Appendix E:
Water Quality Assessment

Water Quality Assessment Report
PSR#TD004 Baker Boulevard over Mojave River Bridge Replacement Project

Bridge No. 54C0127
Bridge Replacement
San Bernardino, CA
District 8-SBD
STPL – 5954 (193)

February 2025

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

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Water Quality Assessment Report

PSR#004 Baker Boulevard Over
Mojave River Bridge Replacement Project
Bridge No. 54C0127
San Bernardino, CA
District 8-SBD-R136.426
STPL – 5954 (193)

February 2025

STATE OF CALIFORNIA
Department of Transportation

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Executive Summary

The County of San Bernardino Department of Public Works (County) in cooperation with the California Department of Transportation (Caltrans) has determined a need to remove and replace the existing Baker Boulevard over the Mojave River Channel, Bridge, exists. The Baker Boulevard Bridge, Bridge No. 54C-0127, is located in the community of Baker, in the County of San Bernardino, California.

The purpose of the 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 to provide information in good faith, to the extent possible, correlating to the National Pollution Discharge Elimination System (NPDES). The document includes a discussion of the proposed Project, the physical setting of the Project area, and the regulatory framework with respect to water quality; it also provides data on surface and groundwater resources and the water quality of these waters within the Project area, describes water quality impairments and beneficial uses, and identifies potential water quality impacts/benefits associated with the proposed Project. The document then recommends avoidance and/or minimization measures to avoid potentially adverse impacts.

General project description
The Mojave River Channel in the study area was widened and deepened in 1938 to accommodate inspection and maintenance of the existing timber bridge along with conveyance of storm run-off in excess of that transported and retained within Soda Lake (Dry Lake), a dry lakebed recognized as the terminus of the Mojave River located between I-15 and Baker Boulevard, to Silver Lake (Dry Lake). Soda Lake (Dry Lake) and Silver Lake (Dry Lake) are dry lakes that were once part of Mojave Lake 10,000 plus years ago. The proposed Project would replace the existing bridge over Mojave River Channel with a structure meeting current design standards. The Project study area is 15.95 acres and will result in a 0.66-acre increase of new impervious surface. The Project storm water drainage would be designed consistent with County requirements and the Caltrans Project Planning and Design Guide and Storm Water Management Plan. Temporary Best Management Practices (BMPs), including practices for erosion control, would be implemented during construction.

Summary of existing water quality conditions
The Mojave River is typically dry downstream of the Mojave Forks Dam, located approximately 88 miles southwest of Baker, except in select locations where ground water is forced to the surface by geologic structures. Water quickly percolates into the porous sands of the Mojave River bed. Groundwater is the primary source of water supply in most of the watershed (SWRCB 2003). Within the Project area, water can pool around the existing bridge location in the cooler months due to its location between two low lying playas.

Summary of potential impacts to water quality

The proposed Project is not anticipated to result in impacts to water quality through compliance with the Construction General Permit and Waste Discharge Requirements, administered through the Lahontan Regional Water Quality Control Board. The Mojave River Channel within vicinity of the bridge is typically dry except in response to large precipitation events.

Summary of water quality associated permits required

The Baker Boulevard Over Mojave River Bridge Replacement Project will cause temporary and permanent impacts to the Mojave River Channel, an ephemeral waters of the State. The following State regulatory permits are required for construction:

- A Fish and Game Code Section (§) 1602 will be obtained for Project effects to riparian habitats and the California Department of Fish and Wildlife (CDFW) jurisdictional floodplain areas.
- Waste Discharge Requirements will be obtained for Project effects to jurisdictional waters of the State, from the Lahontan Regional Water Quality Control Board.
- Coverage under the State Water Resources Control Board's Construction General Permit, which is a NPDES Permit, will be obtained from the Lahontan Regional Water Quality Control Board.

Summary of Post Construction Control Runoff control requirements (Treatment Best Management Practices/Alternative Compliance)

The Mojave River Channel north of Baker Boulevard Bridge will continue to be maintained by the San Bernardino County Flood Control District for conveyance of storm water.

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ACRONYMS

Acronym	Definition
ADL	Aerially Deposited Lead
ASBS	Areas of Special Biological Significance
ATA	Additional Treatment Area
Basin Plan	Water Quality Control Plan for the Lahontan Region
BMP	Best Management Practice
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
COI	Change of Information
CWA	Clean Water Act
DSA	Disturbed Soil Area
FTC	Full Trash Capture
LEDPA	Least Environmentally Damaging Practicable Alternative
MS4	Municipal Separate Storm Sewer System
NAL	Numeric Action Level
NEL	Numeric Effluent Limit
NIS	New Impervious Surface
NNI	Net New Impervious
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Services
PA&ED	Project Approval and Environmental Document
PE	Project Engineer
PES	Preliminary Environmental Study
Permit	Caltrans MS4 Permit
PF	Project Feature
pH	Potential of Hydrogen
PID	Project Initiation Document
PM	Post Mile
PPDG	Project Planning and Design Guide
PRD	Permit Registration Document
Project	Baker Boulevard Bridge Replacement Project
PS&E	Plans, Specifications, and Estimates
QPE	Qualifying Precipitation Event
QSD	Qualified Stormwater Developer
QSP	Qualified Stormwater Practitioner
R factor	Rainfall-runoff erosivity factor
RIS	Replaced Impervious Soil Area

Acronym	Definition
RL	Risk Level
RUSLE	Revised Universal Soil Loss Equation
RWQCB	Regional Water Quality Control Board
SER	Standard Environmental Reference
SHS	State Highway System
SMARTS	Stormwater Multiple Application and Report Tracking System
STGA	Significant Trash Generating Areas
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
U.S. EPA	United States Environmental Protection Agency
USACE	United States Army Corps of Engineers
WDID	Waste Discharge Identification Number
WDR	Waste Discharge Requirement
WMI	Watershed Management Initiative
WPCP	Water Pollution Control Plan (or Program)
WQ	Water Quality
WQAR	Water Quality Assessment Report
WQO	Water Quality Objective

1 INTRODUCTION

1.1 Approach to Water Quality Assessment

The purpose of the 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 to provide information correlating to the National Pollutant Discharge Elimination System (NPDES). The document includes a discussion of the proposed Project, the general environmental 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 the water quality of these waters, describes water quality impairments and beneficial uses, identifies potential water quality impacts/benefits associated with the proposed Project, and recommends avoidance and/or minimization measures for potentially adverse impacts.

1.2 Project Description

The existing bridge was originally built in 1931 as a 93-foot five-span simple-supported stringer timber bridge crossing the Mojave River Channel on Baker Boulevard (formerly US 91 and State Route 31). It was repaired and lengthened in 1938. Repairs conducted in 1938 included replacement of all untreated Douglas fir timber within the existing bridge with redwood; the addition of nine new spans to the west and eight new spans to the east, increasing the overall bridge length to 408-feet; and channel excavation for the length of the structure to maintain a minimum clearance of six feet below the bottom stringer (soffit) of the bridge. The bridge currently exists as a 22-span simple-supported stringer timber bridge with a five to six-inch-thick continuous cast in place (CIP) reinforced concrete deck overlain with asphalt concrete and closed end reinforced concrete strutted abutments supported on coastal Douglas fir (CDF) timber piles. The bents and abutments are set at a 45-degree skew to accommodate flows within the Mojave River Channel below. Timber railing and plywood planking on the sidewalk is worn and deteriorating. Current sufficiency rating per Caltrans biannual bridge inspection reports (BRIS) for the structure is roughly 76.

The Project includes the demolition of the existing two-lane 22-span simple-supported stringer timber bridge and its replacement with a four-lane, 11-span cast-in-place reinforced concrete slab structure founded on cast-in-drilled-hole piles or driven concrete piles (Figure 3. Project Features). This proposed structure will meet and address County and American Association of State Highway and Transportation Officials (AASHTO) standards and criteria, or equivalent. Within the existing paved roadway approaches, work would be conducted to accommodate widening of the Baker Boulevard Bridge to its ultimate width. The design would construct and/or tie into

existing, planned and projected ultimate roadway improvements from 0.14 miles west of the existing structure to Death Valley Road (State Highway 127).

The proposed Project may construct a permanent ramp providing access into the San Bernardino County (SBC) Flood Control District (FCD) owned floodway channel north of the bridge along the eastern levee to better facilitate channel maintenance and future bridge inspections.

It is anticipated that excavators, dozers, dump trucks, concrete trucks, drill rigs and concrete pumps will be required to rehabilitate and widen the existing road surface and replace the bridge. Temporary and permanent right of way acquisition may be required for construction. The existing structure is well suited for either a 2-stage, partial removal of the existing bridge or detour (1.25-mile detour length) using adjacent SR-127/I-15 and the local road network to provide a complete closure for construction. Both options will keep the new bridge and approach road widenings within existing Right-of-way (ROW). The Project may require relocation of overhead utilities.

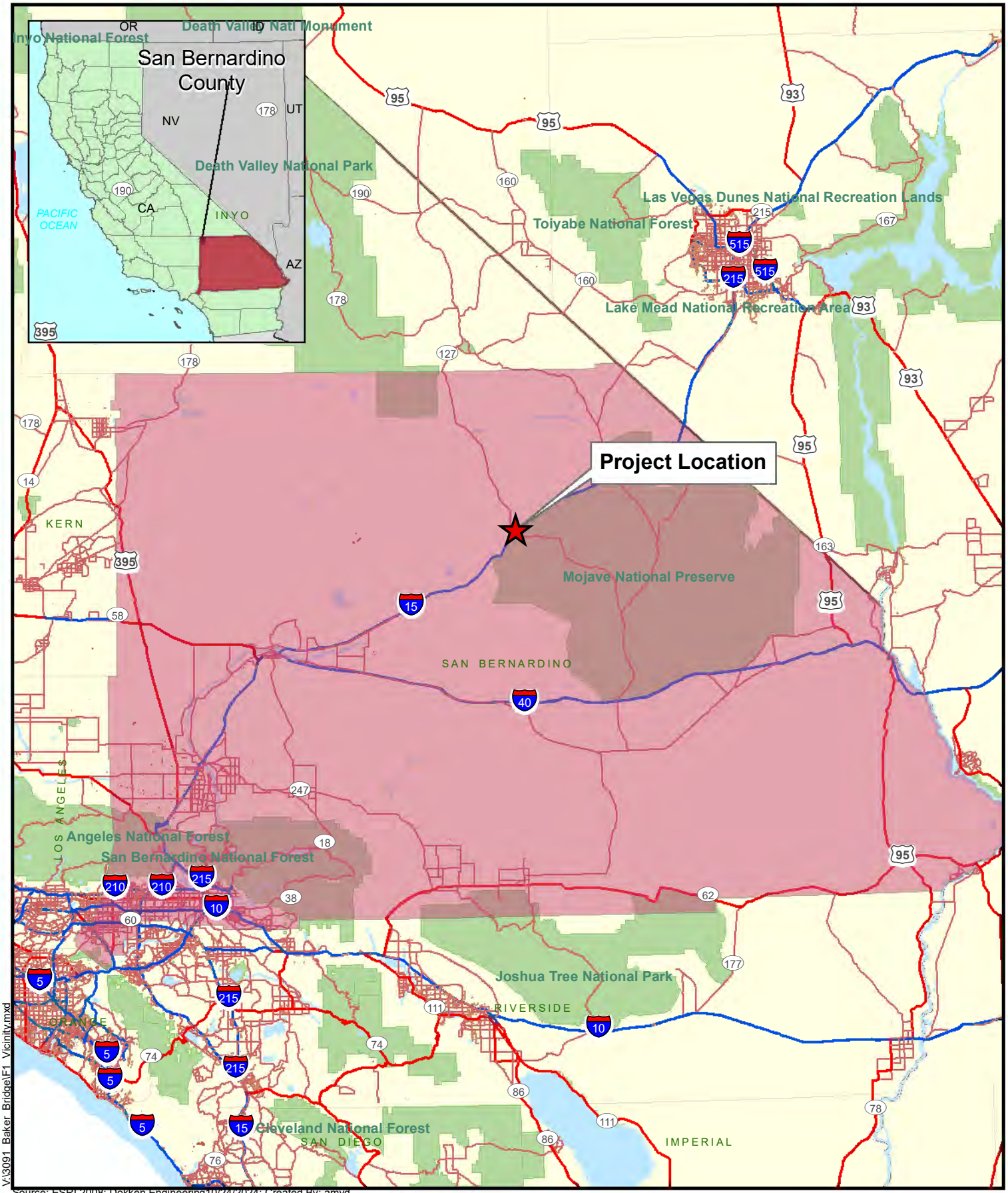
Construction will start as early as 2026 and is anticipated to last 24 months. Funding for construction will utilize local funds from Measure I MLHP along with state and federal funds under STIP and STP administered by SBCTA. Caltrans is the lead agency for NEPA compliance. The County will be the lead agency for CEQA compliance.

The existing bridge deck has a flat profile. The existing bridge deck is approximately 11,762.64 feet squared or 0.27 acres. The proposed Project's bridge deck will include a highpoint at the center of the bridge to provide for positive surface drainage. Scuppers are not proposed. The proposed Project's bridge deck is approximately 38,981 feet squared or 0.89 acres. No slopes are proposed at greater than 2H:1V.

The Project would result in impacts to desert sink-scrub including a net total of approximately 1.30 acres of temporary impacts to allow for channel grading and grading for the proposed permanent access ramp to the channel invert. Paving of the new access ramp will also permanently impact approximately 0.0005 acres (20 square feet) of desert sink scrub habitat. Additionally, the Project will be replacing the existing bridge piers and installing Rock Slope Protection (RSP) around the bridge abutments. There are approximately 138, 12-inch diameter timber piles within the existing channel, or approximately 0.002 acres of permanent fill (110 square feet). These piers will be removed and replaced with 162 (144 within desert sink scrub habitat), 18-inch diameter concrete piers, which totals approximately 0.006 acres of permanent fill (255 square feet). Therefore, the total net permanent impact of the replacement bridge piers will be approximately 0.004 acres. Furthermore, approximately 0.03 acres of permanent impacts are anticipated due to placement of RSP along the eastern bridge abutment. Please note that RSP within the channel invert will be buried below scour elevation while the RSP located above the invert will be keyed into the channel embankment. It is the RSP keyed into the channel embankment that will be considered as a permanent

impact. The total net permanent fill anticipated within the desert sink scrub due to RSP is approximately 0.03 acres.

The Net New Impervious surface is 0.66 acres. The total area of disturbed soil is 1.65 acres, of which 1.60 acres is temporary and 0.05 acres is permanent impact.



V:\3091_Baker_Bridge\F1_Vicinity.mxd

Source: ESRI 2008; Dokken Engineering10/24/2024; Created By: amyd

0 10 20 30 Miles

FIGURE 1
Project Vicinity

PSR#TD004 Baker Boulevard Over Mojave River Bridge Replacement
STPL-5954(193)
Baker, San Bernardino County, California

v:\1836_11thStBridge\Cultural\F2_Loc_10-12-10.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 10/24/2024; Created By: amyd

0 0.4 0.8 1.2 1.6
Miles

FIGURE 2
Project Location

PSR#TD004 Baker Boulevard Over Mojave River Bridge Replacement
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Baker, San Bernardino County, California

Biological Study Area (23.75 acres)

Project Area (15.95 acres)

Project Features

Rock Slope Protection

Permanent Access Ramp (paved)

Habitat Communities

Desert Sink Scrub (4.92 acres)

Saltbush Scrub (1.15 acres)

Desert Sink Scrub Impacts (Waters of the State)

Temporary (1.30 acres)

Net Permanent Impacts from Piers (0.004 acres)

Net Permanent Impacts from RSP (0.03 acres)

Permanent Impacts from Paved Access Ramp (0.0005 acres; ~20 sq. ft)

Saltbush Scrub Impacts

Temporary (0.30 acres)

Permanent Impacts from Piers (0.0007 acres; ~28 sq. ft)

Permanent Impacts from RSP (0.02 acres)

Mojave River Channel

Baker Blvd

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Source: ESRI Maps Online; Dokken Engineering 12/13/2024; Created By: kjacobson

0 100 200 300 400 Feet

Figure 5
Project Impacts

PSR#TD004 Baker Boulevard Over Mojave River Bridge Replacement Project
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The Construction General Permit (CGP) contains a risk-based permitting approach by establishing three levels of risk possible for a construction site. Risk levels are determined during the planning, design, and construction phases, and are based on the risk of generating sediments and receiving water risk of becoming impaired. Requirements are determined according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring, and pre- and post-construction aquatic biological assessments during specified seasonal windows. The risk level for this Project has been estimated as a Level 1 with low sediment risk and a low receiving water risk.

There are no Total Maximum Daily Loads (TMDLs) for the Mojave River Channel that passes under the Baker Boulevard Bridge. There are no TMDL pollutants for the Mojave River Channel subject to CGP requirements for Numeric Action Level (NAL)/Numeric Effluent Limit (NEL) sampling.

A Phase I Hazardous Waste Initial Assessment (ISA) was prepared for the Project. Based on the findings of the ISA, a Phase II assessment may be required. It is anticipated that the following hazardous wastes are within the Project area:

- Asbestos in the bearing pads of the existing structure,
- Aerially deposited lead (ADL) due to potentially high ADT of Baker Boulevard and its proximity to gas stations, and
- Wood timbers in the barriers and supporting the existing bridges. Potential treated wood waste should be managed in accordance with standards under Title 22, CA Code of Regulations Division 4.5 Chapter 34.

There are no Significant Trash Generating Areas in the Project study limits.

BMPs will be incorporated into Project construction to minimize impacts on the environment including erosion and the release of pollutants (e.g. oils, fuels):

- Exposed soils and material stockpiles would be stabilized, through watering or other measures, to prevent the movement of dust at the Project site caused by wind and construction;
- Implementation of the Project shall require approval of a site-specific SWPPP or Water Pollution Control Program that would implement effective measures to protect water quality, which may include a hazardous spill prevention plan and additional erosion prevention techniques;
- All construction roadway areas would be properly protected to prevent excess erosion, sedimentation, and water pollution;
- All vehicle and equipment fueling/maintenance would be conducted outside of any surface waters;
- Equipment used in and around jurisdictional waters must be in good working order and free of dripping or leaking contaminants;

- Raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life shall be prevented from contaminating the soil or entering jurisdictional waters;
- All erosion control measures, and storm water control measures would be properly maintained until the site has returned to a pre-construction state; and
- All construction materials would be hauled off-site for proper disposal after completion of construction.

1.2.1 No Project Alternative

The No-Build Alternative would result in no modifications to the existing bridge, which would remain functionally obsolete.

1.2.2 Alternatives

Two alternative bridge structures were evaluated. The precast-prestressed voided slab bridge type and a cast-in-place reinforced concrete box culvert structure were not selected for reasons of cost, construction schedule, traffic staging, and greater impacts to the Mojave River Channel.

2 REGULATORY SETTING

2.1 Federal Laws and Requirements

2.1.1 Clean Water Act

In 1972 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 NPDES permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit program. However, an approved US Army Corps of Engineers (USACE) jurisdictional delineation (SPL-2010-01042-SLP) determined that Soda Lake (Dry Lake), which is upstream of the Mojave River Channel, is not a waters of the US as it is an isolated intrastate dry lake that is not considered a traditionally navigable water and does not meet the definitions of an “a(3)” water as outlined by the USACE. As such, Soda Lake (Dry Lake) is considered a non-jurisdictional water that does not fall under the purview of the USACE. Based on this determination, the channel within the Project area, which occurs downstream (north) of Soda Lake (Dry Lake), is also considered non-jurisdictional and will not require permitting or compliance under Section 401 or 404 of the CWA.

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. The Federal Environmental Protection Agency delegated to the California State Water Resources Control Board (SWRCB) the implementation and administration of the NPDES program in California. The SWRCB established nine Regional Water Quality Control Boards (RWQCBs). The SWRCB enacts and enforces the Federal NPDES program and all water quality programs and regulations that cross Regional boundaries. The nine RWQCBs enact, administer and enforce all programs, including NPDES permitting, within their jurisdictional boundaries. Section 402(p) requires permits for discharges of stormwater from industrial, construction, and Municipal Separate Storm Sewer Systems (MS4s).

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 (WDRs). WDRs may specify the inclusion of additional project 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.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards and regulating discharges to protect beneficial uses of water bodies. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set standards necessary to protect these uses. Consequently, the water quality standards developed for particular water body segments are based on the designated use and vary depending on such use. Water body segments that fail to meet standards for specific pollutants are included in a Statewide List in accordance with CWA Section 303(d). If a Regional Board 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 (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

The SWRCB implemented the requirements of CWA Section 303(d) through the General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2022-0057-DWQ NPDES No. CAS000002).

The fourth edition of the Water Quality Control Plan (Basin Plan) for the Lahontan Region was adopted by the RWQCB in 2004, including amendments effective August 1995 through September 22, 2021.

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

The SWRCB adjudicates water rights, sets water pollution control policy, and 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.

2.2.3 National Pollutant Discharge Elimination System (NPDES) Program

2.2.3.1 Municipal Separate Storm Sewer System (MS4)

Municipal Separate Storm Sewer Systems (MS4)
Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater dischargers, including MS4s. The U.S. 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 stormwater.” The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Three Regional Water Quality Control Boards have jurisdiction over portions of San Bernardino County, namely the Santa Ana, Lahontan, and Colorado Regional Boards. The community of Baker is located in the boundary of the Lahontan Regional Board. The portion of the County within the Santa Ana Region is subject to a Phase I MS4 Permit. The County and the Flood Control District are subject to the waste discharge requirements of Order No. R8-2010-0036 (NDPES No. CAS618036).

The SWRCB adopted an order for Small Municipal Separate Storm Sewer Systems (MS4) Phase II General Permit, Water Quality Order No. 2013-0001-DWQ, as amended (NPDES General Permit No. CAS000004). The Order directs Regulated Small MS4s to

obtain coverage under a NDPES Permit. The SWRCB has designated San Bernardino County as a Regulated Small MS4 for the purposes of the NPDES permit. Within the urbanized portion of the Mojave River Watershed in San Bernardino County, the Phase II Small MS4 Permit covers the following jurisdictions:

- County of San Bernardino
    - Unincorporated areas of Phelan, Oak Hills, Spring Valley Lake and Victorville
- City of Hesperia
- City of Victorville
- Town of Apple Valley

The community of Baker is not covered by the Phase II Small MS4 Permit due to its population size of under 1,000 residents.

For the jurisdictions within the Mohave River Watershed, the County prepared the *Mohave River Watershed Technical Guidance Document for Water Quality Management Plans* (2016). The document establishes requirements for project proponents (both private and public agency project proponents) to meet the minimum Phase 2 MS4 Permit stormwater management requirements applicable to Regulated Projects. The document requires project proponents to incorporate infiltration Low Impact Development (LID) Best Management Practices (BMP) to the maximum extent practicable (MEP); and use biotreatment and harvest and use BMP for the remainder of the design capture volume (DCV).

2.2.3.2 Construction General Permit

The Construction General Permit (NPDES No. CAS000002, SWRCB Order No. 2022-0057-DWQ, was adopted on September 8, 2022) and effective on September 1, 2023. The permit regulates stormwater discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development.

For all projects subject to the CGP, the applicant is required to hire a Qualified Stormwater Pollution Prevention Plan (SWPPP) Developer (QSD) to develop and implement an effective SWPPP. A Qualified SWPP Practitioner (QSP) may be hired as well to assist in field work. All Project Registration Documents (PRDs), including the SWPPP, Risk Level (RL) Determinations, Site map and post-construction treatment documents are required to be uploaded into the SWRCB's on-line Stormwater Multiple Application and Report Tracking System (SMARTS). A Waste discharge Identification (WDID) number will be issued within 10 business days after the State Waterboard receives a complete Notice of Intent (NOI) package.

The 2022 CGP requires post-construction treatment permit registration documents to be submitted in SMARTS with the NOI to include: (1) An attachment or web-source containing the NPDES MS4 post-construction requirements and (2) the post-construction plans and calculations (Preliminary post-construction plans and calculations may be submitted as a Permit Registration Document, as long as the approved plans and calculations are submitted within 14 days of approval by the municipal stormwater permittee, through a Change of Information (COI) in SMARTS). Additionally, a COI in SMARTS must be submitted for any revisions to post-construction plans and calculations prior to submitting the Notice of Termination (NOT).

- The proposed Project is subject to the CGP. Coverage under the State Water Resources Control Board's Construction General Permit, which is a NPDES Permit, will be obtained. Any further avoidance or minimization measures from regulatory permitting would be incorporated into the Project, and adherence to the requirements set forth in these permits will further minimize impacts to water quality and aquatic resources.

2.2.3.2.1 Waiver From Construction General Permit

Projects that disturb over 1.0 acre but less than 5 acres of soil, may qualify for waiver of CGP coverage. This occurs whenever the Rainfall Erosivity, (R) in the Revised Universal Soil Loss Equation (RUSLE) is less than 5. When the R factor is below the numeric value of 5, projects can be waived from coverage under the CGP. Refer to the CGP, Attachment D.1, Risk Determination Worksheet 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 significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop a SWPPP, to implement soil erosion and pollution prevention control measures, and to obtain coverage under the CGP.

- The proposed Project does not qualify for a waiver of CGP coverage as the total area of disturbed soil is 1.65 acres, of which 1.60 acres is temporary and 0.05 acres is permanent impact.

2.2.3.2.2 Risk Level Inspection and Sampling Requirements

The CGP contains a risk-based permitting approach by establishing three levels of risk possible for a construction site. Risk levels are determined during the planning, design, and construction phases, and are based on project risk of generating sediments and receiving water risk of becoming impaired. Requirements apply according to the Risk Level (RL) determined, with additional monitoring and reporting requirements for higher risk projects with detailed requirements listed in Attachment D of the CGP. Requirements include:

- Visual inspections weekly, prior to Qualifying Precipitation Events (QPEs), during QPEs (every 24 hours) and post QPEs. A qualifying Storm Event (QPE) is defined as a forecasted 50% probability of precipitation of 0.5” or more within a 24-hour period and continues on subsequent 24-hour periods when 0.25 inches or more is forecast.

- RL 2 and 3 projects have sampling requirement for pH and Turbidity.

- Additionally, sampling for Numeric Action Levels (NALs) and Numeric Effluent Limits (NELs) is required for all risk level projects for TMDL-related non-visible pollutants listed in Attachment H of the CGP, if there is a discharge due to failure to implement a BMP, a container spill or leak, or a BMP breach or malfunction.

2.3 Regional and Local Requirements

2.3.1 RWQCB Basin Plan

The Project is located in within the boundaries of RWQCB Region 6V Lahontan. The Water Quality Control Plan for the Lahontan Region (Region 6) consists of the water quality goals and policies, descriptions of conditions, and discussions of solutions. The Basin Plan became effective March 31, 1995 and includes amendments effective August 1995 through September 22, 2021. It is also the basis for the Regional Board’s regulatory programs. The Basin Plan establishes water quality standards for the ground and surface waters of the region. The term “water quality standards,” as used in the federal CWA, includes both the beneficial uses of specific waterbodies and the levels of quality which must be met and maintained to protect those uses. The Basin Plan includes an implementation plan describing the actions by the Regional Board and others that are necessary to achieve and maintain the water quality standards.

The Regional Board regulates waste discharges to minimize and control their effects on the quality of the region’s ground and surface water. Permits are issued under a number of programs and authorities. The terms and conditions of these discharge permits are enforced through a variety of technical, administrative, and legal means.

Water quality problems in the region are listed in the Basin Plan, along with the causes, where they are known. For waterbodies with quality below the levels necessary to allow all the beneficial uses of the water to be met, plans for improving water quality are included.

In some cases, it has been necessary for the Regional Board to completely prohibit the discharge of certain materials. Some types of discharges are prohibited in specific areas. Details on these prohibitions also appear in the Basin Plan.

On October 28, 1968, the State Water Resources Control Board adopted Resolution No. 68-16, “Statement of Policy with Respect to Maintaining High Quality of Waters in California,” establishing an antidegradation policy for the protection of water quality. The State Board has interpreted the Resolution No. 68-16 to incorporate the federal antidegradation policy in order to ensure consistency with federal CWA requirements. Under the State Antidegradation Policy, whenever the existing quality of water is better than that needed to protect all existing and probable future beneficial uses, the existing high quality shall be maintained until or unless it has been demonstrated to the State that any change in water quality will be consistent with the maximum benefit of the people of the State, and will not unreasonably affect present and probable future beneficial uses of such water. (Lahontan RWQCB 2021).

As required by the federal CWA and implementing regulations, no permanent or longterm degradation is allowed in water designated as an Outstanding National Resource Water (ONRW). Only two ONRWs are designated in California: Lake Tahoe and Mono Lake. The Mojave River Channel, Soda Lake (Dry Lake), and the downstream Silver Lake (Dry Lake) are not designated as ONRW. The policy of non-degradation of aquatic communities and populations does not apply to the Mojave River Channel as are no wetlands or aquatic life present in the channel.

3 AFFECTED ENVIRONMENT

3.1 General Environmental Setting

The community of Baker is located in north central San Bernardino County, south of Death Valley. Geographically, it is located on a plain amongst several small mountain ranges in the Mojave Desert. Baker is located east of and outside of the Mojave Region Groundwater Basin (USGS 2023) and is located east of and outside of the Mojave Water Agency’s Integrated Regional Water Management Plan boundary (MWA 2014).

There are no wellhead protection areas in the Project area or adjacent to the Project area. The nearest public supply wells are located over 1.75 miles northeast of the Project area (DWR 2024b).

3.1.1 Population and Land Use

The population of Baker is approximately 751 persons. Baker is on a desert plain with several small mountains nearby. Baker’s most prominent feature is a 134-foot-tall

thermometer along Baker Boulevard (and visible from I-15), constructed in 1990 by Willis Herron, to commemorate the hottest temperature ever recorded in the Death Valley area, and to attract tourists traveling on the adjacent I-15. The community consists of primarily commercial uses including rural and highway commercial. The residential developments have minimum lot sizes from 1/3 acre to 40 acres. The commercial uses are restaurants, automotive care, and gas stations.

The 1.6-million-acre Mohave National Preserve, managed by the National Park Service, is located south of I-15. The Soda Mountains Wilderness is located approximately 2.75-miles north and east of the community of Baker. The 22,366-acre Hollow Hills Wilderness Area managed by the Bureau of Land Management (BLM) is located to the north.

3.1.2 Topography

The topography around the proposed Project site is generally flat with localized slopes. Downstream of the Baker Boulevard bridge, the County has constructed levees on both banks for flood control purposes.

3.1.3 Hydrology

3.1.3.1 Regional Hydrology

The Mohave River watershed extends from east of the City of San Bernardino to the community of Baker. The River starts at the confluence of Deep Creek and the West Fork Mojave River near the northeastern base of the San Bernardino Mountains. The approximately 3,350 square mile (mi^2) watershed includes the cities of Victorville, Barstow, and Afton. The mountainous upper part of the watershed comprises only about five percent (%) of the total watershed at Baker, CA, while the other 95% is desert. Precipitation in the mountains is the primary source of flow in the Mojave River. The annual average precipitation upstream of the confluence is approximately 24.5 inches (River Focus, Inc. 2024).

The Mojave River's modern-day terminus is generally considered to be Soda Lake (Dry Lake), an isolated intrastate dry lakebed (playa) just south of Baker and south of I-15. When floodwaters fill Soda Lake (Dry Lake), it overtops and drains northward 2.9-miles to Silver Lake (Dry Lake), also an isolated intrastate dry lakebed. A human-modified channel now connects the two dry lakebeds so that excess flows from Soda Lake (Dry Lake) pass under the Baker Boulevard Bridge into Silver Lake (Dry Lake). Silver Lake (Dry Lake) has recorded inundation to a depth of 10-ft on infrequent occurrences. When Silver Lake (Dry Lake) fills, the ponded water backfills into Soda Lake (Dry Lake) (River Focus, Inc. 2024).

3.1.3.2 Local Hydrology

3.1.3.2.1 Precipitation and Climate

The proposed Project is located in the Mojave Desert Floristic Province (Jepson 2024). Baker experiences a desert climate that consists of hot, dry summers and cool winters with little precipitation. The mean average annual high temperature is approximately 93.8 degrees Fahrenheit (°F) in July, and a mean annual low temperature of 47.5°F in December. The region averages 3.72 inches of precipitation annually (U.S. Climate Data 2024).

3.1.3.2.2 Surface Water

The Mojave River Channel is a manmade channel that connects Soda Lake (Dry Lake), an isolated dry lakebed south of I-15 and upstream of the proposed Project, to Silver Lake (Dry Lake), another isolated dry lakebed north of the community of Baker, and downstream of the proposed Project.

The Mojave River ends at Soda Lake (Dry Lake). Before the construction of the Mojave River Channel, inundation levels in Soda Lake (Dry Lake) would rise then spill over into the floodplain that connects to Silver Lake (Dry Lake). Now, the Mojave River Channel passes surface waters in Soda Lake (Dry Lake) before it overflows. If the inundation in Silver Lake (Dry Lake) is sufficient, which happens on a frequency of 10 to 15 years, water will back up in the Mojave River Channel and into Soda Lake (Dry Lake). Water also pools in the Project area during the cooler months.

The Mojave River upstream of the proposed Project and upstream of Soda Lake (Dry Lake) is a losing stream, which means the surface flows decrease from the upper watershed to the lower watershed in the downstream direction due to infiltration losses (River Focus, Inc. 2024). The River is perennial in a stretch near Victorville and again in Afton Canyon. Flows in most of the rest of the River is intermittent.

3.1.3.2.3 Total Maximum Daily Loads (TMDL)

The SWQCB's 2018 Integrated Report for CWA Section 303(d) list of impaired waters identifies TMDLs for segments of the Mojave River between the Mojave Forks Reservoir to the Upper Narrows and Upper and Lower Narrows which are over 110 river miles upstream of the proposed Project. There are no TMDLs for the Mojave River Channel that passes under the Baker Boulevard Bridge (SWRCB 2021).

3.1.3.2.4 Areas of Special Biological Significance (ASBS)

There are no Areas of Special Biological Significance occur in San Bernardino County (SWRCB 2024a).

3.1.3.2.5 Floodplains

The Baker Boulevard Bridge area is within a Federal Emergency Management Agency (FEMA) Zone A floodplain signifying that the reach was studied and mapped by FEMA using approximate methods (i.e., no detailed modeling was performed by FEMA). FEMA does not have reported peak flows for the study reach, nor do they have base (100-year) flood elevations. Given the Zone A (approximate) floodplain, a FEMA regulatory floodway has not been established for the study area (River Focus, Inc.). No current or future flood prevention projects in the community of Baker are identified on the San Bernardino Public Works Flood Control division website.

3.1.3.2.6 Municipal Supply

The Baker Community Services District (Baker CSD) provides potable water to residents and commercial users from six groundwater wells (SWRCB 2024). The wells are located over 1.75 miles northeast of the Project area. The wells draw from the Soda Lake (Dry Lake) groundwater basin. The SWRCB provides a web site called the "SAFER Dashboard" that allows access to a 2024 Drinking Water Needs Assessment. The Dashboard lists the Baker CSD as "at-risk" with water quality at a high risk rating (SWRCB 2024b).

3.1.3.3 Groundwater Hydrology

The Mojave Watershed is approximately 4,500 square miles. Aside from intense storm events, the Mojave River is typically dry downstream of the Mojave Forks Dam (located approximately 88 miles southwest of Baker) except in some locations where ground water is forced to the surface by geological features (Lahontan 2002).

The community of Baker is located on a low alluvial drainage divide that separates the Soda Lake (Dry Lake) and Silver Lake (Dry Lake) Valleys and their respective groundwater basins. The Soda Lake (Dry Lake) Valley Groundwater Basin (DWR 2020b) is identified in the Basin Plan as sub-basin 6-33 and includes 595 square miles. The total storage capacity is estimated at approximately 9,300,000-acre feet. The groundwater quality is characterized as sodium chloride or sodium-bicarbonate chloride, often in combination with sulfate in the eastern parts of the basin. The groundwater is rated marginal to inferior for both domestic and irrigation uses because of elevated concentrations of fluoride, boron, and total dissolved solids (DWR 2003).

The Silver Lake (Dry Lake) Groundwater Basin (DWR 2020b) is sub-basin 6-34 and includes 55.2 square miles. The total storage capacity is estimated at approximately 380,000-acre feet. The groundwater quality is characterized as sodium chloride or sodium-bicarbonate chloride. The groundwater is rated marginal to inferior for both domestic and irrigation uses because of elevated concentrations of fluoride, boron, and total dissolved solids (DWR 2003).

In the vicinity of Baker, the local groundwater table increases in depth when Silver Lake (Dry Lake) ponds, which has happened 10 to 15 times since 1894 (River Focus, Inc.

2024). During the geotechnical sampling completed for the Project, groundwater was encountered between +850 and +862 feet (approximately 61-72 feet below grade) (Earth Mechanics, Inc. 2024). The Preliminary Foundation Report documents that one groundwater well one mile from the bridge recorded a steady elevation of +891 for a 30-year period between 1954 to 1984 (Earth Mechanics, Inc. 2024). Ground surface elevation at this well is about +967 feet. Another groundwater well two miles from the proposed Project recorded a steady elevation of about +900 feet for a 9-year period between 1961 to 1970. Ground surface elevation at this well is about +924 feet (Earth Mechanics, Inc. 2024). For this Project, the design groundwater table is set at +920 feet, which is the channel elevation (Earth Mechanics, Inc. 2024).

3.1.4 Geology/Soils

A Natural Resources Conservation Service (NRCS) custom soils report was obtained through the NRCS' web site. The NRCS report states that no digital data is available for the study area. A Foundation Report prepared for the Project by Earth Mechanics, Inc. (2024) included a geotechnical field exploration including drilling and logging of exploratory bores and laboratory testing of selected subsurface soil samples. The Preliminary Foundation Report says:

> "The proposed bridge site is underlain by Quaternary alluvial sediments. The Quaternary deposits include unconsolidated Holocene (less than 11,000 years old) deposits overlying more consolidated Pleistocene (11,000 to 2.6 million years old) alluvial deposits. The deposits are derived from the Mojave River Channel which crosses the proposed bridge site. The alluvial soils generally consist of silty sands to silty clay. The alluvial soils are underlain by metamorphic and granitic basement rock that is exposed within the hills west of the project site."

The Preliminary Foundation Report further says:

> "The project corridor and bridge site are underlain by alluvial fan deposits. Although collapsible soils could potentially be a threat to the site based on the above sand deposits, the laboratory test results, soil classifications and relatively high blowcounts from the site-specific soil borings indicates collapsible soil/hydroconsolidation potential is moderate at the subject bridge site."

3.1.5 Biological Communities

3.1.5.1 Aquatic Habitat

The Mojave River Channel does not flow frequently enough to provide habitat for aquatic species.

3.1.5.1.1 Special Status Species

A Natural Environment Study (NES, Dokken Engineering 2024) was prepared to evaluate potential impacts to threatened, endangered, listed, or special-status species and protected habitat resources as a result of the proposed Project. The study area was potentially suitable for one federally threatened/state threatened species, desert tortoise (*Gopherus agassizii)*. The Project is not anticipated to have take of any state-listed species, including desert tortoise, with the inclusion of appropriate avoidance and minimization measures.

3.1.5.1.2 Stream/Riparian Habitats

The Mojave River Channel, a manmade ditch, was constructed to facilitate drainage of ephemeral flows from Soda Lake (Dry Lake) into Silver Lake (Dry Lake). No riparian habitat is present.

3.1.5.1.3 Wetlands

No wetlands are present in the study area.

3.2 Water Quality Objectives/Standards and Beneficial Uses

3.2.1 Surface Waters

Per the Water Quality Control Plan, Lahontan Region (Basin Plan 2021), surface waters of the region shall not contain, as a result of controllable water quality factors, taste- or odor-producing substances at concentrations which cause a nuisance or adversely affect beneficial uses. The natural taste and odor of fish, shellfish or other regional inland surface water resources used for human consumption shall not be impaired.

The Basin Plan assigns beneficial uses for tributary streams based on the uses assigned to the named waterbody that the tributary connects with. Table 1, below, defines these beneficial uses for surface waters.

Table 1. Lahontan RWQCB Basin Plan Beneficial Uses of Water

Beneficial Uses of Water
AGR (Agricultural Supply). Beneficial uses of waters used for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, and support of vegetation for range grazing.
AQUA (aquaculture). Beneficial uses of waters used for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, and harvesting of aquatic plants and animals for human consumption or bait purposes.

Beneficial Uses of Water
BIOL (Preservation of Biological Habitats of Special Significance). Beneficial uses of waters that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, and Areas of Special Biological Significance (ASBS), where the preservation and enhancement of natural resources protection.
COLD (Cold Freshwater Habitat). Beneficial uses of waters that support cold water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
COMM (Commercial and Sportfishing). Beneficial uses of waters used for commercial or recreational collection of fish or other organisms including, but not limited to, uses involving organisms intended for human consumption.
CUL (Tribal Tradition and Culture). Uses of water that support the cultural, spiritual, ceremonial, or traditional rights or LIFEWAYS of CALIFORNIA NATIVE AMERICAN TRIBES, including, but not limited to: navigation, ceremonies, or fishing, gathering, or consumption of natural aquatic resources, including fish, shellfish, vegetation, and materials. LIFEWAYS: Any customs, practices, or art of a CALIFORNIA NATIVE AMERICAN TRIBE CALIFORNIA NATIVE AMERICAN TRIBE(S): A federally-recognized California tribal government listed on the most recent notice of the Federal Register or a nonfederally recognized California tribal government on the California Tribal Consultation List maintained by the California Native American Heritage Commission.
FLD (Flood Peak Attenuation/Flood Water Storage). Beneficial uses of riparian wetlands in flood plain areas and other wetlands that receive natural surface drainage and buffer its passage to receiving waters.
FRSH (Freshwater Replenishment). Beneficial uses of waters used for natural or artificial maintenance of surface water quantity or quality (e.g., salinity).
GWR (Ground Water Recharge). Beneficial uses of waters used for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.
IND (Industrial Service Supply). Beneficial uses of waters used for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, geothermal energy production, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.
MIGR (Migration of Aquatic Organisms). Beneficial uses of waters that support habitats necessary for migration, acclimatization between fresh and salt water, or temporary activities by aquatic organisms, such as anadromous fish.

Beneficial Uses of Water
MUN (Municipal and Domestic Supply). Beneficial uses of waters used for community, military, or individual water supply systems including, but not limited to, drinking water supply.
NAV (Navigation). Beneficial uses of waters used for shipping, travel, or other transportation by private, military, or commercial vessels.
POW (Hydropower Generation). Beneficial uses of waters used for hydroelectric power generation.
PRO (Industrial Process Supply). Beneficial uses of waters used for industrial activities that depend primarily on water quality.
RARE (Rare, Threatened, or Endangered Species). Beneficial uses of waters that support habitat necessary for the survival and successful maintenance of plant or animal species established under state and/or federal law as rare, threatened or endangered.
REC-1 (Water Contact Recreation). Beneficial uses of waters used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, and use of natural hot springs.
REC-2 (Noncontact Water Recreation). Beneficial uses of waters used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.
SAL (Inland Saline Water Habitat). Beneficial uses of waters that support inland saline water ecosystems including, but not limited to, preservation and enhancement of aquatic saline habitats, vegetation, fish, and wildlife, including invertebrates.
SPWN (Spawning, Reproduction, and Development). Beneficial uses of waters that support high quality aquatic habitat necessary for reproduction and early development of fish and wildlife.
SUB (Subsistence Fishing). Uses of water involving the non-commercial catching or gathering of natural aquatic resources, including fish and shellfish, for consumption by individuals, households, or communities, to meet needs for sustenance.
T-SUB (Tribal Subsistence Fishing). Uses of water involving the non-commercial catching or gathering of natural aquatic resources, including fish and shellfish, for consumption by individuals, households, or communities of California Native American Tribes to meet needs for sustenance.

Beneficial Uses of Water
WARM (Warm Freshwater Habitat). Beneficial uses of waters that support warm water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
WILD (Wildlife Habitat). Beneficial uses of waters that support wildlife habitats including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.
WQE (Water Quality Enhancement). Beneficial uses of waters that support natural enhancement or improvement of water quality in or downstream of a water body including, but not limited to, erosion control, filtration and purification of naturally occurring water pollutants, streambank stabilization, maintenance of channel integrity, and siltation control.
Source: Lahontan Region Water Quality Control Board Basin Plan 2021

The Basin Water has three categories of water quality objectives, of which only the first two are applicable to the Mojave River Channel. The first category is “Water Quality Objectives That Apply to All Surface Waters” and the second category is “Water Quality Objectives For Certain Water Bodies.” These water quality objectives are presented in Table 2.

Table 2. Lahontan RWQCB Basin Plan Water Quality Objectives for Surface Waters

Water Quality Objectives for Surface Waters	
Constituent	**Water Quality Objective**
Ammonia	The neutral, un-ionized ammonia species (NH3) is highly toxic to freshwater fish. The fraction of toxic NH3to total ammonia species (NH4+ + NH3) is a function of temperature and pH.Tables 3-1 to 3-4 were derived from USEPA ammonia criteria for freshwater. Ammonia concentrations shall not exceed the values listed for the corresponding conditions in these tables. 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 USEPA. For one-hour (1h-NH3) and four-day (4d-NH3) unionized ammonia criteria, the following equations apply: (See Basin Plan for equations).
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 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml. *The log mean shall ideally be based on a minimum of*

Water Quality Objectives for Surface Waters	
Constituent	**Water Quality Objective**
	not less than five samples collected as evenly spaced as practicable during any 30-day period. However, a log mean concentration exceeding 20/100 ml for any 30-day period shall indicate violation of this objective even if fewer than five samples were collected.
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 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 this 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). This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect. Waters designated as 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 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, COLD with SPWN, WARM, and WARM with SPWN, the minimum dissolved oxygen

Water Quality Objectives for Surface Waters	
Constituent	**Water Quality Objective**
	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 that 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.
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 Region, the pH shall not be depressed below 6.5 nor raised above 8.5. *The Regional Board recognizes that some waters of the Region may have natural pH levels outside of the 6.5 to 8.5 range. Compliance with the pH objective for these waters will be determined on a case-by-case basis.*
Radioactivity	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 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 this plan. This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.

Water Quality Objectives for Surface Waters	
Constituent	**Water Quality Objective**
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 Regional Board 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. This plan is summarized in Chapter 6 (Plans and Policies), and included in Appendix B.
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. *Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration*

Water Quality Objectives for Surface Waters	
Constituent	**Water Quality Objective**
	and/or other appropriate methods as specified by the Regional Board. 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. 2012, or subsequent editions).
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: Water Quality Control Plan for the Lahontan Region (2021)	

The Basin Plan has water quality objectives for certain water bodies, including water bodies in the Mojave Hydrologic Unit. Table 3-20 of the Basin Plan provides TDS and NO_3 as NO_3 for the Mojave River from its headwaters downstream to Camp Cady Ranch, which is over 38 miles upstream of the proposed Project. No water quality objectives are listed for Soda (Lake, the Mojave River Channel, or Silver Lake (Dry Lake).

The Mojave River, Soda Lake (Dry Lake) (upstream of I-15), and Silver Lake (Dry Lake) (downstream of Baker Boulevard) are included in the Basin plan. The Mojave River Channel is not discussed or mapped.

Table 2-1 of the Lahontan Basin Plan (Lahontan RWQCB 2021) lists Beneficial Uses of Surface Waters in the Lahontan Region. No beneficial uses of surface waters are identified in the Baker Hydrologic Area. For the Silver Lake (Dry Lake) Hydrologic Subarea (downstream of Baker), beneficial uses include Municipal, Agricultural, Groundwater, Recreation 1 and 2, Warm, Cold, Fishable, and Wild. Soda Lake (Dry Lake) has similar beneficial uses as Silver Lake (Dry Lake): Municipal, Agricultural, Groundwater, Recreation 1 and 2, Commercial and Sport Fishing, Warm, Cold, Wild, and Water Quality Enhancement.

The Basin Plan states that a beneficial use designation indicates an existing or potential use. The label is not intended to apply to the entire length of a stream or to a surface water during certain temporal conditions. Beneficial use designations that may be considered for temporary or site-specific designation include GWR, NAV, WARM, COLD, and SAL. The MUN designation is not a site-specific designation since it is designated for all waters in the Lahontan Region. Recreation uses (REC-1 and REC-2)

are likewise designated for all surface waters in the Lahontan Region (Lahontan RWQCB 2021).

3.2.2 List of Impaired Waters

There are no impaired water bodies on the 303(d) list and/or with TMDLs within the Project limits (SWRCB 2018).

3.2.3 Groundwater

The community of Baker is located at the boundary of the Soda Lake (Dry Lake) groundwater basin to the south and the Silver Lake (Dry Lake) groundwater basin to the north. Public supply wells for the community are located in the Soda Lake (Dry Lake) groundwater basin (DWR 2024a). Two domestic wells are located north of the proposed project in the Silver Lake (Dry Lake) groundwater basin (DWR 2024b). The Mojave River water basin has been in a state of overdraft since the 1960s. The Mojave Water Agency implements artificial recharge using imported water from the California State Water Project (SWRCB 2003).

The Lahontan Basin Plan lists beneficial uses for ground waters of the Lahontan Region in Table 2-2. The uses for the Soda Lake (Dry Lake) Valley and the Silver Lake (Dry Lake) Valley are Municipal, Agricultural, Industrial, and Freshwater.

The basin plan lists water quality objectives for the Mojave Hydrologic Unit for Total Dissolved Solids (TDS) and Nitrate as Nitrate (NO_3 as NO_3).

4 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

The proposed Project will replace the existing two-lane Baker Boulevard Bridge over the Mojave River Channel with a new, wider, four-lane structure. The proposed bridge deck will include a highpoint at the center of the bridge to provide slopes for positive surface drainage. Scuppers are not needed. It is anticipated that the Mojave River Channel will be dry during the duration of construction, but if there is any water flowing through the construction area it will be handled with a temporary creek diversion system. Sandbags or other similar methods will be used to divert roadway surface run-off to the channel keeping the surrounding work areas dry.

The Project will result in an approximate 0.66 acre increase of new impervious surface, which will increase the volume of storm water runoff from the roadways surface. The proposed Project will adhere to water quality standards maintained by the SWRCB for the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. A CGP would be obtained prior to construction. Potential impacts would be mitigated for sediment, erosion, and non-storm water control methods pursuant to the requirements of the NPDES CGP.

The Project will be designed with BMPs that the RWQCB has deemed as effective at reducing erosion, controlling sediment, and managing runoff. These can include: covering disturbed areas with mulch, temporary seeding, soil stabilizers, binders, fiber rolls or blankets, temporary vegetation, and permanent seeding. Sediment control BMPs include installing silt fences, rice barrels, and/or placing straw wattles below slopes, installing berms, and other temporary run-on and runoff diversions.

The Project will implement standard BMPs to avoid and minimize water quality impacts; however, they are not to preclude new or innovative approaches currently available or being developed. The CGP, including the monitoring log, must be kept on-site during construction activities and will be made available upon request to representatives of the RWQCB.

4.2 Project Features/Standardized Measures

The following project features/standardized measures implemented by the Project to address permit requirements will minimize temporary or permanent water quality (WQ) impacts created by the Project. These measures are taken into consideration prior to determining Project impacts:

PF-WQ-1 The Project will comply with the provisions of the NPDES Construction General Permit for Stormwater Discharges Associated with Construction

and Land Disturbance Activities (Construction General Permit) Order No. 2022-0057-DWQ, NPDES No. CAS000002 and any subsequent permits in effect at the time of construction.

PF-WQ-2 The Project will comply with the Construction General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2022-0057-DWQ, NPDES No. CAS000002 by preparing and implementing a Stormwater Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP) to address all construction-related activities, equipment, and materials that have the potential impact water quality for the appropriate Risk Level. The SWPPP or WPCP will identify the sources of pollutants that may affect the quality of stormwater and include BMPs to control the pollutants, such as sediment control, catch basin inlet protection, construction materials management and non-stormwater BMPs. All work must conform to the Construction Site BMP requirements specified in the latest edition of the Stormwater Quality Handbooks: Construction Site Best Management Practices Manual to control and minimize the impacts of construction and construction related activities, material and pollutants on the watershed. These include, but are not limited to temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other non-stormwater BMPs.

PF-WQ-3 Design Pollution Prevention Best Management Practices (BMPs) will be implemented such as preservation of existing vegetation, slope/surface protection systems (permanent soil stabilization), concentrated flow conveyance systems such as ditches, berms, dikes, and swales, over side drains, flared end sections, and outlet protection/velocity dissipation devices.

4.3 Potential Impacts to Water Quality

The proposed Project does not require a Section 404(b)(1) analysis.

4.3.1 Temporary Impacts to Water Quality

4.3.1.1 No Build Alternative

The no-build alternative would not cause temporary impacts to water quality.

4.3.1.2 Build Alternative(s)

Based on the Project schedule of approximately 24 months, construction will be on-going during a winter, rainy season. The SWPPP will require the contractor to use BMPs for winterization and clear water diversions as appropriate. The Google Earth

Streetview image from March 2023 and a field survey in September 2023 by River Focus both document that water may pool in the Project area after rainfalls during cooler months. The implementation of BMPs for water diversion will be timed in response to precipitation events.

4.3.2 Long-term Impacts During Operation and Maintenance

The build alternatives would not increase long-term impacts to water quality during operations and maintenance as compared to the existing baseline.

4.3.2.1 No Build Alternative

The no-build alternative would not cause temporary impacts to water quality.

4.3.2.2 Build Alternative(s)

The build alternatives would not increase long-term impacts to water quality during operations and maintenance as compared to the existing baseline.

4.4 Impact Assessment Methodology

The proposed Project, the cast-in-place reinforced-concrete slab, and the precast-prestressed voided slab structure would be supported by cast-in-drilled hole or driven piles. For these two structure types, both construction and operation/maintenance impacts are common.

The box culvert structure alternative considered requires deeper excavation in the channel for recompaction of loose sands in the upper four feet of the channel bed and the installation of a five- to six-foot deep cut-off wall.

4.5 Cumulative Impacts

The proposed Project will widen the existing bridge and add 0.66 acres of impervious surface to a 650 square mile combined watershed of Soda Lake (Dry Lake) Valley and Silver Lake (Dry Lake) Valley. The wider bridge is not anticipated to promote further development in the watershed. The community of Baker Boulevard is accessed from the north by Death Valley Road, from the south by Kelbaker Road and from the east and west where Baker Boulevard connects to I-15 via single-lane on- and off-ramps.

5 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

WQ-1: Prior to the start of construction activities, temporary Environmentally Sensitive Area (ESA) fencing and/or Desert Tortoise exclusion fencing will be erected along the limits of the saltbush scrub habitat desert sink habitat impact areas to clearly demarcate their limits, if required by regulatory permits. Construction equipment and vehicles will be confined to designated access routes and work areas to minimize habitat disturbance. Vehicles and heavy machinery will avoid unnecessary idling and will be regularly maintained to reduce the risk of fluid leaks, which could contaminate nearby habitats (Same as the Natural Environmental Study Measure BIO-3).

WQ-2 BMPs will be incorporated into Project construction to minimize impacts on the environment including erosion and the release of pollutants (e.g. oils, fuels) (Same as the Natural Environmental Study Measure BIO-1):

- Exposed soils and material stockpiles would be stabilized, through watering or other measures, to prevent the movement of dust at the Project site caused by wind and construction;
- Implementation of the Project shall require approval of a site-specific SWPPP or Water Pollution Control Program that would implement effective measures to protect water quality, which may include a hazardous spill prevention plan and additional erosion prevention techniques;
- All construction roadway areas would be properly protected to prevent excess erosion, sedimentation, and water pollution;
- All vehicle and equipment fueling/maintenance would be conducted outside of any surface waters;
- Equipment used in and around jurisdictional waters must be in good working order and free of dripping or leaking contaminants;
- Raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life shall be prevented from contaminating the soil or entering jurisdictional waters;
- All erosion control measures, and storm water control measures would be properly maintained until the site has returned to a pre-construction state;
- All construction materials would be hauled off-site after completion of construction.

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6.1 Preparer(s) Qualifications

Jeffery Little, Senior Environmental Planner, 30 years of experience in environmental analysis.

APPENDIX A – FEMA Firmette Flood Map

National Flood Hazard Layer FIRMette

FEMA

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/12/2024 at 4:20 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix B. NRCS Soil Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Mojave Desert Area, Northeast Part, California

January 31, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:3,260 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 45 90 180 270

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Mojave Desert Area, Northeast Part, California
Survey Area Data: Version 13, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 6, 2019—Oct 13, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NOTCOM	No Digital Data Available	9.3	100.0%
Totals for Area of Interest		**9.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Mojave Desert Area, Northeast Part, California

NOTCOM—No Digital Data Available

Map Unit Composition

Notcom: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Notcom

Properties and qualities

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