would be expected to affect fish or local wildlife passage in the project area. No substantial or adverse changes in the biological characteristics of the aquatic environment are expected to result from the project.

4.2.3 Short-Term Construction Impacts

During construction, there is potential for construction-related pollutants to be spilled, leaked, or transported into storm water runoff, which could enter into drainages adjacent to the project area, and could eventually reach downstream receiving waters. Chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported in storm water runoff into receiving waters.

The project would also require the disturbance of 2,347 acres under Build Alternative 1; 2,307 acres under Build Alternative 1 (Antelope Acres Bypass) and 1,889 acres under Build Alternative 2. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. In addition, during a storm event, soil erosion could result at an accelerated rate.

The build alternatives would be required to comply with the CGP. Under the CGP, the project is required to perform a risk assessment to determine the project risk level. The project risk level is determined from the sediment risk and the receiving water risk. The receiving water risk is classified as high because a portion of the disturbed area discharges indirectly to Pyramid Lake, which is a 303(d)-listed waterbody impaired by sediment. The project is classified as Risk Level 2 because of the combined medium sediment risk level and the high receiving water risk. All risk levels are subject to temporary construction site BMP implementation and visual monitoring requirements, as detailed in the avoidance and minimization measures listed in Chapter 5.0 of this report. Risk Level 2 projects require storm water sampling at all discharge locations, with the samples subject to Numeric Action Levels for pH and turbidity. The required BMP implementation and sampling would minimize impacts to receiving water bodies.

In accordance with the CGP, a SWPPP would also be required prior to construction because the DSA would be more than one acre for both build alternatives. The SWPPP would include the development of a Construction Site Monitoring Program that would present procedures and methods related to the visual monitoring and sampling and analysis plans for non-visible pollutants, sediment, turbidity, pH, and receiving waters.

Because the project is classified as a Risk Level 2, a Rain Event Action Plan (REAP) is also required in accordance with the CGP. The REAP would be developed by a Qualified SWPPP Practitioner (QSP) at least 48 hours prior to any likely precipitation event. Other requirements for Risk Level 2 projects are presented in Attachment D of the CGP.

In compliance with Caltrans Statewide NPDES Permit Order No. 2012-0011-DWQ, NPDES No. CAS000003, a notification of construction (NOC) would be filed with the Los Angeles and Lahontan RWQCBs at least 30 days before the start of construction. For Build Alternatives 1 and 2, the NOC would be submitted in March 2022. In addition, as a non-MS4 permittee, Caltrans is required to comply with the WLA of zero exceedance days for both dry and wet weather, and for geometric mean in the Santa Clara River Estuary and targeted reaches. Therefore, the project engineer will consider treatment controls for the project and will consult with the District NPDES Storm Water Coordinator. The project would also comply with the County's Phase I MS4 Permit.

The project would include the protection of existing vegetation for erosion and sediment control. Existing vegetation in the project area primarily consists of species adapted to the arid desert environment. Between approximately 220th Street West and 170th Street West, large groves of Joshua Trees are located on both sides of the existing SR-138. Existing vegetation to remain in place would be protected in temporary Environmentally Sensitive Areas (ESA) that would be fenced during construction.

It is not expected that ground water would be encountered during construction, and ground water dewatering would not be required for the project.

Because the construction BMPs would be designed to retain sediment and other pollutants in the project area so they would not reach receiving waters, storm water discharges and authorized non-storm water discharges are not anticipated to cause or contribute to any violations of applicable water quality standards or objectives, or adversely impact human health or the environment. In addition, because construction BMPs would be designed to retain sediment and other pollutants in the project area so they would not reach receiving waters, runoff during construction would not contain pollutants in quantities that would create a condition of nuisance or adversely affect beneficial uses of any water bodies.

4.2.4 Long-Term Operational Impacts

The added impervious surface area for each of the alternatives is shown in **Table 6** below.

Table 6: Added Impervious Surface Area

Area (acres)	Build Alternative 1	Build Alternative 1-Antelope Bypass Option	Build Alternative 2

New Impervious Area	451	451	439
Existing Impervious Area to be Removed	37	26	37
Net Added Impervious Area	414	425	402

Source: Metro and Caltrans District 7, 2015

The existing impervious areas to be removed include existing pavement that would need to be removed to make way for the proposed improvements, as well as portions of SR-138 that would be relinquished to the County.

The additional impervious areas proposed under the build alternatives may increase the volume and velocity of the storm water discharge, which could carry additional pollutants into receiving waterways. Pollutants of concern during operation of the build alternatives include suspended solids/sediments, nutrients, pesticides, heavy metals, oil and grease, toxic organic compounds, and trash and debris.

To minimize potential impacts, the project would incorporate Low Impact Design (LID) efforts to maintain or restore pre-project hydrology, as well as provide overall water quality improvement of discharges. Potential LID measures that are being considered for the project to improve water quality include:

- Grading slopes to blend with the natural terrain and decreasing the need for dikes;
- Designing permanent drainage facilities that mimic the existing pattern of the area through the use of permanent check dams for attenuation of flow and disconnected drainage facilities;
- Constructing ditches with permanent check dams to decrease the velocity of discharge, plus decreasing the volume of discharge by promoting infiltration and allowing for pollutant removal; and
- Maintaining existing vegetated areas.

The effectiveness of these LID efforts and the pre- and post- project hydrology will be compared during the PS&E phase.

As the project involves more than one acre of added impervious surface area for all the project alternatives, treatment BMPs would need to be considered for areas within Caltrans' ROW. Infiltration devices are considered the preferred treatment BMP for its ability to treat Pollutants of Concern from typical highway runoff and recharge groundwater. Infiltration devices in the form of linear infiltration trenches are considered generally feasible for the project for the following reasons:

- The majority of project area is classified into Hydrologic Soil Groups (HSGs) A or B, estimated to have an infiltration rate greater than 0.5 inches per hour, based on published data from the Natural Resources Conservation Service (NRCS) Web Soil Survey. In-situ permeability tests will be conducted during the PS&E phase for each potential BMP site, including biofiltration swales and strips and infiltration trenches, to obtain a site-specific infiltration rate for BMP design and sizing.
- The groundwater table is generally on the order of about 140 feet below ground level along the alignment, thus allowing significant filtration through soil before runoff reaches the groundwater.
- The extremely flat terrain on the eastern portion of the corridor (on average 0.5% grade), between approximately 1,000 feet east of 140th Street and SR-14, facilitate maximum filtration.
- Recharging of the groundwater basin will help alleviate the drought condition.

For areas outside of Caltrans' ROW, treatment BMPs would follow the 2014 Los Angeles County Public Works Low Impact Development Standards Manual. Since the project involves more than one acre of disturbed area and proposes to add more than 10,000 square feet of impervious surface area, it is required to meet storm water management requirements for "Designated Projects," which "must retain 100 percent of the Stormwater Quality Design Volume on-site through infiltration, evapotranspiration, storm water runoff harvest and use, or a combination thereof unless it is demonstrated that it is technically infeasible to do so."

The project would include BMPs to reduce pollutants of concern in runoff from the project area, and the proposed storm drain system would be sized to accommodate the build-out of the project.

4.3 Cumulative Impacts

The cumulative setting is considered the Antelope-Fremont Valley and Santa Clara Watersheds. Existing and continuing development, as well as flood control measures and structures, contribute to cumulative water quality impacts. There are 36 transportation, energy, and residential/commercial development projects in the Cities of Lancaster and Palmdale, and unincorporated portions of Kern and Los Angeles Counties that are being planned, are under construction, or have been completed in the cumulative impact study area.

The project would require the disturbance of 2,347 acres under Build Alternative 1; 2,307 acres under Build Alternative 1 (Antelope Acres Bypass) and 1,889 acres under Build Alternative 2. During construction, the project would have the potential to result in increased construction-related pollutants and turbidity within the lakes, creeks, and drainages in the project area, and eventually into receiving water bodies. In addition, the project would result in added impervious surface area of 404 acres under Build Alternative 1; and 392 acres under Build Alternative 2.

The project would have the potential to contribute to cumulative water quality impacts in the Antelope-Fremont Valley and Santa Clara Watersheds. With the implementation of standard BMPs, compliance with regulatory permits, and implementation of avoidance and minimization measures listed below, project impacts would be reduced to the extent feasible. Future projects in the cumulative impact area would be expected to implement similar measures. The project includes BMPs to reduce pollutants of concern in runoff form the study area, and the proposed storm drain system is sized to accommodate the build-out of the project.

5.0 AVOIDANCE AND MINIMIZATION MEASURES

Standard BMPs would be incorporated into the project to comply with the Caltrans and County's NPDES Permit. In addition to standard BMPs, the following avoidance and minimization measures would be implemented during construction:

WQ-1 The Temporary Construction Site BMP strategy for the project would consist of the following:

- Soil Stabilization Measures
- Sediment Control Measures
- Tracking Control
- Non-Storm Water Management Measures
- General Construction Site Management
- Storm Water Sampling and Analysis

  Waste Management
  - Spill Prevention and Control
  - Solid Waste Management
  - Hazardous Waste Management
  - Contaminated Soil Management
  - Concrete Waste Management
  - Sanitary/Septic Waste Management
  - Liquid Waste Management

WQ-2 The minimum erosion control measures considered for this project would include:

- Move-in/Move-out (Erosion Control)
- Fiber rolls
- Rolled Erosion Control Product (Netting)

The move-in/move-out (erosion control) would be required due to the size and the three-year duration of the project construction and would be utilized to ensure permanent erosion control stabilization is in place. The fiber rolls would be placed on disturbed soils to remain unpaved or unlined. The rolled erosion control product (netting) would be placed in all drainage ditches and slopes greater than 4(H):1(V). Hard surfaces for the project drainage are anticipated to consist of rock slope protection and the end of pipe and culvert outlets.

WQ-3 All work in waterways would be scheduled per regulatory requirements and would be detailed in the project's special provisions during the PS&E phase. Maintenance pullouts would be considered for the project, and side slopes would be specified as flat as possible to minimize erosion and for ease of maintenance. Concentrated flows would be collected into stabilized earth ditches or lined ditches.

WQ-4 Work areas in waterways would be reduced to the maximum extent feasible to minimize impacts.

WQ-5 Staging areas would be outside waterways to reduce direct and indirect impacts on lakes, creeks, and drainages in the project area.

WQ-6 Measures would be implemented during construction to minimize the potential for dust, debris, and construction materials to fall into waterways, or otherwise leave the construction area.

WQ-7 The contractor would implement appropriate hazardous material BMPs to reduce the potential for chemical spills or containment releases into water bodies, including any non-storm water discharge.

WQ-8 All equipment refueling and maintenance would be conducted in the upland staging area per standard specifications and regulatory permits. In addition, vehicles and equipment would be checked daily for fluid and fuel leaks, and drip pans would be placed under all equipment that is parked and not in operation.

WQ-9 All trash and construction debris would be removed from channels and construction areas on a daily basis. All BMPs would be properly maintained during project construction and removed upon completion of construction activities. After completion of the project, all construction equipment and materials would be removed from the project area, and the project area would be returned to pre-project conditions.

WQ-10 Storm water from the project would discharge to Department of Water Resources (DWR)'s jurisdiction. Work within DWR's ROW at the California Aqueduct crossings would need to be conducted during winter months when the demand for water supply is relatively low. The proposed drainage and storm water treatment design would be reviewed by DWR during the design phase of the project.

WQ-11 The following measures from the *Preliminary Geotechnical Design Report* prepared for the project (Earth Mechanics, Inc., 2014) would be implemented to minimize surficial instability and erosion for cut slopes with a gradient of 2H:1V:

- The upper 4 feet of slope face would be covered with materials with a minimum internal friction angle of 30 degrees and a minimum cohesion of 180 psf. This Select Material should be properly keyed and benched into the sloping ground, and this would require overcutting the slope and re-building the slope with the above Select Material.
- The slope face would be covered with special man-made erosion control mats or geo-fabric.
- The slope face would be planted with low-maintenance ground cover that is adaptable to the desert-like arid conditions. A landscape architect specializing in arid environment should be consulted to select the proper ground cover.
- Slope benching would be used to flatten the overall gradient of the cut slope; the bench would also reduce the velocity of water flowing past the slope face. However, benching alone would not eliminate erosion of the slope face; treatment of the slope face using Select Material, slope planting or special matting is still required.

WQ-12 Following completion of construction activities, appropriate erosion control measures would be implemented to ensure that soils disturbed by construction are stabilized, to minimize non-storm

water discharges into water bodies in the project area, and to meet the requirements of the Los Angeles and Lahontan RWQCB and project permits.

WQ-13 Vegetation removed from the project area would be treated and disposed in a manner that would prevent the spread of invasive species on- or off-site. If erosion control seed mixes are used, they would be composed of non-invasive species, and all erosion control would be conducted in a manner that would not result in the spread of invasive species.

REFERENCES

Works Cited

California Department of Water Resources. (2004). *Bulletin 118.* Sacramento: California Department of Water Resources.

California Regional Water Quality Control Board, Lahontan Region. (1994, March 31). *Water Quality Control Plan for the Lahontan Region.* Retrieved July 8, 2015, from Basin Plan Information: http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml

California Regional Water Quality Control Board, Los Angeles Region. (1994, June 13). *Water Quality Control Plan, Los Angeles Region.* Retrieved July 8, 2015, from LARWQCB Basin Plan: http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/basin_plan_documentation.shtml

County of Los Angeles. (1980, November 25). *County of Los Angeles General Plan, Conservation and Open Space Element.* Retrieved July 27, 2015, from County of Los Angeles: http://planning.lacounty.gov/assets/upl/project/gp_web80-conservation-and-open-space.pdf

County of Los Angeles. (2013, June 26). *Los Angeles County Code and Flood Control District Code.* Retrieved July 28, 2015, from lacounty.gov: http://file.lacounty.gov/bos/supdocs/79570.pdf

Earth Mechanics, Inc. (2014). *Northwest 138 Corridor Improvement Project, Preliminary Geotechnical Design Report.* Fountain Valley: Earth Mechanics, Inc.

ECORP Consulting, Inc. (2014). *Jurisdictional Delineation for the SR 138 Northwest Corridor Improvement Project, Interstate 5 to State Route 14, Los Angeles County, California.* Redlands: ECORP Consulting, Inc.

ECORP Consulting, Inc. (June 2015). *Wildlife Corridor Study: Final Report for the State Route 138 Northwest Corridor Improvement Project, Interstate 5 to State Route 14, Los Angeles County, California.* Redlands: ECORP Consulting, Inc.

Environmental Laboratory. (1987). *Corps of Engineers Wetlands Delineation Manual.* Vicksburg: Environmental Laboratory.

Gold, S. (2008). Stoic little town faces tomorrow; A massive housing project may mean the end for Neenach, in the Antelope Valley. *Los Angeles Times.*

Los Angeles RWQCB. (2012, November 8). *MS4 Discharges within the Coastal Watersheds of Los Angeles County, Order No. R4-2012-0175, NPDES No. CAS004001*. Retrieved July 28, 2015, from www.waterboards.ca.gov: http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/la_ms4/2012/Order%20R4-2012-0175%20-%20A%20Final%20Order%20revised.pdf

Los Angeles times. (1991). L.A.'s Outback Three Point residents are like a family. *Los Angeles Times, San Fernando Valley edition,* 6.

Metro and Caltrans District 7. (2015). *Northwest 138 Corridor Improvement Project, Draft Stormwater Data Report.* Los Angeles: Metro and Caltrans District 7.

SWRCB. (2015). *Ocean Standards*. Retrieved August 4, 2015, from http://www.waterboards.ca.gov/water_issues/programs/ocean/asbs_map.shtml

United States Geological Survey. (2015). *Groundwater Atlas of the United States.* Washington, D.C.: United Stated Geological Survey.

USACE. (2008). *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.* Vicksburg: United States Army Engineering Research and Development Center.

Wikipedia. (2015, February 15). *Antelope Acres, California*. Retrieved April 16, 2015, from http://en.wikipedia.org/wiki/Antelope_Acres,_California

Preparer Qualifications

Jeanne Ogar, Associate Environmental Planner
M.S. Environmental Science and Management
Work Experience: 10 years

Marieka Schrader, Senior Environmental Planner/Senior Biologist
B.A. Environmental Studies
Work Experience: 15 years