STRATEGIC WATER RESOURCES PLAN DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT

September 2024

SCH#: 2023080290

Palmdale Water District

Woodard & Curran

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ACRONYMS AND ABBREVIATIONS

STANDARD ACRONYMS AND ABBREVIATIONS

The following acronyms and abbreviations are used in the majority of sections below.

AFY	Acre-Feet per Year
AWPF	Advanced Water Purification Facility
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
County	Los Angeles County
Ditch	Palmdale Ditch
DWR	California Department of Water Resources
EIR	Environmental Impact Report
MGD	Million Gallons per Day
PWD	Palmdale Water District
SWP	State Water Project
SWRP Update	Strategic Water Resources Plan Update
U.S. EPA	United States Environmental Protection Agency

0.00 EXECUTIVE SUMMARY

Only standard acronyms and abbreviations.

1.00 INTRODUCTION

NOC	Notice of Completion

2.00 PROJECT DESCRIPTION

AVAQMD	Antelope Valley Air Quality Management District
CDFW	California Department of Fish and Wildlife

DWR	California Department of Water Resources
EIR	Environmental Impact Report
LACSD	Los Angeles County Sanitation Districts
LCID	Littlerock Creek Irrigation District
NPDES	National Pollutant Discharge Elimination System
PWRA	Palmdale Recycled Water Authority
SCH	State Clearinghouse
SWPPP	Stormwater Pollution Prevention Plan
WSMP	Water System Master Plan

3.00 INTRODUCTION

NOP	Notice of Preparation

3.01 AESTHETICS

Caltrans	California Department of Transportation
Ditch	Palmdale Ditch
General Plan	City of Palmdale 2045 General Plan
PMC	Palmdale Municipal Code
ROLD	Rural Outdoor Lighting District
WRP	Water Reclamation Plant

3.02 AIR QUALITY AND GREENHOUSE GASES

AB	Assembly Bill
AVAQMD	Antelope Valley Air Quality Management District
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model

CARB	California Air Resources Board
CCAA	California Clean Air Act
GHG	Greenhouse Gas
GWP	Global Warming Potential
LCFS	Low Carbon Fuel Standard
MDAB	Mojave Desert Air Basin
NAAQS	National Ambient Air Quality Standards
PM	Particulate Matter
ppm	Parts per Million
RPS	Renewable Portfolio Standard
SB	Senate Bill
SIP	California State Implementation Plan
TAC	Toxic Air Contaminant

3.03 BIOLOGICAL RESOURCES

BMPs	Best Management Practices
BSA	Biological Study Area
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
Ditch	Palmdale Ditch
DWR	Department of Water Resources
FESA	Federal Endangered Species Act

F	Fahrenheit
GAP	Gap Analysis Program
GDEs	Groundwater Dependent Ecosystems
IPaC	Information, Planning, and Conservation System
MBTA	Migratory Bird Treaty Act
NPPA	Native Plant Protection Act
OHWM	Ordinary High Water Mark
PCEs	Primary Constituent Elements
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
RWQCB	Regional Water Quality Control Board
SEA	Significant Ecological Area
TNW	Traditional Navigable Water
USACE	United States Army Corps of Engineers
USDA	United States. Department of Agriculture
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service

3.04 CULTURAL AND TRIBAL RESOURCES

af	Artificial Fill
amsl	above mean sea level
APE	Area of Potential Effect
CRHR	California Register of Historical Resources
CRM	Cultural Resources Management
CRMP	Cultural Resources Management Plan

DPR	Department of Parks and Recreation
FTBMI	Fernandeño Tataviam Band of Mission Indians
HPI	Historic Preservation Ordinance
Qa	Holocene alluvium
Qls	Holocene-Pleistocene Landslide debris
MLD	Most Likely Descendant
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NRHP	National Register of Historical Places
PRC	Public Resources Code
PQS	professional qualifications standards
Project	Palmdale Water District Strategic Water Resources Plan Update
PWD	Palmdale Water District
Ditch	Palmdale Ditch
Qoa	Pleistocene older alluvium
Qos	Pleistocene alluvium elevated
RCYBP	radiocarbon years before present
SLF	Sacred Lands File
SFBMI	San Fernando Band of Mission Indians
WEAP	Worker Environmental Awareness Program

YSMN	Yuhaaviatam of San Manuel Nation
XPI/Phase II	Extended Phase I / Phase II archaeological resources investigation

3.05 ENERGY

AB	Assembly Bill
CAFE	corporate average fuel economy
CARB	California Air Resources Board
CEC	California Energy Commission
CPUC	California Public Utilities Commission
EPIC	Energy for Palmdale's Independent Choice
EV	Electric Vehicle
GHG	Greenhouse Gas
HVAC	Heating, Ventilation, And Air Conditioning
HP	Horsepower
LCFS	Low Carbon Fuel Standard
NHTSA	National Highway Traffic Safety Administration
RPS	Renewable Portfolio Standard
SCE	Southern California Edison
SCGC	Southern California Gas Company
SB	Senate Bill

3.06 GEOLOGY, SOILS, AND MINERAL RESOURCES

amsl	Above Mean Sea Level
CEQA	California Environmental Quality Act
CGS	California Geological Survey
DWR	Department of Water Resources
FLMPA	Federal Land Policy and Management Act
MRZ	Mineral Resource Zones
NRCS	Natural Resources Conservation Service
PRPA	Paleontological Resources Preservation Act
SMARA	Surface Mining and Reclamation Act
SVP	Society for Vertebrate Paleontology

3.07 HAZARDS, HAZARDOUS MATERIALS, AND WILDFIRE

Cal ARP	California Accidental Release Prevention Program,
Cal Fire	California Department of Forestry and Fire Protection
DTSC	California Department of Toxic Substances
EOP	Emergency Operations Plan
EPCRA	Emergency Planning and Community Right-to-Know Act
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zones
HMTA	Hazardous Materials Transportation Act
OHSA	Occupational Safety and Health Administration
PCB	Polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Plan

SWRCB	State Water Resources Control Board
TCE	Trichloroethylene
TSCA	Toxic Substances Control Act
VOC	Volatile Organic Compound

3.08 HYDROLOGY, GROUNDWATER, AND WATER QUALITY

BMP	Best Management Practices
CDFW	California Department of Fish and Wildlife
CCR	Consumer Confidence Report
CWA	Clean Water Act
EOP	Emergency Operations Plan
FEMA	Federal Emergency Management Agency
NPDES	National Pollutant Discharge Elimination System
PCBs	Polychlorinated Biphenyls
SGMA	Sustainable Groundwater Management Act
SNMP	Salt and Nutrient Management Plan
SWPPP	Stormwater Pollution Prevention Plan
TDS	Total Dissolved Solids
WMA	Watersheds Management Area

3.09 LAND USE, AGRICULTURE, AND FORESTRY RESOURCES

AIA	Airport Influence Area
ALUCP	Airport Land Use Compatibility Plans
ALUP	Airport Land Use Plan
ALUC	Airport Land Use Commission

CDOC California Department of Conservation

FAA Federal Aviation Administration

FMMP Farmland Mapping and Monitoring

PWD Palmdale Water District

USAF United States Air Force

LAWA Los Angeles World Airports

LESA Land Evaluation and Site Assessment Model

3.10 NOISE AND VIBRATION

AIA Airport Influence Area

ALUC Los Angeles County Airport Land Use Commission

dB decibel

dBA A-weighted decibel

Hz hertz

3.11 RECREATION

USDA United States Department of Agriculture

3.12 TRANSPORTATION

AIA Airport Influence Area

ATVA Antelope Valley Transit Authority

Caltrans California Department of Transportation

CIP Capital Improvement Plan

CMP Congestion Management Program

SCAG Southern California Association of Governments

3.13 UTILITIES

AVEK	Antelope Valley-East Kern
CAL FIRE	California Department of Forestry and Fire Protection
CHP	California Highway Patrol
LACFD	Los Angeles County Fire Department
LACSD	Los Angeles County Sanitation District
LACWWD40	Los Angeles County Waterworks District 40
QHWD	Quartz Hill Water District
RPS	Renewable Portfolio Standard
SCE	Southern California Edison
SGCG	Southern California Gas Company
WRP	Water Reclamation Plant
WTP	Water Treatment Plant

4.00 ALTERNATIVES

Only standard acronyms and abbreviations.

5.00 OTHER CEQA CONSIDERATIONS

RCP	Regional Comprehensive Plan
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
UWMP	Urban Water Management Plan

6.00 REPORT PREPARERS

ESA Environmental Science Associates

ES.1 EXECUTIVE SUMMARY

The Draft Environmental Impact Report (Draft EIR) programmatically assesses the potential environmental impacts of the Strategic Water Resources Plan (SWRP) Update, referred to hereafter as the proposed Project. Palmdale Water District (PWD) is the California Environmental Quality Act (CEQA) lead agency. Inquiries regarding this document and Project should be directed to:

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ES.1.1 INTRODUCTION AND PURPOSE

PWD as the lead agency has prepared this Draft EIR to provide the public, responsible and trustee agencies with information about the potential effects on the local and regional environment associated with the SWRP Update (proposed Project). This Draft EIR has been prepared pursuant to CEQA.

PWD, as the Lead Agency pursuant to CEQA, is proposing to implement the proposed Project, which outlines a programmatic plan for developing and diversifying PWD's water supply through 2050. The proposed Project determined that demand in the PWD service area is projected to increase by 18,700 acre-feet per year (AFY) to 25,500 AFY by 2050 due to demand growth driven by a combination of new residential development and densification of existing residential developments. Currently, the existing water supplies are inadequate to meet the projected demand of the planned increase in population. The proposed Project established a set of water supply options that provide increased water supply reliability and redundancy by increasing the number of water sources available to supplement the system when an individual source of water is unavailable or restricted. The proposed Project calls for maximizing PWD imported water supplies for internal water storage, purified recycled water injection, well rehabilitation and/or replacement of existing wells, new wells, local supplies enhancements through the sediment removal at Littlerock Reservoir and Palmdale Ditch Conversion project, and conservation.

The Executive Summary provides an overview of the proposed Project, its objectives, and a summary of potential impacts anticipated as a result of Project implementation. The summary table (**Table ES-2**) included at the end of this chapter identifies these impacts and lists the mitigation measures recommended to reduce significant adverse impacts. Alternatives to the proposed Project are also briefly described.

For a full description of the proposed Project, its impacts, and alternatives, please refer to **Chapters 2, 3, 4,** and **5** of this Draft EIR.

ES.1.2 BACKGROUND

PWD provides potable water to municipal, industrial, and agricultural customers within a 46 square mile service area in the Antelope Valley of Los Angeles County, California. PWD currently serves approximately 26,900 connections, the majority of which are residential, through three main sources: imported water from the State Water Project (SWP), groundwater from the Antelope Valley Groundwater Basin, and surface water from Littlerock Dam Reservoir. PWD has also developed recycled water supplies to diversify its water supply and offset potable water demand.

PWD receives SWP water from the Sacramento-San Joaquin Delta through the East Branch of the California Aqueduct into Lake Palmdale. PWD has a Table A contracted amount of 21,300 AFY, but Table A allocations differ each year based on hydrology, current storage, and releases to be made throughout the year to meet SWP contractual and regulatory obligations. In addition to the Table A amount, PWD supplements Table A water with carryover water, Article 21 water, and turnback pool water. PWD also has long-term arrangements with other SWP contractors who hold Table A amounts exceeding their current demands.

PWD operates 22 groundwater wells in the Antelope Valley Groundwater Basin (DWR Basin No. 6-44, Bulletin 118). Groundwater has accounted for an average of 48 percent of PWD's supplies since 2011. The Antelope Valley Groundwater Basin was adjudicated in December 2015 after over 15 years of complex proceedings among more than 4,000 parties, including public water suppliers, landowners, small pumpers and non-pumping property owners, and the federal and State governments. Per the Judgement, PWD has a groundwater production right of 2,770 AFY and has been in full compliance with the Judgement.

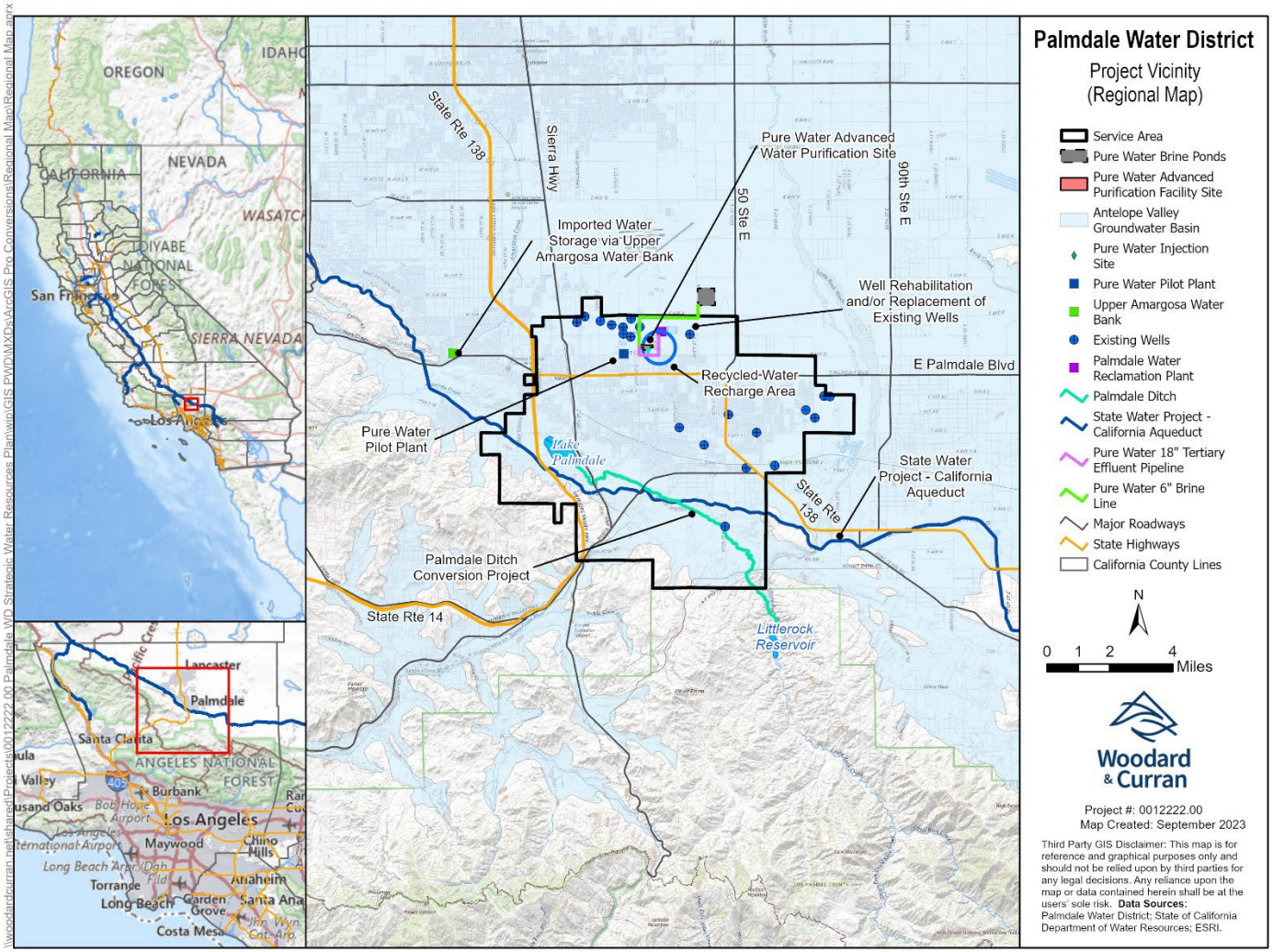
Littlerock Dam Reservoir is located southeast of PWD and is fed by Littlerock Creek and surface runoff. Littlerock Dam reservoir has a design storage capacity of 3,500 AF that declines annually as sediment enters the reservoir. PWD is entitled to 50 percent of the Littlerock Dam Reservoir's storage capacity.

The Palmdale Ditch (Ditch) is a 7.2 mile long part earthen and part concrete-lined open ditch that conveys water from Littlerock Dam Reservoir to Lake Palmdale. It is estimated that up to 25 percent of water supplies are lost due to evaporation and seepage from the Ditch.

ES.1.3 PROJECT LOCATION

Project location and vicinity of PWD service area is located within the Antelope Valley in Los Angeles County, approximately 60 miles north of the City of Los Angeles, and includes the central and southern portion of the City of Palmdale (City) and adjacent unincorporated areas of Los Angeles County (see **Figure ES-1**). The proposed Project includes some facilities that would be located outside of PWD service area boundaries in either the City or near Littlerock Reservoir. Therefore, for purposes of this EIR, the "Project area" includes both the PWD service area and any outlying areas where project facilities may be located.

Figure ES- 1: Project Location and Vicinity



ES.1.4 PROJECT OBJECTIVES

The primary objectives of the proposed Project are to:

- Meet the current and future water supply needs for PWD's service area.
- Increase water supply reliability by identifying feasible and reliable sources of water to meet the current and future needs.
- Maximize cost savings by optimizing existing water rights and facilities, while strategically prioritizing new projects that align with PWD's Mission and Vision.
- Identify and plan for the facilities that will be needed to meet current and future needs.
- Maximize potential funding by selecting water supply sources that are in line with existing funding programs.
- Plan for system redundancy and sustainability so that the system and PWD can accommodate unforeseen changes.

In addition to the primary objectives, PWD identified secondary objectives associated with each type of water supply (see **Table ES-1**).

Table ES- 1: Proposed Strategic Water Resource Plan Update Secondary Objectives

Water Supply Element	Strategic Goals
Imported Water	Support projects and initiatives that increase the resilience of State Water Project supplies Increase storage of State Water Project supplies in the Antelope Valley Basin Maximize use of existing imported water supplies
Recycled Water	Maximize the use of recycled water within PWD's service area to reduce the current demand for imported water and limit the need for more imported water in the future Obtain funding and partnerships to offset the cost of Pure Water Antelope Valley
Groundwater	Be able to pump stored water to meet demands during imported water shortages Establish and operate recharge facilities to offset proposed pumping increases Leverage excess stored water to generate capital for PWD projects Increase PWD's groundwater production rights
Local Supplies	Continue Littlerock Reservoir sediment removal activities to create more storage capacity Improve Palmdale Ditch to reduce water loss, increase conveyance capacity, and improve the quality of water transported to Lake Palmdale

Water Supply Element	Strategic Goals
	Improve Palmdale Ditch system performance, reliability, and resiliency and decrease the potential for the interruption of water conveyance or need for emergency maintenance activities. Improve Palmdale Ditch safety of operations and maintenance activities
Conservation	Continue to expand conservation efforts on a regular basis (e.g., every 3-5 years), attracting outside funding to help expand programs Maintain and update policies as needed to reduce water waste and preserve PWD's ability to achieve sufficient conservation savings in the event of a water shortage emergency Achieve conservation objectives set by the State as part of Assembly Bill (AB) 1668 and Senate Bill (SB) 606

ES.1.5 PROJECT DESCRIPTION

The SWRP identified a Preferred Strategy that optimizes PWD's mix of water sources up to the year 2050. The Preferred Strategy, referred to as the 'proposed Project' in this Draft EIR, would maximize local supplies and facilities to meet future growth and increase storage of water in the Antelope Valley Groundwater Basin. The proposed Project consists of the following implementation actions.

IMPORTED SUPPLIES

Under the proposed Project, PWD would maximize its existing Table A allocations by recharging unused and untreated imported water to meet potable water demands. Up to 1,200 AF of imported supplies would be recharged to the Antelope Valley Groundwater Basin each year via the Upper Amargosa Creek Water Recharge Project. The Upper Amargosa Creek Water Recharge Project was completed in 2019 and consists of recharge basins constructed on a 75-acre site near 25th Street West and Lake Elizabeth Road in the City of Palmdale. Existing turnouts, conveyance, recharge, and treatment would be used to maximize current Table A water allocations. No new facilities would be constructed.

While included in the Preferred Strategy, the environmental impacts of the Upper Amargosa Creek Water Recharge Project and environmental impacts of SWP facilities are not further analyzed in this Draft EIR because both facilities have been previously evaluated under CEQA (see Section 2.6).

RECYCLED WATER

Under the proposed Project, PWD would maximize beneficial use of recycled water through construction and implementation of the Pure Water Antelope Valley project. PWD would construct a 5 million gallon per day advanced water purification facility near the Palmdale Water Reclamation Plant. The Pure Water Antelope Valley is anticipated to be located between East

Avenue Q and 25th Street East. PWD would also store purified recycled water in the Antelope Valley Groundwater Basin by injecting it into the groundwater basin. PWD would install injection wells to be used for the injection of purified water from the Pure Water Antelope Valley advanced water purification facility. New recycled water conveyance would be constructed. The location of these pipelines would be near Palmdale Water Reclamation Plant and would be constructed within existing roadways whenever possible. CEQA evaluation would be conducted in the future for the Pure Water Antelope Valley project, including its associated recycled water conveyance and injection facilities.

GROUNDWATER

Under the proposed Project, PWD would rehabilitate and/or replace existing PWD wells as recommended in the 2020 Well Rehabilitation Prioritization Program. The Project includes replacement or rehabilitation of five existing wells in the near term. Rehabilitated wells would be located at existing well sites, while replacement wells may be located in areas with higher rates of groundwater production or near existing wells.

LOCAL SUPPLIES

Littlerock Reservoir is a man-made feature formed by the impoundment of water by the Littlerock Dam. The initial design capacity of Littlerock Reservoir was 4,300 AF; however, this capacity was substantially reduced to approximately 2,800 AF because of the deposition of sediment behind Littlerock Dam. The proposed Project includes sediment removal at Littlerock Reservoir in order to maintain storage capacity. While included in the Preferred Strategy, environmental impacts of the Littlerock Reservoir Sediment Removal project are not analyzed further in this Draft EIR as they have been previously evaluated under CEQA (see Section 2.6).

As mentioned, the Ditch is a 7.2 mile long part earthen and part concrete-lined open ditch that conveys water from Littlerock Dam Reservoir to Lake Palmdale. It is estimated that up to 25 percent of water supplies are lost due to evaporation and seepage from the Ditch. Under the proposed Project, PWD would enclose the Ditch by constructing a pipeline within and near the existing Ditch.

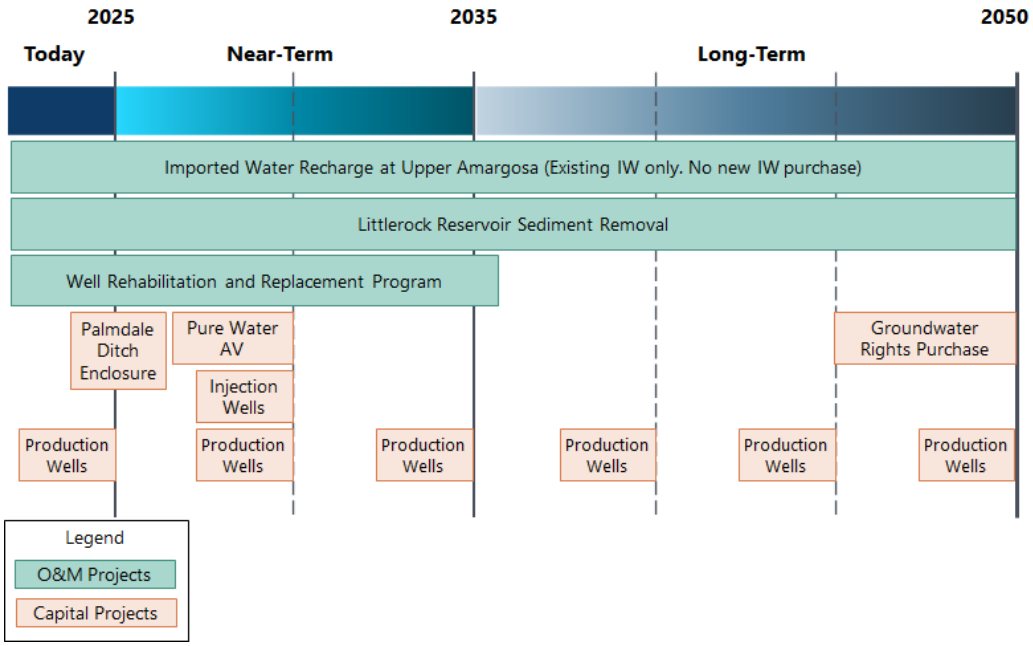
CONSERVATION

Under the proposed Project, PWD would continue to monitor and report on effectiveness of conservation programs; regularly review and coordinate PWD and City Ordinances and Policies; coordinate its conservation efforts with other Antelope Valley water purveyors; and achieve conservation objectives set by the State as part of Assembly Bill (AB) 1668 and Senate Bill (SB) 606. No activities that meet the definition of a "Project" under CEQA are planned for conservation activities and therefore no CEQA documentation is required.

PROPOSED SCHEDULE

The proposed implementation schedule is summarized in **Figure ES-2** below. The proposed implementation schedule is divided into operation and maintenance (O&M) and capital projects. Projects that would maintain current facilities or would not require capital outlay are designated as O&M projects, while new facilities that would require capital outlay are designated as capital projects. In the near-term, PWD would continue to recharge imported water at the Upper Amargosa Creek Project, continue to remove sediment to maintain capacity at Littlerock Reservoir, and would implement the well rehabilitation and replacement program. It is assumed that the Palmdale Ditch Conversion and Pure Water Antelope Valley projects would be implemented in the near-term, along with necessary injection and production wells to produce stored water. Given that significant capital projects would be implemented in the near-term, additional new supply from groundwater rights purchases would not be required until the end of the planning period (2045 to 2050).

Figure ES- 2: Implementation Schedule



Note: Palmdale Ditch Conversion Project was referred to as the Palmdale Ditch Enclosure Project in the SWRP Update.

ES.1.6 SUMMARY OF ALTERNATIVES

An EIR must describe a range of reasonable alternatives to the proposed Project or alternative project locations that could feasibility attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts to the proposed Project. The alternative analysis must include the "No Project Alternative" as a point of comparison. The No Project Alternative includes existing conditions and reasonably foreseeable future conditions that would exist if the proposed Project were not approved (CEQA Guidelines Section 15126.6).

The SWRP Update included a robust alternatives evaluation, which resulted in 11 alternatives, summarized in the SWRP Update. The 11 alternatives were developed and evaluated based on the ability to meet complex water resources challenges and achieve the objectives of the SWRP Update. Of those 11 alternatives, Alternative 3 was selected for the alternatives analysis in **Chapter 6** as an alternative that has the potential to reduce one or more potentially significant impact of the proposed Project. Additionally, a No Project Alternative and Alternative to the Palmdale Ditch Conversion project are evaluated for the same reason. The following alternatives are discussed further in **Chapter 6**.

NO PROJECT ALTERNATIVE

Under the No Project Alternative, PWD would not implement the proposed Project. The impacts associated with the Project would be avoided under the No Project Alternative. However, none of the Project objectives would be met, and thus, there would be a higher chance of not meeting future demands generated by population growth. PWD would not be able to adequately provide water services to its existing or projected customer base while conserving groundwater resources.

REDUCED PROJECT ALTERNATIVE

This alternative is similar to the proposed Project, but it does not include additional groundwater production and does not include improvements to the Palmdale Ditch. Under the Reduced Project Alternative, PWD would maintain existing Ditch conditions; the Ditch would not be converted to a belowground pipeline and a new turnout to the California Aqueduct would not be constructed. Under the Reduced Project Alternative, PWD would not purchase 2,000 AFY of production rights from other groundwater users in the Antelope Valley Groundwater Basin. the remainder of the proposed Project (i.e., maximizing imported water supplies, developing indirect potable reuse and recycled water injection, constructing seven new groundwater production wells, continuing groundwater well rehabilitation/ replacement, continuing Littlerock Reservoir sediment removal, and complying with conservation regulations) would be implemented.

ALTERNATIVE LOCATION TO THE PALMDALE DITCH CONVERSION PROJECT

This alternative was not one of the eleven water supply option alternatives evaluated in the SWRP Update; its purpose is to consider an alternate location for one component of the proposed Project: the Palmdale Ditch Conversion project. Similar to the proposed Project, the alternative alignment for the Palmdale Ditch Conversion project involves converting approximately 7.2 miles of the Ditch to a buried pipeline and increasing the hydraulic capacity of the Ditch from 20 cfs to approximately 60 cfs. However, under this alternative, approximately 6.5 miles of buried pipeline would be installed within Cheseboro Road and Barrel Springs Road, and the majority of the current Ditch would be abandoned. This alternative would convey water from Littlerock Reservoir to Lake Palmdale via gravity flow utilizing siphons within the pipeline. As with the proposed Project, this alternative may include installation of a new turnout to the

California Aqueduct. Under this alternative, the remainder of the proposed Project (i.e., maximizing imported water supplies, developing indirect potable reuse and recycled water injection, constructing seven new groundwater production wells, continuing groundwater well rehabilitation/ replacement, purchasing production rights from other groundwater users in the basin, continuing Littlerock Reservoir sediment removal, and complying with conservation regulations) would be implemented.

ES.1.7 SUMMARY OF IMPACTS

Table ES-2 provides a summary of potential impacts by topic area. The table does not include impacts or criteria that were deemed not applicable to activities associated with the proposed Project.

Findings presented in the table are indicated using the following abbreviations:

- NI: No Impact
- LS: Less than Significant (does not require mitigation)
- LSM: Less than Significant with Mitigation
- PS: Potentially Significant
- SU: Significant and Unavoidable

Table ES- 2: Summary of Impacts

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
3.1 Aesthetics			
AES-1: Have a substantial adverse effect on a scenic vista.	PS	**Mitigation Measure AES-1:** Landscape Plan During design, a landscape plan shall be prepared for proposed Project features that may affect scenic vistas, and/or are visible from scenic roadways. The landscape plan shall include measures to restore disturbed areas by replanting trees and/or reseeding with a native seed mix typical of the surrounding area. Vegetation screening shall also be included in order to assist in shielding the proposed aboveground facilities from public vantage points. **Mitigation Measure AES-2:** Pre-Construction Aesthetic Design Aboveground buildings/structures shall be designed to have similar aesthetic qualities to existing structures in the vicinity to minimize contrasting features in the visual landscape. **Mitigation Measure AES-3:** Aboveground Building/Structure Design Aboveground buildings/structures shall be designed to have color palettes and vegetation screening as necessary to blend with the surrounding character of the site and to minimize contrasting features in the visual landscape.	LSM
AES-2: In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings.	PS	**Mitigation Measure AES-1:** Above, shall apply **Mitigation Measure AES-2:** Above, shall apply **Mitigation Measure AES-3:** Above, shall apply	LSM
AES-3: In an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.	PS	**Mitigation Measure AES-1:** Above, shall apply **Mitigation Measure AES-2:** Above, shall apply **Mitigation Measure AES-3:** Above, shall apply	LSM
AES-4: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	PS	**Mitigation Measure AES-4:** Permanent Exterior Lighting All new permanent exterior lighting associated with proposed Project components shall be shielded and directed downward to avoid any light intrusion to surrounding uses. **Mitigation Measure AES-5:** Nighttime Construction Lighting Lighting used during nighttime construction, including any associated 24-hour well drilling, shall be shielded and pointed away from surrounding light-sensitive land uses. **Mitigation Measure AES-6:** Non-Glare Design The proposed advanced water purification facility shall be designed to include non-glare exterior materials and coatings to minimize glare or reflection.	LSM
3.2 Air Quality and Greenhouse Gas Emissions			
AIR-1: Conflict with or obstruct implementation of the applicable air quality plan.	LTS	No mitigation required.	LTS
AIR-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment	LTS	**Mitigation Measure AIR-1:** Basic Construction Fugitive Dust Emissions Control Practices The following Basic Construction Emissions Control Practices for controlling fugitive dust from a construction site shall be implemented during construction.	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
under an applicable federal or State ambient air quality standard.		• Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads. • Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered. • Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited. • Limit vehicle speeds on unpaved roads to 15 miles per hour (mph). • All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used. PWD shall ensure construction contractor(s) implement measure(s) to comply with AVAQMD Rule 403, and enforced by AVAQMD staff, including a Dust Control Plan. **Mitigation Measure AIR-2:** Construction Diesel Exhaust Emission Control The following practices, which describe exhaust emission control from diesel powered fleets, shall be implemented at the construction site. California regulations limit idling from both on-road and off-road diesel-powered equipment. The California Air Resources Board (CARB) enforces idling limitations and compliance with diesel fleet regulations. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site. • Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1]. • Construction activities shall minimize use of diesel-powered generators and rely on the electricity infrastructure where appropriate power requirements are available without the need to construct additional infrastructure. Construction trucks shall be routed along haul routes that minimize travel adjacent to sensitive receptor areas where feasible. **Mitigation Measure AIR-3:** Tier 4 Engines To minimize emissions of NO_X from construction activities, PWD shall ensure the construction contractor(s) uses off-road equipment that meets the U.S EPA certified Tier 4 final engines or engines that are certified to meet or exceed the emission ratings for U.S EPA Tier 4 final or interim engines such that average daily NO_X emissions are lower than AVAQMD Mass Emissions Thresholds of 137 pounds per day.	
AIR-3: Expose sensitive receptors to substantial pollutant concentrations.	LTS	No mitigation required.	LTS
GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	LTS	No mitigation required.	LTS

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	NI	No mitigation required.	NI
3.3 Biological Resources			
BIO-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.	PS	**Mitigation Measure BIO-1:** Habitat Assessment This mitigation measure is applicable to all Project components except the Palmdale Ditch Conversion project. A habitat assessment shall be conducted prior to ground-disturbing activities within 500 feet of each proposed Project component footprint. If no suitable habitat occurs to support special-status plant species, special-status wildlife species, nesting bird species, sensitive plant communities, and/or native desert vegetation, then no further mitigation is necessary. If suitable habitat occurs, implementation of Mitigation Measures BIO-2 through BIO-19 shall be required based on the resources identified. **Mitigation Measure BIO-2:** Special-Status Plant Surveys, Avoidance Measures, Mitigation and Monitoring Plan This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for special-status plant species is identified within the Project component site during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**. PWD shall retain a qualified biologist to conduct surveys for special-status plants prior to any vegetation removal, grubbing, or other construction activity within each proposed Project component footprint. The surveys shall be floristic in nature and seasonally timed to coincide with the blooming periods of the following special-status species with potential to occur: 1. **All Project Components except Palmdale Ditch Conversion Project:** Horn's milk-vetch, Palmer's mariposa-lily, alkali mariposa-lily, white pygmy-poppy, Mojave paintbrush, short-joint beavertail, Greata's aster, Peirson's morning-glory, sagebrush loeflingia, and Robbins' nemacladus. 2. **Palmdale Ditch Conversion Project:** Horn's milk-vetch, Palmer's mariposa-lily, alkali mariposa-lily, white pygmy-poppy, Mojave paintbrush, short-joint beavertail, and Greata's aster. The surveys shall be conducted during the relevant target species' blooming periods no more than two years prior to construction. Special-status plant species identified on site shall be mapped onto a site-specific aerial photograph. Surveys shall be conducted in accordance with the most current CDFW and USFWS protocols. A report of the survey results shall be submitted to PWD for review and approval. If special-status plants other than western Joshua trees are detected during special-status plant surveys, the observed special-status plants shall be avoided through Project component design where feasible, and vegetation clearing within 50 feet (15 meters) of any identified special-status plant shall be conducted by hand by the construction contractor(s), if practicable. An avoidance buffer of at least 50 feet (15 meters), or other distance as approved by a qualified biologist, shall be established around any identified special-status plants that can be feasibly avoided, and the avoidance buffer shall be delineated with bright orange protective fencing. The avoidance buffers shall be maintained for the duration of construction activities at each construction site and shall be removed only after the conclusion of all grading, clearing, and construction activities at each construction site. If special-status plants other than western Joshua tree are detected during special-status plant surveys and would be impacted by Project component construction, PWD shall retain a qualified restoration specialist to develop a Special-Status Plant Mitigation and Monitoring Plan that provides for the on-	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		site or off-site replacement of the species impacted by the Project component. The Special-Status Plant Mitigation and Monitoring Plan shall specify the following: 3. A summary of impacts; 4. The location of the mitigation site; 5. Methods for harvesting seeds or salvaging and transplanting individuals to be impacted; 6. Measures for propagating plants or transferring living plants from the salvage site to the mitigation site; 7. Site preparation procedures for the mitigation site; 8. A schedule and action plan to maintain and monitor the mitigation site; 9. Criteria and performance standards by which to measure the success of the mitigation, including replacement of impacted plants at a minimum 1:1 ratio; 10. Measures to exclude unauthorized entry into the mitigation areas; and 11. Contingency measures such as replanting or weeding if mitigation efforts are not successful. 12. The performance standards for the Special-Status Plant Mitigation and Monitoring Plan shall be, at a minimum, the following: o Within five years after introducing the plants to the mitigation site, the number of established, reproductive plants shall equal the number impacted during Project component construction; and o Restoration shall be considered successful after the success criteria have been met for a period of at least two years without any maintenance or remediation activities other than invasive species control. The Special-Status Plant Mitigation and Monitoring Plan shall be initiated prior to Project component construction (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation) and shall be implemented over a five-year period. The plan may also be combined with the Habitat Revegetation, Restoration, and Monitoring Program described under **Mitigation Measure BIO-19**. Annual reports discussing the implementation and management of the Special-Status Plant Mitigation and Monitoring Plan shall be submitted to PWD for review and approval. Five years after the start of the mitigation for the Project component, a final report shall be submitted to PWD for review and approval and shall, at a minimum, discuss the implementation and management of the Special-Status Plant Mitigation and Monitoring Plan over the five-year period and indicate whether the Special-Status Plant Mitigation and Monitoring Plan has been successful based on the established performance standards. Should the success criteria be met before Year Five, the mitigation effort can be deemed complete. **Mitigation Measure BIO-3:** Joshua Tree Census Survey, Avoidance, Minimization, and Compensation Measures This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for western Joshua tree is identified within 50 feet of the Project component site during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**. A western Joshua tree census survey shall be conducted for that component by a qualified arborist in accordance with CDFW's Western Joshua Tree Census Instructions, which requires a census of all western Joshua trees within the Project component area and a 50-foot buffer. Impacts to western Joshua trees and within a minimum 50-foot buffer shall be avoided to the extent feasible. An avoidance buffer of at least 50 feet shall be established around western Joshua tree	

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		individuals that can be feasibly avoided. If a 50-foot buffer is not feasible, a reduced buffer can be established if a qualified desert native plant specialist and CDFW determine the reduced buffer would avoid direct impacts to individual western Joshua tree(s). No activities shall occur within the buffer. The avoidance buffers shall be maintained for the duration of construction activities in each work area and shall be removed only after the conclusion of all grading, clearing, and construction activities at each Project component construction site. For each dead or live western Joshua tree individual that cannot be avoided through Project component design, PWD shall implement one of the following measures: The western Joshua tree individual shall be trimmed or relocated under the guidance of a desert native plant specialist. Tree relocation shall be implemented in accordance with the following measures and CDFW-provided guidelines and relocation protocols, if made available prior to Project component construction, to assist the survival of the relocated tree: ○ The relocated western Joshua tree shall be placed in a suitable location and with proper orientation to improve its survival. ○ The western Joshua tree shall be relocated at a time that maximizes its survival, when feasible. ○ A desert native plant specialist shall be on site to oversee relocation of the tree. • PWD shall submit payment of an in-lieu fee to CDFW pursuant to CDFW's standard mitigation fee structure for western Joshua tree in effect at the time of application for an Incidental Take Permit. The current (2024) standard mitigation fee structure is as follows: ○ Trees five meters or greater in height - $2,500 per tree ○ Trees one meter or greater but less than 5 meters in height - $500 per tree ○ Trees less than one meter in height - $340 per tree **Mitigation Measure BIO-4:** Arroyo Toad, Desert Tortoise, Tricolored Blackbird, and Least Bell's Vireo Avoidance, Minimization and Compensation Measures This mitigation measure is applicable to the Project components for which suitable habitat for arroyo toad, desert tortoise, tricolored blackbird, and/or least Bell's vireo is identified within 500 feet of the Project component site during the habitat assessment conducted pursuant to Mitigation Measure BIO-1 and does not apply to the Palmdale Ditch Conversion project. Focused protocol surveys shall be conducted by a qualified biologist following the protocol outlined in the most recent USFWS and/or CDFW protocol guidelines. These currently include: 1999 Survey Protocol for the Arroyo Toad; 2018 Preparing for Any Action That May Occur Within the Range of the Mojave Desert Tortoise (Gopherus agassizii); 2015 Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015; and 2001 Least Bell's Vireo Survey Guidelines). If any special-status wildlife species are observed during the focused surveys, these species and their habitat shall be avoided by the proposed Project. If avoidance of the special-status wildlife species is not feasible, and special-status wildlife may be potentially impacted by the proposed Project, additional avoidance and mitigation measures will be required, such as constructing proposed Project facilities outside the breeding season, establishing a suitable buffer around known territories, and restricting activities around certain times of year. If the proposed Project results in permanent impacts to habitat occupied by special-status wildlife species, USFWS and CDFW shall be consulted to ensure compliance with the Endangered Species Act and/or requirements for avoidance, minimization, or mitigation measures (e.g., replacement of impacted occupied habitat at a minimum 1:1 ratio). If species are identified and	

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		cannot be avoided, species-specific mitigation measures included in this section shall apply as applicable. **Mitigation Measure BIO-5:** Crotch's Bumble Bee Avoidance, Minimization, and Compensation Measures This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for Crotch's bumblebee is identified within 50 feet of the Project component site during the habitat assessment conducted pursuant to Mitigation Measure BIO-1. If Crotch's bumble bee is still considered a CESA candidate species or has been listed as threatened or endangered under CESA at the time construction of Project components commences, PWD shall implement the following avoidance, minimization, and compensation measures for this species: • A qualified biologist shall conduct a protocol-level presence/absence survey for Crotch's bumble bee in areas of the Project component site with suitable habitat during the peak active period for Crotch's bumble bee (highest detection probability) that occurs prior to the start of the Project component's initial ground disturbing activities (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation). The peak active period for Crotch's bumble bee in the Project area is anticipated to be April through June given the expected desiccation of Crotch's bumble bee floral resources within the Project area by mid-summer, though this timing could depend on annual climatic factors. Survey methodology shall be based on Section 4.1.1 of CDFW's Survey Considerations for CESA Candidate Bumble Bee Species (CDFW 2023b), or the most current CDFW guidance in effect at the time. Inaccessible areas outside of the Project component site can be surveyed using binoculars from the Project component edge or from public roads. The timing of the presence/absence survey can be phased with Project component build-out, if feasible. • If construction starts one year or more after the conclusion of the surveys described above, PWD shall consult with CDFW as to whether additional surveys are required and shall retain a qualified biologist to conduct additional surveys if recommended by CDFW. • If Crotch's bumble bee is present, the qualified biologist shall identify the location of nests in or adjacent to the Project component site to the extent feasible. Inaccessible land adjacent to the Project component site shall be observed using binoculars. If nests are identified within the Project component site or immediately adjacent to the site, a qualified biologist shall determine the need to establish a no-disturbance buffer around the nest, where feasible, to reduce the risk of disturbance or accidental take. The buffer shall provide at least 50 feet (15 meters) of clearance around active nest entrances. If Project component activities may result in disturbance or potential take, the qualified biologist, in coordination with CDFW, shall expand the buffer zone as necessary to prevent disturbance or take. If establishment of a no-disturbance buffer is feasible, construction activities shall not occur within the buffer until a qualified biologist determines the colony is no longer active (i.e., no Crotch's bumble bees are seen flying in or out of the nest for three consecutive days, indicating the colony has completed its nesting season and the next season's queens have dispersed from the colony). Once the nest has been determined to be inactive, construction activities within the no-disturbance buffer(s) shall be allowed to resume. Otherwise, the no-disturbance buffer shall be maintained for the duration of Project	

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		component construction activities in each work area and shall be removed only after the conclusion of all grading, clearing, and construction activities at each construction site. • If establishment of a no-disturbance buffer and/or avoidance of the nest is not feasible, the qualified biologist shall consult with CDFW regarding potential encroachment into the no-disturbance buffer and for Project component activities that may result in take of Crotch's bumble bee. • If Crotch's bumble bee is determined to be present on the Project component site, floral resources associated with the species that will be removed or damaged by Project component activities in the areas of the Project component site where Crotch's bumble bee is detected and documented shall be replaced at a 1:1 ratio. Planning and implementation of suitable habitat replacement may be integrated into the Habitat Revegetation, Restoration, and Monitoring Program described under Mitigation Measure BIO-19. **Mitigation Measure BIO-6**: Burrowing Owl Breeding Season Survey and Foraging Habitat Mitigation This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for burrowing owl is identified within 500 feet of the Project component site during the habitat assessment conducted pursuant to Mitigation Measure BIO-1. PWD shall retain a qualified biologist to conduct focused breeding season surveys for burrowing owl in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012), or the most current CDFW guidance in effect at the time. Surveys shall be conducted during the burrowing owl breeding season immediately prior to the start of Project component construction. The focused surveys shall be conducted by a qualified biologist in the portions of the Project component site with suitable burrowing owl habitat plus a 500-foot buffer (burrowing owl survey area). The surveys shall be conducted in the morning or evening to evaluate the presence/absence of burrowing owl during the nesting season. All potential burrowing owls and burrows with burrowing owl sign shall be recorded using a GPS unit capable of submeter accuracy. Observations shall be conducted to determine if individual owls and/or nesting pairs are present and their status/disposition (e.g., late winter migrant, actively nesting, single individual not nesting). Representative photos of the habitat, potential and occupied burrows, and vegetation within the burrowing owl survey area shall be taken and included as an appendix to the survey report. All vertebrate fauna detected in the burrowing owl survey area shall be recorded in field notes. Inaccessible areas of the burrowing owl survey area outside the Project component site shall be surveyed using binoculars and/or spotting scopes to determine if owls are present. A survey report shall be prepared that includes survey methodology, survey results, an analysis of potential Project component impacts to actively nesting pairs, and a calculation of the compensatory mitigation for foraging habitat, if impacted. Late winter migrants and non-nesting individuals located outside of the Project component impact area shall not require habitat mitigation unless passive	

		relocation is necessary. Maps showing burrow locations, a delineation of suitable habitat areas, and burrowing owls observed shall be included in the survey report. If actively breeding owls are observed within 500 feet of Project component activities, PWD shall implement compensatory mitigation for impacts to foraging habitat based on the following methodology: • A 500-foot buffer shall be established around each active nest burrow to indicate the primary foraging habitat area for each nesting pair. • Permanent Project component disturbance areas shall be overlain onto the foraging buffer zone(s) to calculate the area(s) of habitat loss. • Permanent foraging habitat loss shall be mitigated at a 1:1 ratio. Compensatory mitigation for loss of foraging habitat shall be implemented on- or off-site and may include purchase of Conservation Bank credits, payment of an in-lieu fee to benefit burrowing owl, or permanent conservation and management of burrowing owl habitat through the recordation of a conservation easement, funding of a non-wasting endowment, and/or implementation of a Mitigation Land Management Plan based on the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). Mitigation lands shall be identified through coordination with CDFW on, adjacent, or proximate to the impact site where practicable and where habitat is suitable to support burrowing owl. **Mitigation Measure BIO-7**: Burrowing Owl Pre-Construction Clearance Survey And Occupied Burrow Avoidance And Minimization Measures This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for burrowing owl is identified within 500 feet of the Project component site during the habitat assessment conducted pursuant to Mitigation Measure BIO-1. PWD shall retain a qualified biologist to conduct a pre-construction burrowing owl clearance survey of areas within the Project component site and a 500-foot buffer that contain suitable burrowing owl habitat to confirm presence/absence of burrowing owl individuals no more than 14 days prior to start of construction in each work area. The survey methodology shall be consistent with the methods outlined in the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). If no active breeding or wintering owls or evidence of occupied habitat is identified, then Project component construction in the work area may begin, and no further action is required. If active breeding or wintering owls or evidence of occupied habitat is detected in the Project component work area or within a 500-foot buffer, PWD shall implement the following measures for mitigation of potential burrowing owl presence in the Project area in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012): • A qualified biologist shall be present on site during initial ground disturbing activities in potential burrowing owl habitat identified in the habitat assessment. • Occupied burrows shall not be disturbed during the nesting season (February 1 to August 31). • No ground disturbing activities shall be permitted within a buffer no less than 656 feet (200 meters) from an active burrowing owl burrow during the breeding season, depending on the level of disturbance, unless the qualified biologist determines a reduced buffer would not adversely affect the burrowing owl(s). • During the nonbreeding (winter) season (September 1 to January 31), ground disturbing work can proceed near active burrowing owl burrows at the discretion of the qualified biologist as long as the work occurs no closer than 165 feet (50 meters) from the burrow, depending on whether the level of disturbance is low and if the active burrow is not directly affected by the Project component activity. A smaller/larger buffer may be established by the qualified biologist following monitoring and assessment of the Project component's effects on the burrowing owl(s).	

		• If active winter burrows are found that would be directly affected by ground disturbing activities, owls can be excluded from winter burrows according to recommendations in the Staff Report on Burrowing Owl Mitigation (CDFW 2012). The qualified biologist shall prepare a passive relocation program in accordance with Appendix E (Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans) of the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012) and submit the passive relocation program to PWD and CDFW for review and approval prior to the commencement of ground disturbance activities. If required, a compensatory mitigation agreement shall be developed in coordination with CDFW prior to passive relocation of owls. • Smaller non-disturbance buffers may be permitted in the winter (and sometimes breeding season) for the burrowing owl individuals if a noise and visual barrier, such as hay bale walls, is installed between the occupied burrowing owl burrow and construction activities, as long as the qualified biologist determines the reduced buffer will provide adequate protection. • When a qualified biologist determines burrowing owls are no longer occupying the Project component site and passive relocation is complete, ground disturbing activities may begin. A final letter shall be prepared by a qualified biologist documenting the results of the passive relocation. The letter shall be submitted to CDFW. **Mitigation Measure BIO-8**: Swainson's Hawk Avoidance And Minimization Measures This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for Swainson's hawk is identified within 0.5-mile of the Project component site during the habitat assessment conducted pursuant to Mitigation Measure BIO-1. Construction activities shall be limited to the period between September 16 and February 28 to the extent feasible. If construction activities cannot be completed within this timeframe, PWD shall retain a qualified biologist(s) with Swainson's hawk survey experience to conduct a Swainson's hawk nest survey within the Project component site and a 0.5-mile buffer during the nesting season immediately prior to the commencement of Project component construction. While the proposed Project does not propose to construct renewable energy facilities, nest survey methods and timing shall follow those outlined in the CEC and CDFW protocol for the Antelope Valley (CDFW 2010) with the exception that the nest survey shall occur within a 0.5-mile buffer of the Project component site. A report documenting results of the survey shall be prepared and submitted to PWD for review and approval prior to commencement of Project component activities. If no Swainson's hawk nests are documented within 0.5 mile of the Project area, no additional action shall be required. If an active Swainson's hawk nest is detected within 0.5 mile of the Project component site, PWD shall implement the following measures: • Retain a qualified biologist to prepare a Swainson's Hawk Nest Monitoring and Mitigation Plan that incorporates the following measures to avoid and minimize impacts to Swainson's hawk nests in and near the construction areas during the breeding season (March 1 to September 15): o If nesting Swainson's hawks are detected within 0.5 mile of Project component activities during the breeding season, CDFW shall be consulted regarding the establishment of a no-disturbance buffer to avoid impacts to the active nest. Construction activities shall maintain a 0.25-mile no-disturbance buffer around an active nest unless a reduced buffer is approved in consultation with the qualified biologist and CDFW. o If construction activities are necessary within the buffer zone, PWD shall consult with CDFW as to the potential for take. Monitoring of the nest site by a qualified biologist and funding of Swainson's hawk recovery efforts may be necessary.	

		○ If a hawk is found injured during Project component activities on the Project component site, the injured hawk shall be immediately relocated to a raptor recovery center approved by CDFW. The qualified biologist shall notify CDFW personnel via telephone or email, followed by a written report that includes the date, time, location, and circumstances of the incident. PWD and its construction contractor(s) shall implement the provisions of the Swainson's Hawk Nest Monitoring and Mitigation Plan. A report documenting measures taken to avoid and minimize impacts to Swainson's hawk nests shall be prepared by the qualified biologist following the completion of Project component construction and submitted to PWD for review and approval. **Mitigation Measure BIO-9**: Mohave Ground Squirrel Avoidance and Minimization Measures. This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for Mohave ground squirrel is identified within 50 feet of the Project component site during the habitat assessment conducted pursuant to Mitigation Measure BIO-1. PWD shall retain a qualified biologist to conduct a focused habitat assessment (visual survey) of the Project component site following the CDFW's Mohave Ground Squirrel Survey Guidelines (CDFW 2023c) to assess the potential habitat suitability for the species. If suitable habitat is identified, protocol live-trapping surveys shall be conducted in areas of suitable habitat to assess the potential presence and relative abundance of Mohave ground squirrel within the Project component site. Pursuant to the protocol outlined in the Mohave Ground Squirrel Survey Guidelines, trapping surveys shall take place over three terms in specific timing windows in the period of March 15 and July 15 immediately prior to commencement of Project component activities. If construction starts one year or more after the conclusion of surveys, PWD shall consult with CDFW as to whether additional surveys are required and shall retain a qualified biologist to conduct additional surveys if recommended by CDFW. Findings of the habitat assessment and live-trapping surveys shall be documented in a report that also details survey methodology, timing, and surveyor qualifications. If no Mohave ground squirrels are discovered during the protocol surveys, no further action is required. If Mohave ground squirrels are observed during the surveys, PWD shall retain a qualified biologist to develop a Mohave ground squirrel biological monitoring plan, in coordination with CDFW, that includes measures to avoid, minimize, and/or mitigate potential impacts as a result of Project component activities, including, but not limited to: • A qualified biologist shall conduct pre-construction clearance surveys for Mohave ground squirrel no more than 30 days prior to the start of any ground-disturbing activities in areas of the Project component site that contain suitable habitat for the species, as documented in the Mohave ground squirrel habitat assessment and survey report. The survey shall cover 100 percent of the anticipated impact area intersecting suitable Mohave ground squirrel habitat and a 50-foot buffer (survey area). A qualified biologist shall document locations of potential Mohave ground squirrel burrows. A 50-foot no-disturbance buffer shall be established around suspected or known Mohave ground squirrel burrows. Project component activities shall not be conducted within the no-disturbance buffer unless at the discretion of the qualified biologist. A report documenting the results of the survey, locations of suspected or known Mohave ground squirrel burrows, and recommended no-disturbance buffers shall be submitted to PWD for review and approval prior to commencement of Project component activities in the survey area. • If burrows are identified during the survey that are suspected or known to be occupied by Mohave ground squirrel and cannot be avoided, the qualified biologist shall prepare a Mohave Ground Squirrel Relocation Plan outlining measures to relocate individual Mohave ground squirrels prior to construction start. The plan shall be submitted to PWD and CDFW for review and approval and shall be implemented prior to commencement of Project component activities in work areas with suspected or known Mohave ground squirrel	

		burrows. The Plan shall outline measures for burrow excavation, handling of individuals, identification of proposed relocation areas, and release of relocated individuals after the conclusion of all grading, clearing, and construction activities. A report documenting relocation activities and outcomes shall be prepared by the qualified biologist and submitted to PWD and CDFW for review and approval after completion of relocation activities. • Within occupied Mohave ground squirrel habitat (as determined by the results of the focused habitat assessment and live trapping survey results as well as the pre-construction clearance survey results), the area of disturbance of vegetation and soils shall be the minimum required for the Project component. Clearing of vegetation and grading shall be minimized. Wherever practicable, rather than clearing vegetation and grading access routes, equipment and vehicles shall use existing surfaces or previously disturbed areas. Where grading is necessary, surface soils shall be stockpiled and replaced following construction. To the extent practicable, disturbance of shrubs and surface soils due to stockpiling shall be minimized. A qualified biologist shall monitor Project component activities during initial ground disturbance in suitable Mohave ground squirrel habitat. The qualified biologist shall work with the construction foreman and crew to implement and achieve compliance with the Mohave ground squirrel biological monitoring plan prepared for the Project component. **Mitigation Measure BIO-10**: Roosting Bats Avoidance And Minimization Measures This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for special-status bats is identified within the Project component site during the habitat assessment conducted pursuant to Mitigation Measure BIO-1. PWD shall implement the following measures for special-status roosting bats: • To the extent feasible, demolition or disturbance of suitable bat roosting habitat (e.g., live and dead trees, rock outcrops) shall be scheduled between October 1 and February 28, outside of the maternity roosting season. • If suitable roost trees must be encroached during the maternity season (March 1 to September 30) or structures must be removed at any time of the year, PWD shall retain a qualified bat specialist to conduct a pre-construction survey no more than seven days prior to the start of Project component construction in a given work area to identify those trees or structures proposed for disturbance that could provide hibernacula or nursery colony roosting habitat for bats. The trees or structures shall be closely inspected by the bat specialist to determine the presence or absence of roosting bats. If potentially suitable hibernacula or nursery colony roosting habitat for bats is not present in areas anticipated to be directly impacted by Project component activities, no additional action is required. • Trees or structures determined to be maternity roosts shall be left in place until the end of the maternity season (March 1 to September 30). Any structure containing a hibernating colony shall be left in place until a qualified bat specialist determines the bats are no longer hibernating. • If bats are not detected, but the bat specialist determines roosting bats may be present at any time of year, trees or structures shall be brought down in a controlled manner using heavy machinery. To ensure the optimum warning for any roosting bats that may still be present, the trees or structures shall be nudged lightly two to three times, with a pause of approximately 30 seconds between each nudge to allow bats to become active. Trees or structures may then be pushed to the ground slowly under the supervision of a qualified bat specialist. Felled trees shall remain in place until they are inspected by a bat specialist. Trees that are known to be bat roosts shall not be sawed up or mulched immediately. A period of at least 48 hours shall elapse prior to such operations to allow bats to escape.	

		• The bat specialist shall document all demolition monitoring activities and prepare a summary report for review and approval by PWD upon completion of tree disturbance or structure demolition activities. • In exceptional circumstances, such as when roosts cannot be avoided and bats cannot be evicted by non-invasive means, it may be necessary to capture and transfer the bats to appropriate natural or artificial bat roosting habitat in the surrounding area. Bats raising young or hibernating shall not be captured and relocated. Capture and relocation shall be performed by a qualified bat specialist in coordination with CDFW requirements and shall be subject to approval by CDFW. • If confirmed occupied or formerly occupied bat roosting habitat is destroyed during Project component construction, the bat specialist shall determine the need for artificial bat roosts based on the availability and condition of suitable bat roosts in the immediate vicinity of the Project component site. If artificial bat roosts are deemed necessary due to a potential lack of suitable bat roosts in the area, the artificial roosts shall be of comparable size and quality and shall be constructed and maintained at a suitable undisturbed area. The design and location of the artificial bat roosts shall be determined by the bat specialist in consultation with CDFW and pursuant to the following standards: o A monitoring plan shall be prepared for the replacement roosts, which shall include performance standards for the use of the replacement roosts by the displaced species, as well as provisions to prevent harassment, predation, and disease of relocated bats. The performance standards shall consider the location and condition of habitat where replacement roosts are placed and shall be sufficient to serve the number of bats estimated to be displaced by Project component impacts to suitable roosting habitat. Annual reports detailing the success of roost replacement and bat relocation shall be prepared and submitted to PWD and CDFW for five years following relocation. If artificial roosts are not in use by the third year of monitoring, PWD shall consult with CDFW as to larger trends in bat populations in the area that may be affecting roost use and/or determine if adjustments to roost location or design are needed. **Mitigation Measure BIO-11**: Woodrat Midden Avoidance And Minimization Measures This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for special-status woodrat species is identified within 10 feet of the Project component site during the habitat assessment conducted pursuant to Mitigation Measure BIO-1. PWD shall retain a qualified biologist to conduct a pre-construction survey for active woodrat middens in and adjacent to areas anticipated for ground disturbance or vegetation removal in the Project component site within 30 days prior to initial site disturbance at each construction site. A report documenting pre-construction survey results, including the location of any active woodrat middens, shall be submitted to PWD for review and approval. If no active woodrat middens are observed during the pre-construction survey, no additional action shall be required. All occupied woodrat middens shall be mapped and flagged for avoidance to the extent feasible, with a minimum 10-foot buffer surrounding the active midden. If avoidance is not feasible, middens shall be "daylighted" by a qualified biologist one night before anticipated vegetation removal or ground disturbance within each construction site to allow for the rats to escape and passively relocate prior to disturbance of the area. A brief report documenting the passive relocation actions taken shall be submitted to PWD for review and approval prior to commencement of Project component construction activities within 10 feet of the active woodrat middens.	

		Mitigation Measure BIO-12: Preconstruction Surveys For Special-Status Wildlife Species PWD shall implement the following preconstruction surveys for special-status wildlife species: • All Project Components except Palmdale Ditch Conversion Project: If suitable habitat for any special-status wildlife species with the potential to occur (e.g., western pond turtle, Northern California legless lizard, California legless lizard, California glossy snake, coast horned lizard, two-striped gartersnake, pallid bat, Townsend's big-eared bat, San Diego desert woodrat) is identified during the habitat assessment conducted pursuant to Mitigation Measure BIO-1, pre-construction surveys shall be required prior to ground-disturbing activities. If any of these species are identified on or near construction areas during the preconstruction survey, Mitigation Measures BIO-13 through BIO-16 shall be implemented. Additional avoidance measures may include establishing a buffer around the species or host plants if a population of a special-status species is observed. • Palmdale Ditch Conversion Project: PWD shall retain a qualified biologist to conduct a pre-activity clearance survey for special-status reptile species no more than seven days prior to commencement of ground or vegetation disturbing activities at each work area within the Palmdale Ditch Conversion project site. The pre-activity survey shall utilize methods to detect special-status reptile species with potential to occur at the site. Prior to commencement of Palmdale Ditch Conversion project construction activities at each work area, the methods and results of the surveys and, if a special-status reptile species is found, recommended species-specific avoidance and/or relocation measures, shall be submitted in a report for review and approval by PWD, and implemented during construction activities. These measures may include, but would not be limited to, the qualified biologist conducting a sweep of the proposed impact areas before the daily start of construction in each work area in the locations where special-status reptile individuals were observed during the pre-construction survey, or have moderate or high potential to occur based on habitat suitability as determined by the qualified biologist, and avoidance of work in the sweep areas until the qualified biologist confirms special-status reptiles are not present, or if present, until they have moved out of harm's on their own, as determined by the qualified biologist, or have been moved out of harm's way to adjacent suitable habitat by the qualified biologist. **Mitigation Measure BIO-13**: General Best Management Practices. This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which special-status wildlife species are identified during the pre-construction survey conducted pursuant to Mitigation Measure BIO-12 and/or for which protected oak trees, oak woodlands, California juniper, or native desert vegetation may be impacted. PWD shall require construction contractor(s) and their personnel to adhere to the following general BMPs during construction: • Construction-related vehicles shall observe a 10-mile-per-hour speed limit within the unpaved limits of construction. • All open trenches or excavations shall be fenced and/or sloped to prevent entrapment of wildlife species. • All food-related trash items such as wrappers, cans, bottles, and food scraps generated during construction shall be disposed of in closed containers only and removed daily from the construction site. • No deliberate feeding of wildlife shall be allowed. • No pets shall be allowed on the construction site. • No firearms shall be allowed on the construction site. • Vehicle or equipment maintenance shall be performed in designated staging areas.	

		• Access to the construction area outside of established work hours for the proposed Palmdale Ditch Conversion project shall be prohibited. • If construction must occur at night (i.e., between dusk and dawn), all lighting shall be shielded and directed downward to minimize the potential for glare or spillover. • During construction, heavy equipment shall be operated in accordance with standard BMPs. All equipment used on-site shall be properly maintained to avoid leaks of oil, fuel, or residues. Provisions shall be in place to remediate accidental spills. • While encounters with special-status species are not anticipated, any worker who inadvertently injures or kills a special-status species or finds one dead, injured, or entrapped shall immediately report the incident to the construction foreman or biological monitor (required under Mitigation Measure BIO-16). The construction foreman or biological monitor shall immediately notify PWD. **Mitigation Measure BIO-14:** Work Limit Delineation This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which special-status wildlife species are identified during the pre-construction survey conducted pursuant to Mitigation Measure BIO-12 and/or for which protected oak trees, oak woodlands, California juniper, or native desert vegetation may be impacted. PWD shall clearly identify work area limits on design and construction plans and shall require its construction contractor(s) to delineate and clearly mark approved construction work area limits with flagging or temporary orange construction fencing in the field prior to initial ground disturbing activities (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation). The marked boundaries shall be maintained for the duration of construction activities in each work area and shall be clearly visible to personnel on foot and by heavy equipment operators. Fencing or other barriers shall be placed on the impact side of the work area limit (i.e., within the construction site boundaries) to reduce the potential for encroachment and additional vegetation loss within adjacent open space. Fencing shall be installed pursuant to the approved construction and grading plans. Prior to initial ground disturbing activities (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation), the biological monitor (if required under Mitigation Measure BIO-16) shall verify the limits of construction have been properly staked and are readily identifiable. Employees shall strictly limit their activities and vehicles to the designated construction area, staging areas, and routes of travel. Intrusion by unauthorized vehicles outside of construction limits shall be prohibited, with control exercised by an on-site foreman. All temporary fencing shall be removed only after the conclusion of all grading, clearing, and construction activities at each construction site. **Mitigation Measure BIO-15:** Construction Worker Environmental Awareness Program This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which special-status wildlife species are identified during the pre-construction survey conducted pursuant to Mitigation Measure BIO-12 and/or for which protected oak trees, oak woodlands, California juniper, or native desert vegetation may be impacted. PWD shall retain a qualified biologist to conduct a preconstruction WEAP training for all personnel working on the Project component. The WEAP shall aid workers in recognizing special-status species and regulated biological resources known to occur (e.g., western Joshua trees, sensitive natural communities, jurisdictional waters or wetlands) or potentially occurring on the Project component site (as determined by the preconstruction survey conducted pursuant to Mitigation Measure BIO-12 and the qualified biological monitor identified in Mitigation Measure BIO-16 and as confirmed by the results of the focused surveys conducted pursuant to Mitigation Measures BIO-2 through BIO-11) and focus on conditions and protocols necessary to avoid and minimize potential impacts to biological resources. All personnel associated with construction of the Project component shall attend the WEAP training prior to	

		initiation of construction activities (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation). The training shall include information about the special-status species potentially occurring within the Project component site, identification of special-status species and habitats, a description of the regulatory status and general ecological characteristics of special-status resources, and a review of the limits of construction and measures required to avoid and minimize impacts to biological resources within the work area. A fact sheet conveying this information shall also be prepared for distribution to all contractors, their employees, and other personnel involved with construction. All employees working at the Project component construction site shall sign a form provided by the trainer documenting they have attended the WEAP and understand the information presented to them. The signed form shall be provided to PWD as documentation of training completion. The crew foreman shall be responsible for ensuring crew members adhere to the guidelines and restrictions designed to avoid impacts to special-status species and other regulated biological resources. If new personnel are brought onto the Project component after completion of the initial WEAP training, the training shall be conducted for all new personnel before they can participate in Project component construction activities. Construction personnel shall be instructed to not directly harm any special-status species on site by halting activities until the species can move to off-site areas or contact a qualified biologist to move the species out of harm's way, if appropriate. **Mitigation Measure BIO-16**: Qualified Biological Monitor This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which special-status wildlife species are identified during the pre-construction survey conducted pursuant to Mitigation Measure BIO-12 and/or for which protected oak trees, oak woodlands, California juniper, or native desert vegetation may be impacted. PWD shall retain a qualified biological monitor with relevant experience with the taxa and species in the Antelope Valley desert and mountain foothills for which pre-construction surveys, monitoring, or other support is required during Project component construction (potentially including, but not limited to, special-status plants, Northern California legless lizard, coast horned lizard, raptors, nesting birds, roosting bats, woodrats, and those special-status species with potential to occur based on the results of pre-activity and focused surveys conducted prior to Project component initiation in accordance with Mitigation Measures BIO-2 through BIO-12 and Mitigation Measure BIO-17). The qualified biologist role may be satisfied by one or more individuals depending on qualifications and experience with one or more species and taxa. The qualified biologist shall be present during initial ground disturbance or vegetation removal activities and shall have the authority to temporarily stop work if one or more special-status species are observed that may be impacted by Project component activities. The biologist shall relocate special-status amphibian, reptile, or mammals present within anticipated Project component impact areas to suitable undisturbed habitat outside the areas directly and indirectly affected by construction activities. The biologist shall hold the requisite incidental take permits or authorizations for the capture and handling of the species, if applicable. The biologist shall recommend measures to ensure compliance with avoidance and minimization measures, applicable permit conditions, and conditions required for observed special-status species. When the biologist is present on site, they shall be responsible for: • Verifying Project compliance with environmental mitigation measures and requirements; • Establishing lines of communication and reporting methods in coordination with the construction crew foreman and PWD; • Conducting pre-construction clearance sweeps for special-status species and nesting birds, as needed; • Documenting special-status species observations; • Recommending preventative or protective actions to avoid and minimize potential Project impacts to regulated biological resources where feasible;	

		• Recommending actions to be taken in the event of non-compliance; and • Daily and weekly reporting of compliance. Monitoring logs documenting the above shall be submitted to PWD for review and approval for the duration of Project component construction. **Mitigation Measure BIO-17:** Nesting Bird Surveys And Avoidance And Minimization Measures This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for nesting birds is identified during the habitat assessment conducted pursuant to Mitigation Measure BIO-1. Project component construction activities shall occur outside of the bird breeding season (February 1 to August 31) to the extent practicable. If construction must commence within the bird breeding season, PWD shall retain a qualified biologist to conduct a pre-construction nesting bird survey within the disturbance footprint plus a 100-foot buffer (300 feet for raptors), where feasible, no more than seven days prior to initiation of ground disturbance (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation) in each work area. If the Project component is phased or construction activities stop for more than one week, a subsequent pre-construction nesting bird survey shall be conducted prior to each phase of construction, if initiated during the bird breeding season. Pre-construction nesting bird surveys shall be conducted during the time of day when birds are active and shall factor in sufficient time to perform this survey adequately and completely. A brief report of the nesting bird survey results, if applicable, shall be submitted to PWD for review and approval prior to ground disturbance and/or vegetation removal activities. If no nesting birds are observed during pre-construction surveys, no further action is required. If nests are found, an appropriate avoidance buffer ranging in size from 25 to 50 feet for passerine (perching birds) nests and up to 300 feet for active, non-listed raptor nests (depending on the species and the proposed work activity) shall be determined by the qualified biologist and demarcated with bright orange construction fencing or other suitable flagging. Active nests shall be monitored at a minimum of once per week until a qualified biologist has determined the birds have fledged and are no longer reliant upon the nest or parental care for survival. No construction activity shall occur within this buffer until the qualified biologist confirms the breeding/nesting is completed and all the young have fledged. If Project component activities must occur within the buffer, they shall only be conducted at the discretion of the qualified biologist. **Mitigation Measure BIO-18:** Invasive Plant Species Control Measures For the Palmdale Ditch Conversion project and other Project components for which protected oak trees, oak woodlands, California juniper, or native desert vegetation may be impacted, PWD shall require the construction contractor(s) and their construction personnel to ensure equipment is free of invasive plant seeds, propagules, and any material which may contain them (e.g., soil). For purposes of this mitigation measure, invasive plant species shall include all species with a California Invasive Plant Council rating of moderate or high. Prior to entering the construction site, equipment shall be inspected to confirm it is free of mud, dirt, and debris. Tire track stations shall be installed at construction site entrances and exits. Staging areas and access routes shall avoid weed infestations, and infestations within the work area(s) shall be flagged and avoided to the maximum extent feasible. Only certified weed-free materials (e.g., fiber rolls, straw, and fill) shall be used during construction. **Mitigation Measure BIO-20:** Aquatic Resources Delineation and Compensatory Mitigation An aquatic resources delineation shall be conducted to determine the limits of potential jurisdictional aquatic resources within the vicinity of proposed Project components. The results of the aquatic resources delineation shall be used during proposed Project component design to determine if aquatic resources can be avoided. If aquatic resources can be avoided, then no compensatory measures are	

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		necessary. Avoidance of aquatic resources within Project component sites shall be implemented according to Mitigation Measure BIO-19. If impacts to jurisdictional waters and wetlands cannot be avoided, PWD shall identify compensatory mitigation prior to disturbance of the features. Compensatory mitigation for impacts to the jurisdictional extents of the Palmdale Ditch shall be provided at a minimum 0.5:1 ratio given the Ditch's altered hydrology as a manmade structure constructed entirely in uplands that is artificially lined in a number of areas (concrete, synthetic liner, elevated flume) and its controlled flow that fluctuates in quantity and timing from year to year depending on annual climatic conditions and available water supply in Littlerock Reservoir. Compensatory mitigation for impacts to other jurisdictional waters and wetlands shall be provided at a minimum 1:1 ratio, unless a higher ratio is required by Lahontan RWQCB, CDFW, and/or USACE. Mitigation may take the form of permittee-responsible, on-site or off-site mitigation or the purchase of credits from an approved mitigation bank. If on-site or off-site mitigation is proposed, a Compensatory Mitigation Plan shall be prepared that outlines the compensatory mitigation in coordination with the Lahontan RWQCB, CDFW, and/or USACE. If on-site mitigation is proposed, the Compensatory Mitigation Plan can be integrated with the Habitat Revegetation, Restoration, and Monitoring Program described in Mitigation Measure BIO-19 and shall identify those portions of the site, such as relocated drainage routes, that contain suitable characteristics (e.g., hydrology) for restoration. Determination of mitigation adequacy shall be based on comparison of the restored habitat with similar, undisturbed habitat in the site vicinity. The Compensatory Mitigation Plan shall include remedial measures if performance criteria are not met. If the Compensatory Mitigation Plan is not integrated with the Habitat Revegetation, Restoration, and Monitoring Program described in Mitigation Measure BIO-19, the same reporting requirements shall apply for monitoring and evaluation of Compensatory Mitigation Plan implementation as detailed in Mitigation Measure BIO-19. If off-site mitigation is proposed, off-site land shall be preserved through a deed restriction or conservation easement and the Compensatory Mitigation Plan shall identify an approach for funding assurance for the long-term management of the conserved land. **Mitigation Measure BIO-21:** Groundwater-Dependent Ecosystems If the proposed Project (particularly rehabilitation of groundwater wells 6A, 15, 18, 19, 30, and/or 33 and/or replacement wells) is in proximity to mapped GDEs, then representative groundwater monitoring stations shall be installed within GDEs to track groundwater levels and vegetation responses over time. Prior to implementation of the proposed Project, the GDEs that may potentially be affected by the proposed Project shall be mapped to identify the baseline conditions, including the extent of vegetation communities (e.g., via vegetation mapping on the ground and via remote sensing) and composition of vegetation (e.g., percent cover via transects on the ground) that comprises each vegetation community. Baseline data shall be collected, and long-term monitoring shall be conducted for areas of potential affect as well as representative control sites with similar conditions (to account for other variables, such as changes in climate, precipitation, etc.). Thresholds for changes in vegetation over time shall be established prior to proposed Project implementation (e.g., greater than 20 percent vegetation decline that correlates with increased pumping and decreased groundwater levels). Monitoring shall be conducted for a minimum 5-year period following any increase in groundwater pumping that is beyond the existing range of pumping currently conducted (i.e., prior to the Project) for the life of the proposed Project. If there is no impact to GDEs, then no further mitigation is necessary.	

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		If GDEs are impacted by the proposed Project, then adaptative management measures shall be implemented to reduce pumping to changes in vegetation to allow for re-establishment of vegetation communities to pre-existing conditions, which will be determined by monitoring for a minimum of an additional three years or until pre-existing conditions (i.e., both groundwater monitoring well levels and GDE vegetative cover) are obtained. Alternatively, if adaptive management measures cannot be implemented to reduce pumping and re-establish pre-existing conditions, then mitigation for permanent impacts to GDEs would include: On- and/or off-site creation, restoration, and/or enhancement of in-kind GDE habitat at a ratio no less than 1:1 for permanent impacts. Off-site creation, restoration, and/or enhancement at a ratio no less than 1:1 may include the purchase of mitigation credits at an off-site mitigation bank or in-lieu fee program.	
BIO-2: The proposed project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.	PS	**Mitigation Measure BIO-19:** Sensitive Natural Communities And Jurisdictional Features Avoidance, Minimization Measures Sensitive natural communities and jurisdictional features identified for avoidance within the Project component site shall be demarcated using brightly colored flagging, as necessary, and avoided to the extent feasible during Project component construction. The marked boundaries shall be maintained for the duration of Project component construction activities in each work area and shall be clearly visible to personnel on foot and by heavy equipment operators. Construction personnel shall be instructed to avoid these areas as much as feasible. All temporary flagging shall be removed only after the conclusion of all grading, clearing, and construction activities at each construction site. Compliance with this measure shall be documented in the biological monitoring reporting, if required under Mitigation Measure BIO-16. In addition, PWD shall require its construction contractor(s) and their personnel to implement the following measures: • Any material/spoils generated from construction shall be located away from sensitive natural communities and jurisdictional features and protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate. • Materials, hand-held equipment and other non-heavy or non-vehicle equipment shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and generally at least 50 feet from sensitive natural communities and jurisdictional areas. • Any spillage of material shall be stopped if it can be done safely. The contaminated area shall be cleaned, and any contaminated materials shall be properly disposed of. For all spills, the Project foreman and biological monitor (if required under Mitigation Measure BIO-16) shall be notified. If impacts to sensitive natural communities cannot be avoided, PWD shall identify compensatory mitigation prior to disturbance of the features. Mitigation may take the form of permittee-responsible, on-site or off-site mitigation or the purchase of credits from an approved mitigation bank or through applicant-sponsored mitigation (e.g., purchase and/or dedication of land for mitigation). If required, compensatory mitigation for unavoidable impacts to sensitive vegetation communities shall be accomplished at a minimum ratio of 1:1; however, the final ratio shall be determined and approved by CDFW. If on-site or off-site restoration would occur, PWD shall retain a qualified biologist to develop a Habitat Revegetation, Restoration, and Monitoring Program and submitted for CDFW approval prior to	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		the commencement of Project component construction (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation). At a minimum, the program shall include the following: • A description of the purpose and goals of the restoration • Identification of success criteria and performance standards • Methods of site preparation, including topsoil salvage and replacement procedures • Irrigation plan and schedule • Best Management Practices (BMPs) • Maintenance and monitoring program • Adaptive management strategies • Key stakeholders and responsible parties • Funding • Contingencies **Mitigation Measure BIO-20:** Above, shall apply **Mitigation Measure BIO-21:** Above, shall apply	
BIO-3: The proposed project could have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	PS	**Mitigation Measure BIO-19:** Above, shall apply. **Mitigation Measure BIO-20:** Above, shall apply	LSM
BIO-4 The proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	PS	**Mitigation Measure BIO-1:** Above shall, apply **Mitigation Measure BIO-17:** Above shall, apply	LSM
BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	PS	**Mitigation Measure BIO-2**: Above, shall apply **Mitigation Measure BIO-3:** Above, shall apply **Mitigation Measure BIO-13:** Above, shall apply **Mitigation Measure BIO-14:** Above, shall apply **Mitigation Measure BIO-15**: Above, shall apply **Mitigation Measure BIO-16:** Above, shall apply **Mitigation Measure BIO-18:** Above, shall apply **Mitigation Measure BIO-19:** Above, shall apply	LSM
BIO-6: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.	PS	**Mitigation Measure BIO-2:** Above, shall apply **Mitigation Measure BIO-4:** Above, shall apply **Mitigation Measure BIO-5**: Above, shall apply **Mitigation Measure BIO-6:** Above, shall apply **Mitigation Measure BIO-7:** Above, shall apply **Mitigation Measure BIO-8**: Above, shall apply **Mitigation Measure BIO-9:** Above, shall apply **Mitigation Measure BIO-10:** Above, shall apply **Mitigation Measure BIO-11**: Above, shall apply **Mitigation Measure BIO-12:** Above, shall apply **Mitigation Measure BIO-13** Above, shall apply **Mitigation Measure BIO-14**: Above, shall apply	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		Mitigation Measure BIO-15: Above, shall apply **Mitigation Measure BIO-16:** Above, shall apply **Mitigation Measure BIO-17**: Above, shall apply **Mitigation Measure BIO-18:** Above, shall apply **Mitigation Measure BIO-19:** Above, shall apply **Mitigation Measure BIO-20:** Above, shall apply	
3.4 Cultural Resources and Tribal Resources			
CUL-1: Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.	PS	**Mitigation Measure CUL-1:** Cultural Resources Professional Qualifications Standards PWD shall retain an archaeologist and architectural historian meeting the minimum professional qualifications standards (PQS) set forth by the Secretary of the Interior (SOI) (codified in 36 Code of Federal Regulations [CFR] Part 61; 48 FR 44738-44739) (Qualified Archaeologist and Qualified Architectural Historian) to oversee the implementation of all mitigation related to cultural resources. All cultural resources documentation resulting from the program shall be filed with the South-Central Coastal Information Center upon document completion. **Mitigation Measure CUL-2:** Historic Resources Assessment Prior to Project-related construction activities involving demolition or alteration of buildings and/or structures or the construction of above ground infrastructure, the Qualified Architectural Historian shall conduct a historic resources assessment of affected properties over 45 years in age. The assessment shall include a records search at the South-Central Coastal Information Center or review of a prior record search conducted within the previous one year; a review of other pertinent archives and sources; a pedestrian field survey; recordation of all identified historic architectural resources on California Department of Parks and Recreation (DPR) 523 forms; evaluation of resources which may be eligible for listing in the California Register under Criteria 1-4 (i.e., meets the definition for historical resource in CEQA Guidelines subdivision 15064.5[a]), and for local listing; and preparation of a technical report documenting the methods and results of the assessment. If a historic architectural resource is found eligible, the Qualified Architectural Historian shall coordinate with the PWD to ensure the Project component is constructed in a manner consistent with the Secretary of the Interior's Standards. **Mitigation Measure CUL-3:** Archaeological Resources Assessment Prior to development of previously unevaluated Project components that involve ground disturbance, PWD shall retain a Qualified Archaeologist, defined as meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (codified in 36 CFR Part 61; 48 FR 44738-44739), to conduct an archaeological resources assessment including: a records search update at the South Central Coastal Information Center; a pedestrian field survey, where deemed appropriate by the Qualified Archaeologist; recordation of all identified archaeological resources on California Department of Parks and Recreation 523 forms; and preparation of a technical report documenting the methods and results of the study, and providing an assessment of the Project area's archaeological sensitivity and the potential to encounter subsurface archaeological resources and human remains. All identified archaeological resources shall be assessed for the Project's potential to result in direct and/or indirect effects to those resources and any archaeological resource that cannot be avoided shall be evaluated for its potential significance prior to PWD's approval of Project plans and publication of subsequent CEQA documents. The Qualified Archaeologist shall provide recommendations regarding	SU

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		archaeological monitoring to be conducted in accordance with Mitigation Measure CUL-4, protection of avoided resources and/or recommendations for additional work or treatment of significant resources that will be affected by the Project. **Mitigation Measure CUL-4:** Construction Worker Cultural Resources Sensitivity Training For Project components involving ground disturbance, the Qualified Archaeologist shall implement a cultural resources sensitivity training program. The Qualified Archaeologist, or their designee, shall instruct all construction personnel of the types of archaeological resources cultural materials that may be encountered, cultural sensitivity issues, applicable laws protecting cultural resources, the proper treatment procedures to be enacted in the event of an inadvertent discovery of archaeological cultural resources materials or human remains, applicable laws protecting archaeological resources, and confidentiality of discoveries. Tribal representatives from each of the tribes consulting on the Palmdale Ditch Conversion Project shall be allowed to attend and/or participate in the training should they elect to and shall be given a minimum of ten days' notice prior to the training. In the event that construction crews are phased, additional trainings shall be conducted for new construction personnel. The PWD, or their construction contractor(s), shall ensure construction personnel are made available for and attend the training. PWD shall retain documentation demonstrating attendance. **Mitigation Measure CUL-5:** Archaeological Resources Monitoring Archaeological monitoring shall be required for programmatic Project components and for the Palmdale Ditch Conversion Project as outlines below. • **Proposed Project Requirements.** Archaeological monitoring shall be determined by the Qualified Archaeologist based on the results of the archaeological resources assessment conducted under CUL-3 and requires the preparation of a Cultural Resources Monitoring Plan (CRMP) prior to the start of Project-related ground disturbance. The CRMP should discuss the monitoring protocols to be carried out during Project construction and should outline the appropriate measures to be followed in the event that cultural resources are encountered. In general, for ground- disturbing activities in geologic units/sediments of Higher Sensitivity for encountering subsurface prehistoric archaeological resources or human remains, full time archaeological monitoring shall be conducted, unless the Qualified Archaeologist has established as part of the archaeological assessment that previous disturbances have reduced the sensitivity for prehistoric archaeological resources to the extent that no or limited archaeological monitoring is warranted. No archaeological monitoring shall be required in geologic units/sediments of Lower Sensitivity for encountering subsurface prehistoric archaeological resources or human remains, or in those areas that have been previously subject to monitoring as part of the Project. If the Qualified Archaeologist determines as a result of the archaeological assessment that areas proposed for ground disturbance may be sensitive for historic-period archaeological resources, those areas shall also be subject to archaeological monitoring at a frequency determined by the Qualified Archaeologist. In all cases, the Qualified Archaeologist shall have the discretion to modify the frequency of monitoring based on soils and stratigraphy observed, the extent of past disturbances, and the type of construction methods employed. Generally, monitoring will not be required of activities employing construction methods such as tunneling and well drilling where soil profiles and spoils are not observable to monitors. The archaeological monitor(s) shall be familiar with the types of resources that	

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		could be encountered and shall work under the direct supervision of the Qualified Archaeologist. The number of archaeological monitors required to adequately observe ground-disturbing activities is dependent on the archaeological sensitivity of the area and construction scenario and shall be established by the Qualified Archaeologist. The archaeological monitor(s) shall keep daily logs detailing the types of activities and soils observed, and any discoveries. Archaeological monitor(s) shall have the authority to halt and re-direct ground-disturbing activities in the event of a discovery until it has been assessed for significance and treatment implemented, if necessary, based on the recommendations of the Qualified Archaeologist in coordination with the PWD and the Native American monitor(s) pursuant to TCR-1. • **Palmdale Ditch Conversion Project Requirements.** Prior to the start of Project-related ground-disturbing activities, a qualified archaeologist shall be retained to prepare a CRMP and provide archaeological monitoring for the Project. The CRMP shall discuss the monitoring protocols to be carried out during Project construction and shall outline the appropriate measures to be followed in the event that cultural resources are encountered. The CRMP shall be submitted to Palmdale Water District (PWD) for dissemination to the tribes consulting on the Project. Once all parties review and agree to the plan, it shall be adopted by PWD – the plan must be adopted prior to permitting for the Project. Any and all findings shall be subject to the protocol detailed within the CRMP. A copy of the final CRMP shall be provided to PWD (and United States Bureau of Reclamation [USBR]/United States Forest Service [USFS], depending on land jurisdiction) and the tribes consulting on the Project upon completion. Archaeological monitoring shall be limited to initial ground disturbance, which is defined as construction-related earthmoving of sediments from their native place of deposition (which includes, but is not limited to, tree/shrub removal and planting, clearing/grubbing, grading, leveling, excavation, trenching, compaction, plowing, fence/gate removal and installation, drainage and irrigation removal and installation, hardscape installation [boulders, walls, etc.], and archaeological work) and does not include any secondary movement of sediment that might be required for the Project (e.g., backfilling). Archaeological monitoring shall be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983). The archaeological monitor shall have the authority to halt and redirect work should any archaeological resources be identified during monitoring. If archaeological resources are encountered during ground-disturbing activities, work within 60 feet of the find shall halt, and the find shall be evaluated for listing in the CRHR/NRHP. A sufficient number of archaeological monitors shall be present each workday to ensure simultaneously-occurring ground-disturbing activities receive thorough levels of monitoring coverage. Archaeological monitoring may be reduced or halted at the discretion of PWD (and USBR/USFS, depending on land jurisdiction), in consultation with the qualified archaeologist and the tribes consulting on the Project, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of ground disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground disturbance moves to a new location within the Project site and/or when ground disturbance extends to depths not previously reached (unless those depths are within bedrock). Furthermore, monitoring may	

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		be terminated if it is determined the soils within the Area of Potential Effects do not have the potential to contain cultural resources. **Mitigation Measure CUL-6**: Archaeological Resources Discoveries In the event that archaeological cultural resources are unexpectedly encountered during ground-disturbing activities, work within 60 feet of the find shall halt, an Environmentally Sensitive Area physical demarcation/barrier installed, and a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) contacted immediately to evaluate the resource. If the resource is determined by the qualified archaeologist to be prehistoric Native American in origin, then a Native American representative from the tribes consulting on the Project shall also be contacted to participate in the evaluation of the resource. If the qualified archaeologist and/or Native American representative from the tribes consulting on the Project determines it to be appropriate, archaeological testing for CRHR/NRHP eligibility shall be completed. If the resource proves to be eligible for the CRHR/NRHP and significant impacts to the resource cannot be avoided via Project redesign, a qualified archaeologist shall prepare a data recovery plan tailored to the physical nature and characteristics of the resource, pursuant to the requirements of CEQA Guidelines Section 15126.4(b)(3)(C). Should the find be prehistoric deemed Native American in origin, all plans for analysis shall be reviewed and approved by PWD (and USBR/USFS, depending on land jurisdiction) and the tribes consulting on the Project prior to implementation, and all removed material shall be temporarily curated on site. The data recovery plan shall identify data recovery excavation methods, measurable objectives, and data thresholds to reduce any significant impacts to the resource. Pursuant to the data recovery plan, the qualified archaeologist and Native American representative(s) from the tribes consulting on the Project, as appropriate, shall recover and document the scientifically consequential information that justifies the resource's significance. PWD shall review and approve the treatment plan and archaeological testing as appropriate, and the resulting documentation shall be submitted to the regional repository of the CHRIS, pursuant to CEQA Guidelines Section 15126.4(b)(3)(C). PWD shall work with the tribes consulting on the Project to determine the final disposition of any cultural materials removed. However, if the tribes consulting on the Project are not in agreement on the final disposition, PWD shall rebury the artifacts within the Project site in a location free from future disturbance and share the location with the tribes consulting on the Project. Items recovered from USFS lands must be curated in accordance with 36 CFR 79 and cannot be reburied. All draft records/reports containing the significance and treatment findings and data recovery results shall be prepared by the qualified archaeologist and submitted to PWD (and USBR/USFS, depending on land jurisdiction) and the tribes consulting on the Project for their review and comment. A copy of the final report and all site/isolate records shall be submitted to PWD (and USBR/USFS, depending on land jurisdiction), the tribes consulting on the Project, and the South Central Coastal Information Center. **Mitigation Measure CUL-7: Curation and Disposition of Cultural Materials** PWD shall arrange curation for all Native American archaeological materials, with the exception of funerary objects or grave goods (i.e., artifacts associated with Native American human remains). For eligible Native American archaeological materials, the PWD shall first consider repositories that are accredited by the American Association of Museums and that meet the standards outlined in 36 CFR 79.9. If a suitable accredited repository is not identified, then the PWD shall consider non-accredited repositories as long as they meet the minimum standards set forth by 36 CFR 79.9. If a suitable non-	

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		accredited repository is not identified, then the PWD shall donate the collection to a local California Native American Tribe(s). Ineligible archeological materials shall also be donated to a local California Native American Tribe(s). If neither an accredited or non-accredited repository or Tribe accepts the collection, then the PWD may offer the collection to a public, non-profit institution with a research interest in the materials, or to a local school or historical society in the area for educational purposes. Disposition of Native American human remains and associated funerary objects or grave goods shall be determined by the landowner in consultation with the PWD and the Most Likely Descendant (MLD). The PWD shall curate all eligible historic-period archaeological material, or portions thereof at the discretion of the Qualified Archaeologist, at a repository accredited by the American Association of Museums that meets the standards outlined in 36 CFR 79.9. If no accredited repository accepts the collection, then the PWD may curate it at a non-accredited repository as long as it meets the minimum standards set forth by 36 CFR 79.9. If neither an accredited nor a non-accredited repository accepts the collection, then the PW may offer the collection to a public, non-profit institution with a research interest in the materials, or to a local school or historical society in the area for educational purposes. **Mitigation Measure CUL-8:** Historic American Engineering Survey-Like Documentation Package Prior to the demolition of the Palmdale Ditch (CA-LAN-1534H), PWD should document the structure in a Historic American Engineering Record -like documentation package. The report shall generally comply with the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation (68 Federal Register 43159), Level III. At a minimum, the Historic American Engineering Record Historical Report should include digital photographs of views of Palmdale Ditch and a short-form narrative historical report. Digital copies of the Historic American Engineering Record-like documentation package should be made available to the Los Angeles County Library Acton Agua Dulce Branch and the Palmdale City Library.	
CUL-2: Cause a substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5.	PS	**Mitigation Measure CUL-1:** Above, shall apply **Mitigation Measure CUL-3:** Above, shall apply **Mitigation Measure CUL-4:** Above, shall apply **Mitigation Measure CUL-5:** Above, shall apply **Mitigation Measure CUL-6:** Above, shall apply **Mitigation Measure CUL-7:** Above, shall apply	LSM
CUL-3: Disturb any human remains, including those interred outside of formal cemeteries.	PS	**Mitigation Measure CUL-9:** Inadvertent Discovery of Human Remains If human remains are encountered, then PWD shall halt work in the vicinity (within 100 feet) of the discovery and contact the County Coroner in accordance with Public Resources Code section 5097.98 and Health and Safety Code section 7050.5. If the County Coroner determines the remains are Native American, then the Coroner shall notify the California Native American Heritage Commission in accordance with Health and Safety Code subdivision 7050.5(c), and Public Resources Code section 5097.98. The California Native American Heritage Commission shall designate a Most Likely Descendant for the remains per Public Resources Code section 5097.98. Until the landowner has conferred with the Most Likely Descendant, the construction contractor(s) shall ensure the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials.	
TCR-1: Result in a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074.	PS	**Mitigation Measure CUL-4:** Above, shall apply **Mitigation Measure CUL-5:** Above, shall apply **Mitigation Measure CUL-6:** Above, shall apply **Mitigation Measure TCR-1: Native American Resources Monitoring** Native American monitoring shall be implemented for the proposed Project and applied specifically for the Palmdale Ditch Conversion project as identified below. • **Proposed Project Requirements.** For ground-disturbing activities in geologic units/sediments of Higher Sensitivity for encountering subsurface prehistoric archaeological resources or human remains as determined by the archaeological resources assessment conducted under CUL-3, full time Native American monitoring shall be conducted unless the Qualified Archaeologist has established as part of the archaeological assessment that previous disturbances have reduced the sensitivity to the extent that Native American monitoring is not warranted. No Native American monitoring shall be required in geologic units/sediments of Lower Sensitivity for encountering subsurface prehistoric archaeological resources or in areas that have been previously subject to monitoring as part of the program. The PWD shall retain a Native American monitor(s) to conduct the monitoring from a California Native American Tribe that is culturally and geographically affiliated (according to the NAHC) in the area within which the particular Program component is located. If more than one Tribe is interested in monitoring a Program component, the PWD shall prepare a monitoring rotation schedule. The PWD shall rotate monitors on an equal and regular basis to ensure that each Tribal group has the same opportunity to participate in the monitoring program. If a Tribe cannot participate in a given rotation assignment, they shall forfeit that rotation unless the PWD can make other arrangements to accommodate their schedule. The number of Native American monitors required to adequately observe ground-disturbing activities is dependent on the archaeological sensitivity of the area and construction scenario and shall be established by the Qualified Archaeologist. Native American monitors shall have the authority to halt and re-direct ground-disturbing activities in the event of a discovery until it has been assessed for significance and treatment implemented, if necessary, based on the recommendations of the Qualified Archaeologist in coordination with the PWD and the Native American monitor(s). • **Palmdale Ditch Conversion Project Requirements.** Prior to Project initiation, a Native American monitor from one of the tribes consulting on the Project shall be retained. In general, Native American monitoring shall be limited to initial ground disturbance, which is defined as construction-related earthmoving of sediments from their native place of deposition (which includes, but is not limited to, tree/shrub removal and planting, clearing/grubbing, grading, leveling, excavation, trenching, compaction, plowing, fence/gate removal and installation, drainage and irrigation removal and installation, hardscape installation [boulders, walls, etc.], and archaeological work) and does not include any	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		secondary movement of sediment that might be required for the Project (e.g., backfilling). If more than one Consulting Tribe wishes to be present for monitoring, they shall be present on a rotating basis. The Native American monitor(s) shall have the authority to halt and redirect work should any archaeological or Tribal potential cultural resources be identified during monitoring. If archaeological or Tribal cultural potential cultural resources are encountered during ground-disturbing activities, work within 60 feet of the find shall halt, and the find shall be evaluated for listing in the CRHR/NRHP. PWD shall retain at least one Tribal monitor to be present at each distinct work area during each workday when initial ground disturbance is conducted. The tribes consulting on the Project may voluntarily provide additional Tribal monitors beyond those retained by PWD for increased monitoring coverage. Native American monitoring may be reduced or halted at the discretion of PWD (and USBR/USFS, depending on land jurisdiction), in consultation with the tribes consulting on the Project, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of ground disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground disturbance moves to a new location within the Project site and/or when ground disturbance extends to depths not previously reached (unless those depths are within bedrock). Furthermore, monitoring may be terminated if it is determined the soils within the Area of Potential Effects do not have the potential to contain cultural resources.	
3.5 Energy			
ENE-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	PS	**Mitigation Measure ENE-1:** Energy Efficiency Equipment PWD shall require the use of energy efficient equipment, including pumps and lighting in new water facilities. The PWD system should be designed and operated to shift energy demands to off-peak periods whenever possible. **Mitigation Measure ENE-2:** Promotion of Recycled Water PWD shall promote and encourage the use of recycled water to offset imported water requirements.	LSM
ENE-2: Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.	PS	**Mitigation Measure ENE-1:** Above, shall apply **Mitigation Measure ENE-2:** Above, shall apply	LSM
3.6 Geology, Soils, and Mineral Resources			
GEO-1a: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving a rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.	PS	**Mitigation Measure GEO-1:** Geotechnical Investigation Report Implementation of Mitigation Measure GEO-1 would require a licensed geologist or engineer to perform a design-level geotechnical investigation prior to construction, which shall include evaluation of fault ruptures and soil and slope stability hazards such as strong seismic ground-shaking, liquefaction, landslides, and soil expansion. Based on the results of the geotechnical investigations, appropriate support and protection measures shall be designed and implemented to maintain the stability of soils and slopes adjacent to work areas during and after construction. Therefore, impacts would be less than significant with mitigation incorporated.	LSM
GEO-1b: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground-shaking.	PS	**Mitigation Measure GEO-1:** Above, shall apply	LSM

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GEO-1c: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction.	PS	**Mitigation Measure GEO-1:** Above, shall apply	LSM
GEO-1d: Directly or indirectly cause potential substantial effects, including the risk of loss, injury, or death involving landslides.	PS	**Mitigation Measure GEO-1:** Above, shall apply	LSM
GEO-2: Result in substantial soil erosion or the loss of topsoil.	PS	**Mitigation Measure GEO-2:** Topsoil Materials Implementation would require excavated topsoil materials to be reused and maintained on site to the extent possible, and that all topsoil stockpiles are wetted, thereby minimizing topsoil loss.	LSM
GEO-3: Be located on a geological unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or-off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	PS	**Mitigation Measure GEO-1:** Above, shall apply **Mitigation Measure HYD-1:** Below, shall apply	LSM
GEO-4: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	PS	**Mitigation Measure GEO-1:** Above, shall apply	LSM
GEO-5: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	PS	**Mitigation Measure PALEO-1:** Paleontological Study For all proposed Project components that involve ground disturbance below the modern alluvium, PWD shall retain a Federally-qualified paleontologist to determine the necessity of conducting a study of the Project area(s) based on the potential sensitivity of the Project site for paleontological resources. The qualified paleontologist should conduct a paleontological resources inventory designed to identify potentially significant resources consisting of: a thorough review of publicly available geological maps and literature pertaining to the sedimentology and paleontology of the Project area(s); a paleontological resources records search from the Natural History Museum of Los Angeles County; and a field survey of those geological units demonstrated to have either a high or unknown potential for containing significant paleontological resources as defined by the Society for Vertebrate Paleontology (2010). The paleontologist shall provide recommendations regarding monitoring of ground disturbance for the proposed Project. **Mitigation Measure PALEO-2:** Paleontological Resources Avoidance and Monitoring PWD should avoid impacts, if feasible, on areas identified as having a high potential to contain significant paleontological resources. Methods of avoidance may include, but not be limited to, Project re-route or re-design, or identification of protection measures such as capping or fencing. For those high sensitivity paleontological areas identified by the qualified paleontologist that are planned for excavation, PWD should retain paleontological monitors during construction and follow the guidelines established in the City of Palmdale General Plan. • In terms of ground-disturbing construction activities in previously undisturbed sediments within the Palmdale Ditch Conversion Project, PWD shall implement the following measures during ground-disturbing construction activities in previously undisturbed sediments within the Palmdale Ditch Conversion project: **Qualified Professional Paleontologist.** Prior to the start of project construction activities, PWD shall retain a Qualified Professional Paleontologist, as defined by the Society of Vertebrate Paleontology	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		(SVP; 2010). The Qualified Professional Paleontologist shall draft a Paleontological Resources Mitigation and Monitoring Plan, which shall direct all mitigation measures related to paleontological resources. • **Paleontological Worker Environmental Awareness Program.** Prior to the start of ground-disturbing construction activities, the Qualified Professional Paleontologist or their designee shall conduct a paleontological Worker Environmental Awareness Program (WEAP) training for all construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction personnel. • **Paleontological Monitoring.** Full-time paleontological monitoring shall be conducted during open-cut trenching and excavations within previously undisturbed geologic units assigned high paleontological sensitivity. This includes all excavations within Quaternary old alluvial fan deposits, Quaternary old alluvium, Harold Formation, Anaverde Formation, and Punchbowl Formation, and excavations reaching greater than four feet below the surface in areas mapped as active wash deposits, active alluvial valley deposits, active alluvial fan deposits, and Quaternary young alluvial valley deposits. o Initial part-time monitoring (i.e., spot-checking) shall be conducted for all ground-disturbing activities that impact geologic units assigned undetermined sensitivity. For excavations exceeding four feet in depth within areas mapped as artificial fill, the purpose of these spot checks shall be to determine whether previously undisturbed (i.e., non-fill) sediments with high paleontological sensitivity are (or will be) impacted by project excavations, in which case, full-time paleontological monitoring shall occur. For excavations within the boulder gravel of Little Rock Creek or the Ritter Formation, the goal of the spot checks shall be to determine whether these geologic units are conducive to fossil preservation, in which case full-time monitoring shall occur, or if they are not conducive to fossil preservation, in which case monitoring within these geologic units shall cease or continue as periodic spot checks. o Bulk matrix sampling may be necessary to recover microfossils (i.e., fossils too small to be easily recognized within the sediment matrix) from the Project area. If indicators of potential microfossils are encountered (e.g., fossil debris, carbonate-rich paleosols, or very fine-grained sedimentary deposits), then 'test samples' or 'standard samples' shall be collected and processed in accordance with SVP (2010) standards, as directed by the Qualified Professional Paleontologist. o Paleontological monitoring shall be conducted by a paleontological monitor with experience with collection and salvage of paleontological resources and who meets the minimum standards of the SVP (2010) for a Paleontological Resources Monitor. The Qualified Professional Paleontologist may recommend monitoring be reduced in frequency or ceased entirely based on geologic observations. Such decisions shall be subject to review and approval by PWD. o In the event of a fossil discovery by the paleontological monitor or construction personnel, all construction activity within 50 feet of the find shall cease, and the	

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		Qualified Professional Paleontologist shall evaluate the find. If the fossil(s) is (are) not scientifically significant, then construction activity may resume. If it is determined the fossil(s) is (are) scientifically significant, the following shall be completed: ▪ **Fossil Salvage.** The paleontological monitor shall salvage (i.e., excavate and recover) the fossil to protect it from damage/destruction. Bulk matrix sampling may be necessary to recover small invertebrates or microvertebrates from within paleontologically sensitive deposits. After the fossil(s) is (are) salvaged, construction activity may resume. ▪ **Fossil Preparation and Curation.** Fossils shall be identified to the lowest (i.e., most-specific) possible taxonomic level, prepared to a curation-ready condition, and curated in a scientific institution with a permanent paleontological collection along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the Qualified Professional Paleontologist. ▪ **Final Paleontological Mitigation Report.** Upon completion of ground-disturbing activities (or laboratory preparation and curation of fossils, if necessary), the Qualified Professional Paleontologist shall prepare a final report describing the results of the paleontological monitoring efforts. The report shall include a summary of the field and laboratory methods employed; an overview of project geology; and, if fossils were discovered, an analysis of the fossils, including physical description, taxonomic identification, and scientific significance. The report shall be submitted to PWD and, if fossil curation occurred, the designated scientific institution.	
MIN-1: Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the State.	PS	**Mitigation Measure MIN-1:** Mineral Resources Implementation of Mitigation Measure MIN-1 would require construction of any facilities or structures to comply with City of Palmdale policies associated with the continued access to known mineral resources. Mitigation Measure MIN-1 would require development occurring in the vicinity of mining operations to adequately buffered to ensure the potential impacts to existing or future mining operations. Therefore, impacts would be less than significant with mitigation incorporated.	LSM
MIN-2: Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.	PS	**Mitigation Measure MIN-1:** Above, shall apply	LSM
3.7 Hazards, Hazardous Materials, and Wildlife			
HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	LS	No mitigation required.	LS

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HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	PS	**Mitigation Measure HAZ-1:** Hazardous Materials Management Spill Prevention and Control Plan Before commencement of construction, PWD shall require its construction contractor(s) to prepare a Hazardous Materials Management Spill Prevention and Control Plan that includes a Project-specific contingency plan for hazardous materials and waste operations. The Plan shall be applicable to all construction activities, and shall establish policies and procedures according to federal and California OSHA regulations for hazardous materials. Elements of the Plan shall include, but not be limited to the following: • A discussion of hazardous materials management, including delineation of hazardous material storage areas, access and egress routes, waterways, emergency assembly areas, and temporary hazardous waste storage areas; • Notification and documentation of procedures; and • Spill control and countermeasures, including employee spill prevention/response training	LSM
HAZ-3: Emit hazardous emissions or handle hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	PS	**Mitigation Measure HAZ-1:** Above, shall apply **Mitigation Measure HAZ-2:** Construction and Chemical Deliveries PWD will coordinate with school officials for proposed Project areas located near schools to schedule construction when school is not in session.	LSM
HAZ-4: Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code 65962.5 and, as a result, create a significant hazard to the public or the environment.	PS	**Mitigation Measure HAZ-1:** Above, shall apply **Mitigation Measure HAZ-2:** Above, shall apply **Mitigation Measure HAZ-3:** Environmental Site Assessment and Remediation or Well Relocation After exploratory drilling and before construction begins, a Phase 1 Environmental Site Assessment will be conducted for each proposed municipal well site to identify contaminated sites at or near each proposed well site that poses a hazard for construction or to PWD's potable water supply. In the event that a recognized environmental concern exists, additional investigation would be conducted, typically under a Phase II Environmental Site Assessment, to identify the presence and extent of any contamination that would need remediation, or a Well Relocation Plan would be developed to determine if the well location could be moved to a location that is not affected by contaminant releases. Remediation, if needed, would be conducted in accordance with federal and State requirements for remediation of soil and/or groundwater contamination with oversight by the appropriate local and/or State agency, such as the County of Los Angeles, Regional Water Quality Control Board, and/or DTSC.	LSM
HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	PS	**Mitigation Measure TRA-1:** Below, shall apply	LSM
WILD-1: Substantially impair an adopted emergency response plan or emergency evacuation plan.	PS	**Mitigation Measure TRA-1:** Below, shall apply	LSM
WILD-2: Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled	PS	**Mitigation Measure WILD-1:** Fire Hazard Reduction Measures During construction of Project facilities located in areas designated as moderate, high, or very high fire hazard severity zones by CAL FIRE by Cal Fire, PWD shall require that all staging areas, and welding areas slated intended for development use offing spark-producing equipment shall be cleared of dried	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
spread of a wildfire if located in or near State responsibility areas or lands classified as very high fire hazard severity zones.		vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. During the construction of the Project facilities, construction contractor(s) shall require all vehicles and crews to have access to functional fire extinguishers at all times. In addition, construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.	
WILD-3: Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment if located in or near State responsibility areas or lands classified as very high fire hazard severity zones.	LS	No mitigation required.	LS
WILD-4: Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.	PS	**Mitigation Measure WILD-1:** Above, shall apply	LSM
3.8 Hydrology, Groundwater, and Water Quality			
HYD-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	LS	No mitigation required.	LS
HYD-2: Substantially decrease groundwater supplies or interfere with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	PS	**Mitigation Measure-HYD-1:** Material Harm Review Conduct a material harm review of the proposed groundwater wells and groundwater rights. The Antelope Valley Watermaster Engineer would ensure operational criteria for the wells do not result in a net deficit in aquifer volume or a lowering of the local groundwater table such that the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted.	LSM
HYD-3a: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in a substantial erosion or siltation on- or off-site.	LS	No mitigation required.	LS
HYD-3b: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.	PS	**Mitigation Measure HYD-2:** Drainage Plan PWD shall complete drainage assessment and design in accordance with all applicable laws, regulations, and best management practices. The assessment and design shall be submitted as a drainage plan to appropriate jurisdiction to verify that drainage would not contribute to runoff that would result in flooding.	LSM
HYD-3c: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned	LS	No mitigation required.	LS

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
stormwater drainage systems or provide substantial additional sources of polluted runoff.			
HYD-3D: Substantially alter the existing drainage pattern of the site or area, including through the alteration of a stream or river's course or the addition of impervious surfaces, in a way which would impede or redirect flood flows.	LS	No mitigation required.	LS
HYD-4: Risk release of pollutants due to project inundation in flood, hazard, tsunami, or seiche zones.	LS	No mitigation required.	
HYD-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	PS	**Mitigation Measure HYD-1:** Above, shall apply.	
3.9 Land Use, Agriculture, and Forestry Resources			
LU-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use.	LS	No mitigation required.	LS
LU-2: Conflict with existing zoning for agricultural use, or a Williamson Act Contract.	LS	No mitigation required.	LS
LU-3: Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.	LS	No mitigation required.	LS
LU-4: Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	LS	No mitigation required.	LS
3.10: Noise and Vibration			
NOI-1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards of the City of Palmdale and Los Angeles County, or applicable standards of other agencies.	PS	**Mitigation Measure NOISE-1:** Noise Measures PWD shall require the construction contractors to implement the following measures, as applicable, during construction of the proposed Project: • Construction activities shall meet municipal or County code requirements related to noise. Construction activities shall be limited to between 7:00 am and 7:00 pm Monday through Saturday to avoid noise-sensitive hours of the day, when applicable. Construction activities shall be prohibited on Sunday and holidays. • Sensitive receptors of the proposed Project construction activities shall be identified and mapped.	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
		• Construction equipment noise shall be minimized by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by shrouding or shielding impact tools. • Construction contractors shall locate fixed construction equipment and construction staging areas as far as possible from nearby sensitive receptors. • Where feasible, construct barriers between noise sources and noise-sensitive land uses to block sound transmission. Enclose construction equipment where practicable. • If construction were to occur near a school, the construction contractor shall coordinate the most noise producing construction activities with school administration in order to limit disturbance to the campus. **Mitigation Measure NOISE-2:** Noise Coordinator PWD shall require the construction contractor to notify in writing all landowners and occupants of properties within 500 feet of the construction area of the construction schedule at least two weeks prior to groundbreaking. The construction contractor shall designate a Noise Compliant Coordinator who will be responsible for responding to complaints regarding construction noise. The Noise Coordinator shall ensure that reasonable measures are implemented to correct any problems. A contact telephone number for the Noise Coordinator shall be conspicuously posted at the construction site and included in the written notification of the construction schedule sent to surrounding properties.	
NOI-2: Generate excessive groundborne vibration in the project vicinity above levels existing without the Project.	PS	**Mitigation Measure NOISE-3:** Vibration Measures PWD shall require the construction contractor to implement the following measures, as applicable, during construction of proposed facilities: • Sensitive receptors shall be identified and mapped. • Limit construction activities that cause excessive groundborne vibrations to at least 43 feet from sensitive receptors and 15 feet from any structures. **Mitigation Measure NOISE-4:** Alternative Construction Equipment PWD shall require its construction contractor(s) to avoid utilizing vibratory rollers within 190 feet of residences. If paving work is necessary within 190 feet of residences, alternative offroad construction equipment, such as equipment limited to 100 horsepower or less or a static/pneumatic roller, shall be utilized instead.	LSM
3.11 Recreation			
REC-1: Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	PS	**Mitigation Measure REC-1:** Coordination for Bikeways For Project facilities that would include pipelines or other new facilities within designated bikeways, PWD shall coordinate with the applicable jurisdiction to determine whether circulation and detour plans are required to minimize impacts to access local bikeways. Circulation and detour plans may include the use of signage and flagging of cyclists through and/or around the construction zone.	LSM
REC-2: Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	LS	No mitigation required.	LS

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
3.12 Transportation			
TRA-1: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.	PS	**Mitigation Measure TRA-1:** Traffic Control Plan Prior to construction, PWD shall require its construction contractor(s) to prepare and implement a Traffic Control Plan, to be approved by the City of Palmdale and/or the County of Los Angeles, based on jurisdiction. The plan shall include traffic counts at intersections near the proposed Project facilities to determine existing traffic conditions. Based on these traffic counts, the plan shall recommend mitigation to minimize impacts to existing traffic conditions. These mitigation measures shall include but shall not be limited to: • Identification of hours of construction and hours for deliveries, potentially avoiding the A.M. and P.M. peak hours to minimize disturbance to traffic flow • Specification of both construction-related vehicle and oversize haul routes; alternative routes shall be proposed to avoid traffic disruption • Identification of limits on the length of open trench, work area delineation, traffic control, flagging, and signage requirements • Identification of all access and parking restrictions • Identification of staging locations to be used during construction • Identification of potential road or lane closures • Establishment of haul routes for construction-related vehicle traffic • Identification of alternative safe routes to maintain pedestrian bicyclist safety during construction At least three days prior to initiation of construction activities, PWD shall coordinate with emergency services (police, fire, and others) to notify these entities regarding construction schedule, Project alignment and siting, and potential delays due to construction. PWD shall identify roadways and access points for emergency services and minimize disruptions to or closures of these locations. The plan shall include provisions for traffic control measures including barricades, warning signs, cones, lights, and flag persons, to allow safe circulation of vehicle, bicycle, pedestrian, and emergency response traffic.	LSM
TRA-2: Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b).	LS	No mitigation required.	LS
TRA-3: Substantially increase hazards due to a geometric design feature.	PS	**Mitigation Measure TRA-1:** Above, shall apply	LSM
TRA-4: Result in inadequate emergency access.		**Mitigation Measure TRA-1:** Above, shall apply	LSM
3.13: Utilities, Service Systems, and Public Services			
UTL-1: Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	LS	No mitigation required.	LS

Impact Statement	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
UTL-2: Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years.	LS	No mitigation required.	LS
UTL-3: Result in a determination by the wastewater treatment provider, which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments.	LS	No mitigation required.	LS
UTL-4: Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	PS	**Mitigation Measure UTL-1: Site Selection Process** In the event the Antelope Valley Public Landfill does not have remaining capacity or has ceased operations, PWD would conduct a thorough site selection process to identify an appropriate location to dispose of solid waste generated by the project.	LSM
UTL-5: Comply with federal, State, and local management and reduction statutes and regulations related to solid waste.	LS	No mitigation required.	LS
PUB-1: Result in substantial adverse physical associated with provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire services; police protection; schools; parks; and other public facilities.	LS	No mitigation required.	LS

CHAPTER 1. INTRODUCTION

1.1 ENVIRONMENTAL REVIEW PROCESS

The California Environmental Quality Act (CEQA) requires public agencies to identify, disclose, and consider the potential environmental impacts of proposed discretionary actions that the agencies are considering for approval. When a project may have significant environmental impacts, the Lead Agency must prepare an Environmental Impact Report (EIR) and certify its adequacy before it considers whether to approve the project. A project that may have a significant impact on the environment cannot be approved unless the Lead Agency adopts mitigation measures that would reduce that impact to a less-than-significant level if feasible. If the impact would remain significant after mitigation (significant and unavoidable), the Lead Agency is still required to mitigate the impact to the extent feasible. An EIR is an informational document used for this purpose in State, regional, and local planning and decision-making processes to disclose potential environmental effects.

Palmdale Water District (PWD), as the CEQA Lead Agency, has prepared this Draft EIR for public review and comment pursuant to the requirements of Title 14 CCR Sections 15080 to 15097. The Draft EIR will be available for review and comment by public agencies and the public for a period of 45 days (14 CCR Section 15105). Pursuant to 14 CCR Section 15088, PWD will evaluate comments on environmental issues received from persons who reviewed the Draft EIR and will provide written response to comments raising significant environmental issues in the Final EIR. PWD will prepare the Final EIR, which will include any necessary revisions to the Draft EIR, the comments received on the Draft EIR, a list of persons, organizations, and public agencies who commented, and written responses to those comments raising significant environmental points pursuant to Title 14 CCR Sections 15088-15089 and 15132. As required under Section 15090 of the CEQA Guidelines, prior to approval, PWD shall certify that the Final EIR complies with CEQA; it has reviewed and considered the information contained in the Final EIR before making its decision; and document that the Final EIR reflects PWD's independent judgment and analysis.

1.2 LEAD AGENCY DETERMINATION

PWD is designated as the Lead Agency for preparing this EIR. CEQA Guidelines Section 15367 defines the Lead Agency as, "... the public agency, which has the principal responsibility for carrying out or approving a project." Other public agencies may use this document in their decision making or permit processes related to the undertaking proposed by PWD. These agencies are considered Responsible Agencies under CEQA.

1.3 NOTICE OF PREPARATION

In accordance with the CEQA Guidelines, a Notice of Preparation (NOP) that PWD intended to prepare this EIR was published on August 15, 2023. The NOP was circulated to federal, State, and local agencies, as well as other interested parties, for a period of 30 days. The NOP was prepared in accordance with CEQA Guidelines section 15082 and included a description of the

project, location of the project, and probable environmental effects of the project. The NOP was made available in print and electronic form, and PWD accepted comments on the NOP for a 30-day period, closing on September 14, 2023, and a public scoping meeting was held on September 7, 2023. During this period, seven written comments were received on the NOP.

Comment letters received were from one tribe and six public agencies. **Table 1.3-1**, provides a brief summary of the CEQA issues and concerns raised by the comments and the EIR sections they related to. Additionally, **Appendix A** includes a copy of the NOP and includes a report containing summaries of the comments received during the scoping meeting, as well as written comments on the NOP. Due to undeliverable NOPs, three recipients were notified at a later date of the public comment period. Two of the three were able to respond within the initial 30-day comment period; therefore, PWD extended the public comment period for one recipient in order to provide ample opportunity for input during the scoping period for the EIR. These communications are also included as part of **Appendix A**.

Table 1.3-1 Summary of NOP Comment Letters

Date	Commenter	Affiliation	Issues and Concerns Raised	Relevant EIR Section(s) Relation to Concern(s)
8/14/2023	Andrew Green, Cultural Resources Analyst	Native American Heritage Commission	Consultation with California Native American tribes Proper assessment and avoidance of tribal cultural resources Compliance with AB 52, SB 18, and National Historic Preservation Act	Cultural Resources Tribal Cultural Resources
8/29/2023	Jamie Nord	Yuhaaviatam of San Manuel Nation	Request for AB 52 compliance Request for additional information	Tribal Cultural Resources
9//7/2023	Miya Edmonson, LDR/CEQA Branch Chief	California Department of Transportation District 7	Disclosure of construction truck trips Graphics with State highways emphasized Compliance with Senate Bill 743 and use of Vehicle Miles Traveled metric Implement considerations for reducing number of trips made; greenhouse gas emissions; and sustainability for multimodal transport options	Transportation and Traffic Land Use and Planning Air Quality Greenhouse Gas Emissions and Climate Change
9/12/2023	Kim Domingo, General Manager	Rosamond Community Service District	No specific comments	Public Services and Utilities
9/13/2023	Jennifer Turner, signing for David Mayer, Environmental Program Manager South Coast Region	California Department of Fish and Wildlife	Make individual projects easily distinguishable from one another, and omit previously analyzed actions Groundwater dependent ecosystems, specifically phreatophytic vegetation, need attention Attention to special status species and compliance with Fish and Game Code Request to include groundwater impacts evaluation, including disclosure of recharge and	Project Description Biological Resources Hydrology and Water Quality Land Use and Planning

Date	Commenter	Affiliation	Issues and Concerns Raised	Relevant EIR Section(s) Relation to Concern(s)
			extraction thresholds Stream delineation and impact assessment requested Confirm inclusion of adequate Biological Resources Assessment Biological impacts and mitigation Acquisition of scientific collecting permit necessary	
9/15/2023	Ziad El Jack Supervising Engineer Facilities Planning Department	Los Angeles County Sanitation Districts	Encroachment Permit and Plan Review for Groundwater Wells and Conveyence Pipeline Industrial Wastewater Permit requirements for Pure Water Trunk Sewer Connection Permit for Pure Water Air Quality Regulation Compliance Growth and Land Use Consistency with Southern California Association of Governments.	Project Description Utilities Air Quality Growth Land Use
9/15/2023	Tracey Jue Director Facilities Planning Bureau	Los Angeles County Sheriff	Request to address traffic and construction phasing as it relates to emergency access Emergency access should also be considered for concurrent work and construction activities like truck trips, routes related to sediment removal, and disruption of water service	Project Description Transportation and Traffic Public Services and Utilities Hazards and Hazardous Materials Cumulative Impacts
9/18/2023	Mark Pestrella, PE, signing for Arthur Vander Vis, PE – Assistant Deputy Director, Land Development Division	County of Los Angeles, Department of Public Works	Provide assurance of groundwater quality, levels, monitoring, and supply – including for neighboring water utilities Request for information on wastewater treatment and recycled water injection	Geology and Soils Hydrology and Water Quality Public Services and Utilities

1.4 SCOPING MEETING

Pursuant to CEQA Guidelines Section 15082(c)(1), a public scoping meeting was held on September 7, 2023, to receive comments on the proposed Project and environmental issues. Commenters at the scoping meeting were requested to provide comments in writing. Of the 8 attendees, no written comments were received during the scoping meeting.

1.5 REVIEW AND USE OF EIR

Upon completion of this EIR, PWD filed a Notice of Completion (NOC) with the Governor's Office of Planning and Research to begin the 45-day public review period (Public Resources Code, Section 21161). Concurrent with the NOC, this EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the EIR in accordance with Public Resources Code 21092(b)(3). During the public review period, the EIR and technical appendices are available for review at the

PWD Headquarters during business hours (8:00 a.m. to 6:00 p.m., Monday through Thursday), located at the address provided below, at the Palmdale City Library, at 700 E Palmdale Blvd, Palmdale, CA 93550, and on PWD's website (https://www.palmdalewater.org/about-pwd/reports-and-studies/engineering-reports/). Agencies, organizations, and interested parties, including those not previously contacted, or who did not respond to the NOP, have the opportunity to comment on the EIR during the public review period. Written comments on this EIR should be addressed to:

Scott Rogers, Acting Assistant General Manager
Palmdale Water District
srogers@palmdalewater.org
2029 East Avenue Q
Palmdale, CA 93550

All written comments received on the Draft EIR will be included in the Final EIR. Comments on the Draft EIR must be received by 5:00 p.m. on the last day of the 45-day review period.

1.6 ORGANIZATION OF THE EIR

This Draft EIR is organized into the following main Chapters:

- **Executive Summary.** This chapter includes a summary of the Project, a brief explanation of areas of controversy and issues to be resolved, and the alternatives evaluated in this EIR. It includes a table that summarizes the impacts, mitigation measures, and levels of significance after mitigation measures are incorporated.
- **Chapter 1: Introduction.** This chapter provides an introduction and overview describing the Project background and objectives, purpose and scope of the Draft EIR, and a summary of the CEQA review process.
- **Chapter 2: Description of the Proposed Project.** This chapter presents a description of the proposed Project, including a description of proposed facilities and construction and operational considerations. This chapter also provides intended uses of the EIR, including a list of responsible agencies and approvals.
- **Chapter 3: Environmental Setting, Impacts and Mitigation.** This chapter analyzes the environmental impacts of the proposed Project. Each topic includes a description of the environmental setting, regulatory setting, methodology, thresholds of significance, impacts (both project-specific and cumulative), mitigation measures, and significance after mitigation. Chapter 3 includes subsections addressing each environmental resource.
- **Chapter 4: Alternatives.** This chapter evaluates the impacts of alternatives as compared to the impacts of the proposed Project. The impacts of alternatives are summarized so as to allow identification of the environmentally superior alternative.
- **Chapter 5: Other CEQA Considerations.** This chapter identifies significant and unavoidable impacts, the proposed Project's irreversible and irretrievable commitment of resources, and growth-inducing impacts.
- **Chapter 6: EIR Preparers.** This chapter lists the authors of the Draft PEIR.

1.7 REFERENCES

CEQA. California Public Resources Code Sections 21000 et. Seq.

CEQA Guidelines. Code of Regulations, Title 14, Division 6, Chapter 3.

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CHAPTER 2. PROJECT DESCRIPTION

2.1 PROJECT OVERVIEW

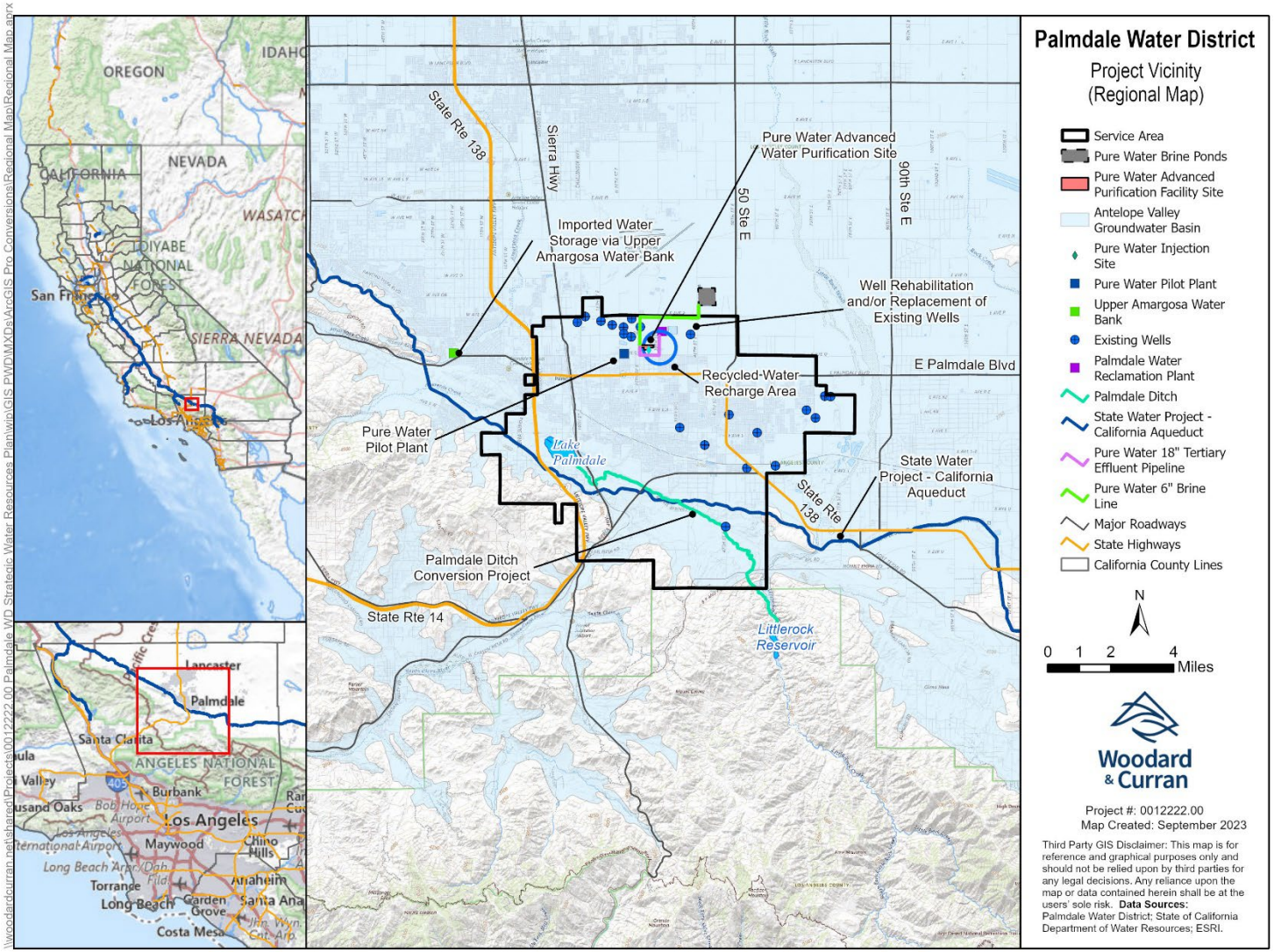
PWD has updated its Strategic Water Resources Plan (SWRP). The goal of this SWRP Update was to reevaluate PWD's ability to meet the demands of both current and future customers through the year 2050 while aligning with PWD's mission, vision, and core values. The SWRP Update, completed in June 2023, gives a new look at PWD's long-term plan for supplying water to its customers. It looks at PWD's current mix of water sources, which includes groundwater, surface water, imported water, and recycled water. The aim was to find the best way to meet the needs of a growing population under changing future conditions. A Preferred Strategy was identified that optimizes PWD's mix of water sources up to the year 2050; focusing on three fundamental timeframes: today (2023-2025), near-term (2025 to 2035), and long term (2035 to 2050).

The Preferred Strategy also referred to as the 'proposed Project' in this EIR, and described herein, includes proposed actions that make the most of local water supplies and facilities. It also aims to increase water storage in the Antelope Valley Groundwater Basin. This is to make sure there is enough water during times when there is a shortage of imported water. The SWRP Update is meant to act as a guide to the PWD Board of Directors and staff as PWD works on and updates other planning documents and undertakes key decisions and projects to prepare the PWD for the future. These documents include the urban water management plan, water system plan, financial plans, and other planning documents.

2.2 PROJECT LOCATION

As shown on **Figure 2-1** the PWD service area is located within the Antelope Valley in Los Angeles County, approximately 60 miles north of the City of Los Angeles and includes the central and southern portion of the City of Palmdale (City) and adjacent unincorporated areas of Los Angeles County. PWD is bordered to the south and west by the San Gabriel Mountain Range, the north by the City of Lancaster, and the east by the unincorporated community of Littlerock. The PWD service area encompasses 47 square miles of mainly developed areas of the City and surrounding sphere of influence, with agricultural uses around its perimeter. The proposed Project includes some facilities that would be located outside of PWD service area boundaries in either the City or near Littlerock Reservoir. Therefore, for purposes of this EIR, the "Project area" includes both the PWD service area and any outlying areas where proposed Project facilities may be located, as depicted in the figures throughout this EIR.

Figure 2-1: Project Location and Vicinity



2.3 PROJECT BACKGROUND

Since the late 1800s, PWD has been providing water to farms for irrigation. Since that time, the area has experienced substantial population growth shifting PWD's supplies to purely municipal and industrial uses.

2.3.1 EXISTING PALMDALE WATER DISTRICT SUPPLIES

Currently, PWD provides water to approximately 26,900 connections, most of which are residential. Water is supplied by a mix of water sources, including imported water, transfer agreements, groundwater, local surface water, and recycled water.

By the year 2050, the water demand in the PWD service area is projected to increase by 6,500 acre-feet per year (AFY), rising from 18,700 AFY to 25,200 AFY. This increase is expected due to the planned population growth in new and redeveloped areas, consistent with the City's latest general plan, *"Palmdale 2045, a complete community*" (General Plan). The General Plan is the blueprint establishing the City's vision for the future providing long range guidance for land use, development, and other City issues.

2.3.2 WATER SUPPLY PLANNING

PWD regularly undertakes strategic water resources planning to evaluate and confirm that the PWD has the water to supply near term and future demands consistent with the City's General Plan in a way that aligns with PWD's Mission of providing high-quality water to current and future customers at a reasonable cost.

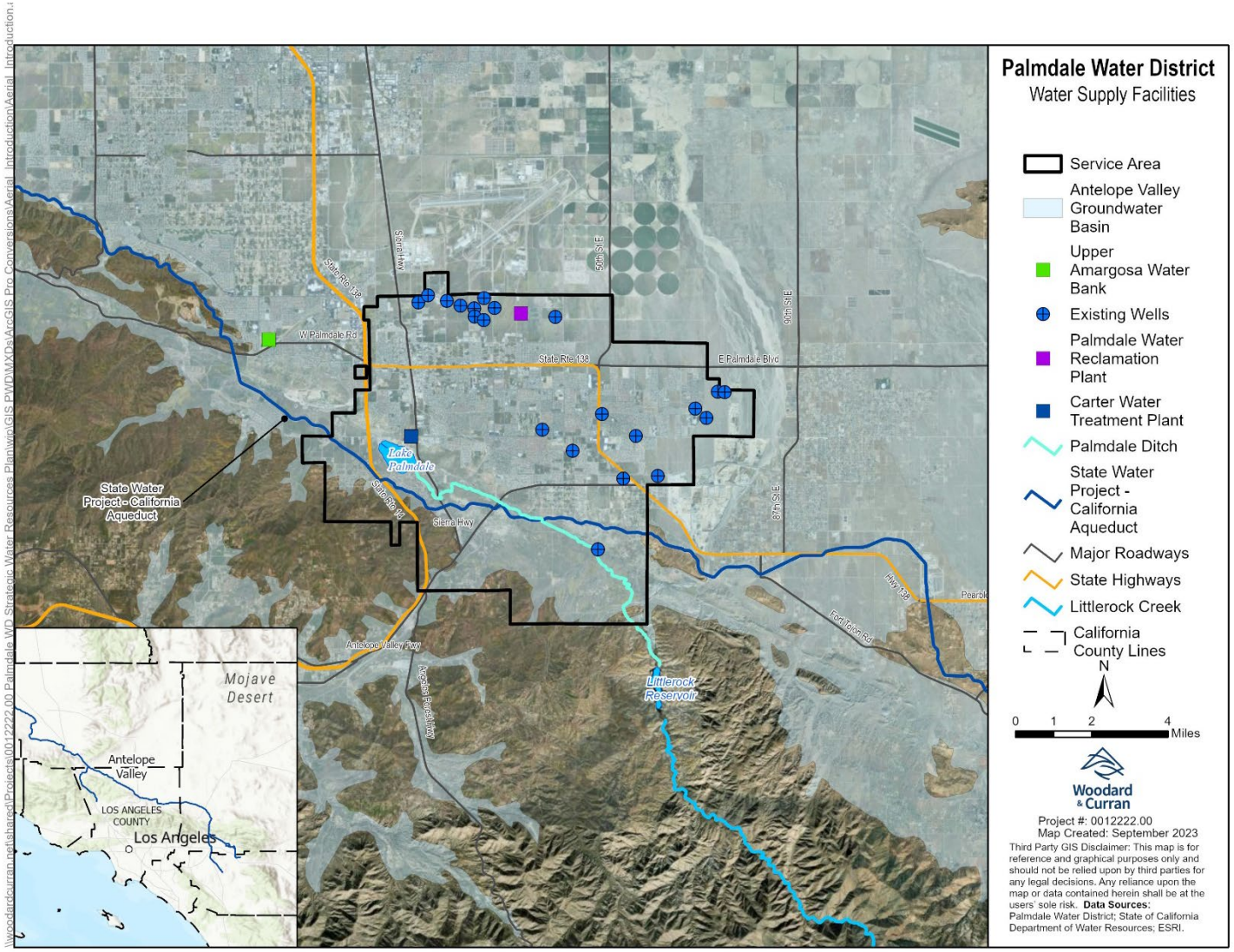
2.3.2.1 Previous Strategic Water Supply Planning

Understanding the critical importance of sustainable water management to meet the needs of its growing community, PWD prepared a Strategic Water Resources Plan in 2010 (2010 SWRP) that aimed to prepare PWD's water supplies to meet the anticipated demands over the next 25 years. PWD evaluated its water supply sources compared to long term projections to ensure that PWD would be providing high quality water to current and future customers at a reasonable price.

The 2010 SWRP reviewed PWD's water supply portfolio and identified a preferred mix of water supply sources, given the information about projected growth within the PWD service area available at the time. The sources and water rights in the 2010 SWRP included groundwater from the Antelope Valley Groundwater Basin, surface water from the Littlerock Reservoir water brought into the Antelope Valley by the State Water Project (SWP) and recycled water bought from Los Angeles County Sanitation Districts (LACSD) District No. 20's Palmdale Water Reclamation Plant.

Figure 2-2 shows existing PWD supply facilities.

Figure 2-2: Palmdale Water District Service Area and Water Supply Facilities



2.3.2.2 2023 Strategic Water Resources Plan Update

To continue to meet the demands of current and future customers, PWD needed to review and update its 2010 SWRP to develop a water supply strategy that serves customers beyond the year 2035 to the year 2050. In July 2023, PWD released a draft update of the Strategic Water Resources Plan (SWRP Update). The SWRP Update found that, due to a combination of growing demand, facility limitations that restrict the ability to access all of the supplies, and reduced supply reliability due to climate change, shortages are expected to occur every year starting in 2030.

The SWRP Update discovered that through 2035, potable and non-potable supplies available to PWD are anticipated to average at least 38,000 AFY. However, these available supplies will decrease to about 30,000 AFY in the period after 2035 through 2050. This is partly due to the expiration of transfer agreements with Butte County and Littlerock Creek Irrigation District (LCID) in 2035. In addition, substantial periods of drought have significantly impacted water resources throughout the State of California, resulting in unreliable and reduced imported water allocations. Furthermore, while there is approximately 7,300 AFY of recycled water available for use, PWD facilities limit current non-potable deliveries to approximately 100 AFY of recycled water.

The SWRP Update evaluated various options and water supply mixes available to address these projected water supply shortages, including imported water, groundwater, recycled water, local surface water, banking, and conservation. The SWRP Update selected "Alternative 11" as the preferred water supply mix strategy to best serve PWD. As Mentioned in Section 2.1 Project Overview, the Alternative 11 Preferred Strategy is described and evaluated throughout this EIR as the proposed Project.

2.4 PROJECT OBJECTIVES

The proposed Project was selected for its ability to maximize local supplies and facilities to meet future growth and increase storage of water in the Antelope Valley Groundwater Basin to meet demands during times of imported water shortage.

The primary objectives of the proposed Project include:

- Meet the current and future water supply needs for PWD's service area.
- Increase water supply reliability by identifying feasible and reliable sources of water to meet the current and future needs.
- Maximize cost savings by optimizing existing water rights and facilities, while strategically prioritizing new projects that align with PWD's Mission and Vision.
- Identify and plan for the facilities that will be needed to meet current and future needs.
- Maximize potential funding by selecting water supply sources that are in line with existing funding programs.

- Plan for system redundancy and sustainability so that the system and PWD can accommodate unforeseen changes.

In addition to the primary objectives, PWD identified secondary objectives associated with each type of water supply. These secondary objectives are shown in the following table:

Table 2-1: Proposed Strategic Water Resource Plan Update Secondary Objectives

Water Supply Element	Strategic Goals
Imported Water	• Support projects and initiatives that increase the resilience of State Water Project supplies • Increase storage of State Water Project supplies in the Antelope Valley Basin • Maximize use of existing imported water supplies
Recycled Water	• Maximize the use of recycled water within PWD's service area to reduce the current demand for imported water and limit the need for more imported water in the future • Obtain funding and partnerships to offset the cost of Pure Water Antelope Valley
Groundwater	• Be able to pump stored water to meet demands during imported water shortages • Establish and operate recharge facilities to offset proposed pumping increases • Leverage excess stored water to generate capital for PWD projects • Increase PWD's groundwater production rights
Local Supplies	• Continue Littlerock Reservoir sediment removal activities to create more storage capacity • Improve Palmdale Ditch to reduce water loss, increase conveyance capacity, and improve the quality of water transported to Lake Palmdale • Improve Palmdale Ditch system performance, reliability, and resiliency and decrease the potential for the interruption of water conveyance or need for emergency maintenance activities. • Improve Palmdale Ditch safety of operations and maintenance activities
Conservation	• Continue to expand conservation efforts on a regular basis (e.g. every 3-5 years), attracting outside funding to help expand programs • Maintain and update policies as needed to reduce water waste and preserve PWD's ability to achieve sufficient conservation savings in the event of a water shortage emergency • Achieve conservation objectives set by the State as part of Assembly Bill (AB) 1668 and Senate Bill (SB) 606

2.5 PROPOSED PROJECT CHARACTERISTICS

The SWRP Update sets a framework for how PWD will meet the Project Objectives described in the previous section. Implementation of the SWRP Update will take place over the next 25 years as the individual actions within the SWRP are implemented. The proposed Project proposes a number of actions that would increase water supply and reliability by recharging and augmenting groundwater supplies while maximizing the use of imported, recycled, and stormwater surface water supplies. Accommodating future growth estimates and increasing storage of water in the Antelope Valley Groundwater Basin to provide reliable water supply even during times of imported water shortage.

Figure 2-3 shows, on average, the amount and type of supply that would be used under the proposed Project to meet demand in 2050.

Figure 2-3: Proposed Project (SWRP Update Preferred Alternative) Deliveries Portfolio versus Current Average Annual Deliveries Portfolio

Current Average Annual Deliveries Portfolio

Proposed 2050 Average Annual Deliveries Portfolio

Source: Woodard & Curran 2023

Under the proposed Project, PWD would store imported water and recycled water in the Antelope Valley Groundwater Basin. This would include operation of the Upper Amargosa Creek Water Recharge Project, an existing facility that was built as a joint effort between PWD and other water agencies and managers in the region. As part of the Upper Amargosa Creek Recharge Project, 1,200 AFY of imported SWP water will be recharged into the Antelope Valley Groundwater Basin. Furthermore, 5,000 AFY of recycled water from PWD's new advanced water purification facility (AWPF), known as Pure Water Antelope Valley project, recharged by injection well. The additional 1,200 AFY of imported SWP water would come from PWD using existing Table A water rights that it historically has not used. The Pure Water Antelope Valley project is currently proposed to be located near the Palmdale Water Reclamation Plant.

Under the proposed Project, in addition to storing 1,200 AFY of imported SWP water and 5,000 AFY of purified recycled water in the Antelope Valley Groundwater Basin, PWD would purchase 1,000 AFY of groundwater production rights from other pumpers in the Antelope

Valley Groundwater Basin and seven new wells would be constructed. Additionally, five of PWD's existing groundwater production wells would be replaced and pumping capacity increased (Kyle Groundwater 2020). These actions would allow PWD to be able to increase groundwater production 3,200 AFY.

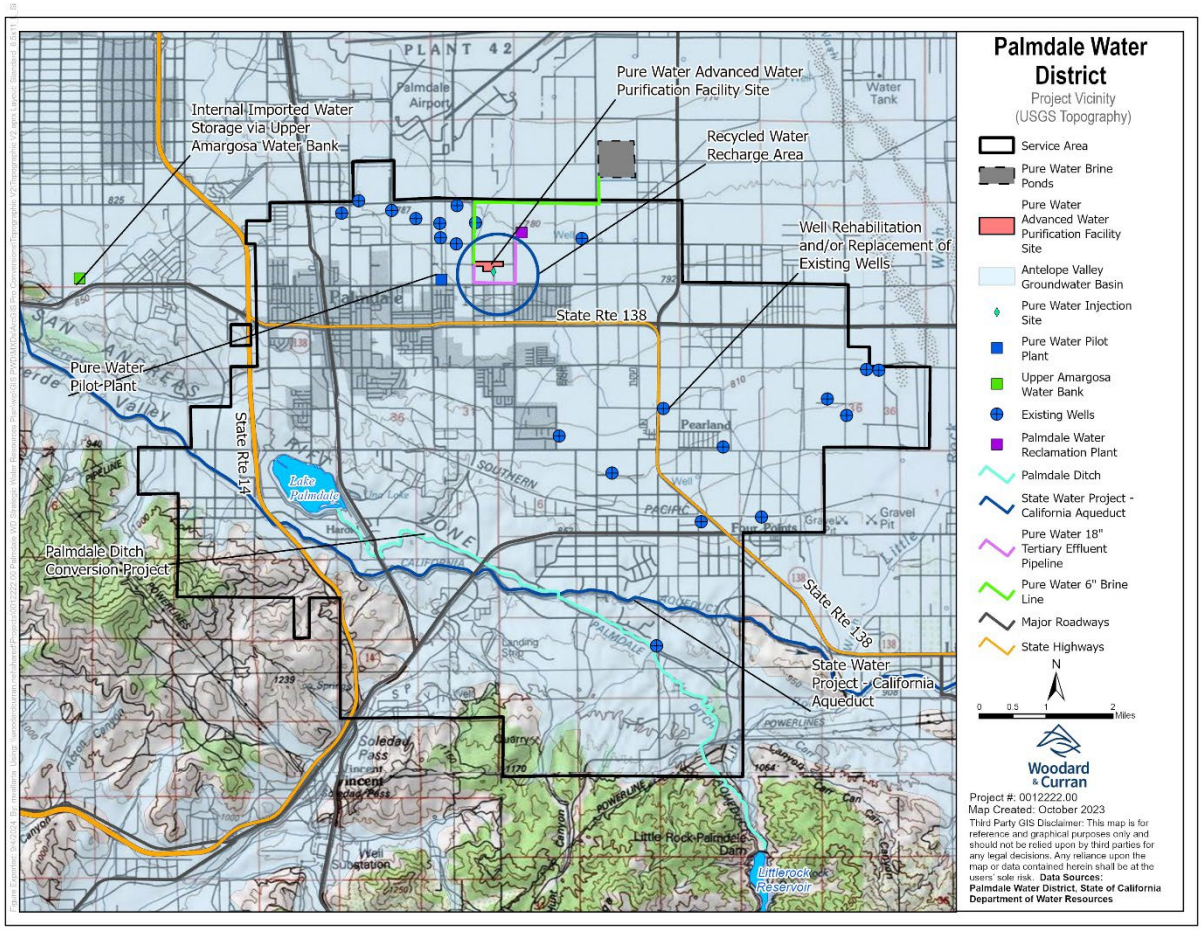
Another component of the proposed Project is maximizing local surface water supplies. To do this, PWD would implement the Palmdale Ditch Conversion project to reduce conveyance losses and increase local water supply. This project, referred to as the Palmdale Ditch Conversion project, would result in an average increase of 1,450 AFY of local surface water. PWD would also continue its Littlerock Reservoir sediment removal project and conservation efforts under the proposed Project to further maximize its local surface water supplies.

Further, under the proposed Project, PWD would continue to monitor and report on water conservation programs, policies, and regulations which are anticipated to reduce the rate in which water is used thus providing some relief to water demands.

These components are shown on **Figure 2-4** and can be classified by water supply type as follows and are described in more detail in the referenced subsections:

- **Imported Water (Section 2.5.1)**
    - Recharge and store the maximum SWP Table A water allotment at the Upper Amargosa Creek Water Recharge Project for future groundwater extraction during times of water shortage.
- **Recycled Water (Section 2.5.2)**
    - Recharge and store recycled water from the Pure Water Antelope Valley project for future groundwater extraction during times of water shortage.
- **Groundwater (Section 2.5.3)**
    - Increase production of groundwater by purchasing 1,000 AFY of groundwater production rights and construct seven new production wells.
    - Replace and expand capacity of five existing production wells
- **Local Supplies (Section 2.5.4)**
    - Maintain storage capacity in Littlerock Reservoir through sediment removal.
    - Reduce water loss, improve water quality, and improve safety through the implementation of the Palmdale Ditch Conversion project
- **Conservation (Section 2.5.5)**
    - Continue active conservation programs.

Figure 2-4: Project Features (Topographic Map)



2.5.1 IMPORTED WATER

The SWP, managed by the California Department of Water Resources (DWR), is a primary source of water for PWD. The SWP primarily collects water from the Feather River where it is then stored in Lake Oroville in Butte County. This water, derived from rainfall and snow melt during winter and spring, is then released from Lake Oroville and flows down the lower Feather River into the Sacramento River. Some of the SWP water is diverted to Napa and Solano counties before reaching the confluence of the Sacramento and San Joaquin Rivers, known as the Sacramento-San Joaquin Delta (Delta). The Delta collects drainage from about 40 percent of California. Some of the water is diverted from south of the Delta and conveyed south through the 444-mile-long California Aqueduct. The aqueduct extends from the Delta to the northern base of the Tehachapi Mountains, where it is pumped over the mountains. On the southern side of these mountains, the aqueduct splits into two branches, the East

Branch and the West Branch. PWD receives SWP water from a turnout[1] on the East Branch of the California Aqueduct.

PWD is one of 29 water agencies, commonly referred to as "contractors," that have a Water Supply Contract with DWR for SWP water. This contract includes a "Table A" that lists the maximum amount of water an agency can request each year. PWD's Table A amount is 21,300 AFY. The actual amount available to PWD varies each year depending on factors such as rainfall, snowfall, water storage, and water release requirements. From 2011 to 2021, the amount of water PWD was allocated ranged from 5 percent to 85 percent of its listed Table A amount. Over that 10-year period, PWD received an average of 30 percent of its Table A allocations annually, reflecting two substantial periods of drought that limited deliveries.

The actual amount of water delivered may be less than the full Table A amount depending on how much water PWD requests in each year. This ranged from 1,005 AFY in 2014 to 14,294 AFY in 2019, over the period between 2011 and 2021. In addition to the Table A amount, the Water Supply Contract describes several types of SWP water that are available to PWD to supplement Table A water. These include carryover water, "Article 21" water, and turnback pool water which are defined as:

- **Carryover water** is Table A water that is allocated to a contractor but not used by the end of the SWP contract year. If space is available, contractors may store up to 5,000 acre-feet (AF) of Table A water in the part of the San Luis Reservoir owned by the SWP for delivery the following year. However, if the San Luis Reservoir must spill that season, the contractor's carryover water will be lost. PWD has stored an average of 2,442 AFY of this water from 2011 and 2021.
- **Article 21 water** is additional water that PWD may receive temporarily, in addition to its approved Table A water. This water is only offered occasionally, usually in wet hydrologic years, when there is more water in the Delta than the SWP contractors are entitled to. Historically, PWD has not received much of this water. Between 2011 and 2021, PWD has received a total of 335 AFY of Article 21 water.
- **Turnback pools** are a mechanism for contractors with extra Table A water to sell their water back to other contractors. Since 2011, PWD has only bought about 26 AF of water from turnback pools to supplement its water supplies.

Regardless of hydrologic conditions, Table A water is always delivered before other types of SWP water.

Table 2-2 shows the average SWP delivery that PWD can expect in each year based on data contained in DWR's 2021 Delivery Capability Report.

[1] A turnout refers to a structure that allows water to be conveyed from the California Aqueduct.

Table 2-2: Projected PWD Imported SWP Water Supplies (AFY) without Transfers

	2025	2030	2035	2040	2045	2050
Table A Allocation Forecast (%)	*56%*	*54%*	*52%*	*51%*	*51%*	*51%*
Table A Water	11,900	11,500	11,100	10,900	10,900	10,900

2.5.1.1 Transfer Agreements

In addition to its own Table A water from the SWP, PWD has long-term agreements with other SWP contractors who have surplus Table A water. Currently, PWD has existing agreements with Butte County and LCID to receive some of their Table A water for a specified period. These transfers depend on the SWP's annual allocation, delivery, and reliability constraints.

PWD's long-term lease agreement with Butte County allows for use of 10,000 AFY of its SWP Table A amount. This lease is expected to end in 2035. The amount of water PWD can obtain through this lease primarily depends on the annual Table A allocation from DWR. PWD can only access the water if the Table A allocation exceeds 20 percent. The SWRP Update projects average annual supplies from the Butte Transfer to be about 5,600 AFY in 2025, declining to about 5,200 AFY in 2035.

In 2022, PWD made an agreement with LCID to receive between 75 percent and 100 percent of LCID's annual Table A water from the SWP, up to a maximum of 2,300 AFY, through 2035. Each year, LCID can choose to retain up to 25 percent of its Table A water. The SWRP Update anticipates average annual supplies from the LCID transfer to be about 1,000 AFY in 2025, declining to about 900 AFY in 2035.

2.5.1.2 Surface Water Facilities

Imported SWP water is conveyed from the Sacramento-San Joaquin Delta through the East Branch of the California Aqueduct into Lake Palmdale.[2] This lake serves as a forebay for PWD's Leslie O. Carter Water Treatment Plant. PWD's allowable capacity in the East Branch starts at 31 cubic feet per second (cfs) and decreases to 30 cfs before the water is delivered into Lake Palmdale. Diversion capacity into Lake Palmdale is 30 cfs.

Lake Palmdale can store approximately 4,129 AF of water it receives from the SWP and Littlerock Reservoir via the Palmdale Ditch (Ditch). The Leslie O. Carter Water Treatment Plant, which has a treatment capacity of 35 million gallons per day, treats water conveyed from Lake Palmdale before distributing to customers. The Leslie O. Carter Water Treatment

[2] The former name of Lake Palmdale was Harold Reservoir, named for the historic community of Harold.

Plant is nonoperational for approximately four to six weeks each year for maintenance and repairs.

Under the proposed Project, PWD would maximize its existing Table A allocations by recharging unused and untreated imported water to meet potable demands directly. Up to 1,200 acre-feet (AF) of imported supplies would be recharged to the Antelope Valley Groundwater Basin each year via the Upper Amargosa Creek Recharge Project. Imported water beyond existing contracts would not be purchased. Construction of the Upper Amargosa Creek Recharge Project was completed in 2019. The Upper Amargosa Creek Water Recharge Project consists of recharge basins constructed on a 75-acre site near 25th Street West and Lake Elizabeth Road in Palmdale. Existing turnouts, conveyance, recharge and treatment would be used to maximize current Table A water allocations; no new facilities would be constructed.

The environmental impacts of the Upper Amargosa Creek Recharge Project are not analyzed further in this document because the Upper Amargosa Creek Recharge Project has been previously evaluated under CEQA (see summary in **Section 2.5** below), and discretionary permits, including from the California Department of Fish and Wildlife (CDFW) have already been obtained. Likewise, the environmental impacts of SWP facilities are not analyzed further in this document because the SWP has been previously evaluated under CEQA (see summary in **Section 2.7** below).

2.5.2 RECYCLED WATER

In 2012, the Palmdale Recycled Water Authority (PRWA) was established to manage recycled water generated and used within the PWD service area. The PRWA boundaries consist of the overlap of City and PWD boundaries. PRWA is a joint powers authority comprised of the PWD and the City and manages all aspects of recycled water use, including agreements to obtain recycled water, planning for, designing, and constructing supporting facilities, and financing these efforts.

Recycled water available for use within the PWD service area is supplied by the LACSD Palmdale Water Reclamation Plant located in the City. The Palmdale Water Reclamation Plant currently provides tertiary treatment for approximately 12,000 AFY of wastewater generated in and around the City and produces an average of 10,700 AFY of Title 22 recycled water. A contract with LACSD entitles PWD to up to 5,325 AFY of recycled water. There is also an agreement with the LACSD for 2,000 AFY of recycled water to provide to customers throughout the City's service area, which has since been transferred to PRWA.

The City is a recycled water customer through PRWA for landscape irrigation and construction water. The remaining portion of Palmdale Water Reclamation Plant recycled water is disposed to be used for agricultural irrigation. The existing recycled water distribution system consists of about 7,900 feet of purple pipe with a current demand for recycled water of approximately 100 AFY.

2.5.2.1 Pure Water Antelope Valley Advanced Water Treatment

Under the proposed Project, PWD would maximize beneficial use of recycled water through construction and implementation of an approximately 5 million gallons per day AWPF in the vacant property between East Avenue Q and 25th Street East, near the Palmdale Water Reclamation Plant, referred to as Pure Water Antelope Valley. PWD has been working towards implementation of an advanced water treatment project for recycled water for several years and is currently in the pilot testing phase. PWD would continue with this work with the goal of constructing a full-scale facility to augment water supplies in the service area. The Pure Water Antelope Valley project is conceptual in capacity and no CEQA documentation has been prepared yet for this project.

2.5.2.2 Recycled Water Injection

Currently, PWD is entitled to 5,325 AFY of recycled water from the Palmdale Water Reclamation Plant. PWD's future recycled water supply projections assume that entitlement would remain the same through the year 2050, as shown in **Table 2-3**

Table 2-3: Projected Recycled Water Supplies (AFY)

	2025	2030	2035	2040	2045	2050
PWD Entitlement to Palmdale Water Reclamation Plant Title 22 recycled water	5,325	5,325	5,325	5,325	5,325	5,325
City of Palmdale/ PRWA Entitlement to Palmdale Water Reclamation Plant Title 22 recycled water	2,000	2,000	2,000	2,000	2,000	2,000

Under the proposed Project, PWD would store the entitled recycled water in the Antelope Valley Groundwater Basin by injecting it after purification into the groundwater basin. PWD would install injection wells to be used for the injection of purified water from the future Pure Water Antelope Valley AWPF. Tertiary effluent from Palmdale Water Reclamation Plant would be conveyed to the Pure Water Antelope Valley facility for advanced treatment, consisting of membrane filtration, reverse osmosis, and an advanced oxidation process. Up to 5,000 AFY of advanced treated recycled water would be injected into the Antelope Valley Groundwater Basin each year. PWD may be subject to a 10 percent leave-behind requirement, resulting in approximately 4,500 AFY of supply available for pumping. Up to five new recycled water injection wells would be needed if more recycled water is received. The locations of the purified recycled water injection wells are anticipated to be within the Pure Water Antelope Valley property as shown in **Figure 2-4**. New recycled water conveyance pipelines would be needed between the Palmdale Water Reclamation Plant and the Pure Water Antelope Valley facility, and between the Pure Water Antelope Valley facility and the new injection wells. Conveyance pipeline locations would be constructed within existing roadways whenever possible near the Palmdale Water Reclamation Plant. The

tertiary effluent pipeline will be constructed along 30th Street East, East Avenue Q, and 25th Street East. The brine line will be constructed along 25th Street East, Avenue P, and 40th Street East to connect to the planned brine ponds. CEQA evaluation would be conducted in the future for the Pure Water Antelope Valley project, including its associated recycled water conveyance and injection facilities.

2.5.3 GROUNDWATER

PWD operates 22 groundwater wells in the Antelope Valley Groundwater Basin. Groundwater pumped from the Basin is treated with chlorine disinfectant and pumped directly into PWD's potable distribution system. Currently, this well system has a pumping capacity of approximately 11,000 AFY. However, the infrastructure is aging and without well rehabilitation and replacement efforts, the pumping capacity is anticipated to decrease through 2050. PWD is in the process of rehabilitating and replacing production wells to maintain the current pumping capacity.

Water quality within PWD's wellfield is good with no need for advanced treatment due to water quality concerns. However, future changes to drinking water quality regulations may require PWD to conduct further analysis of groundwater quality from certain wells. Regulatory agencies are continually evaluating constituents of concern that are expected to have a maximum contaminant level (MCL) in the future. These constituents include hexavalent chromium, perfluorooctanoic acid (PFOA), and per- and polyfluoroalkyl substances (PFAS).

Groundwater has accounted for an average of 48 percent (8,030 AFY) of PWD's water supply since 2011. The Antelope Valley Groundwater Basin was adjudicated in December 2015 after over 15 years of complex proceedings among more than 4,000 parties, including public water suppliers, landowners, small pumpers and non-pumping property owners, and the federal and State governments, resulting in the Antelope Valley Groundwater Basin Adjudication Judgment (Judgment).

As a result of the Judgement, PWD is currently allocated a groundwater production right of 2,769 AFY. In addition to its groundwater production right, PWD is entitled to a share of the unused Federal Reserved Water Right. While the Federal Reserved Water Right is up to 7,600 AFY, the federal government does not currently use the full amount. The unused Federal Reserved Water Right is allocated among public water suppliers listed in the Judgement. Currently, PWD's average share of unused Federal Reserved Water Right is 1,450 AFY. PWD is also entitled to a pumping allocation for return flow credit of all imported water used, including imported water transfers. The return flow credit is equal to 39.1 percent of all the imported water used by PWD based on a five-year rolling average. Return flow credits are available to PWD following imported water delivery or after banked imported water has been pumped. Return flow credits are projected to decrease from 4,220 AFY in 2025 to 4,100 AFY in 2050 consistent with decreased imported water supplies.

2.5.3.1 Existing Wells Rehabilitation or Replacement

PWD currently operates 22 groundwater wells in the Antelope Valley Basin with a maximum pumping volume of approximately 11,000 AFY. Under the proposed Project, PWD would rehabilitate and/or replace existing PWD wells to maintain existing pumping capacity and enable greater pumping during dry years. Implementation of this component would improve the resilience of the production wells to maintain baseline groundwater pumping capacity. PWD would proceed with the rehabilitation and replacement of its wells as recommended in the 2020 Well Rehabilitation Prioritization Program to maintain current pumping capacity. The proposed Project includes replacement of five existing wells in the near term (see **Figure 2-2**). Rehabilitated wells would be located at existing well sites, while replacement wells may be located in areas with higher rates of groundwater production or near existing wells. Existing wells that are replaced would be demolished.

The 2020 Well Rehabilitation Prioritization Program ranks the PWD wells according to condition and performance characteristics; probability of successful well rehabilitation efforts; cost of well rehabilitation and repair; and relevance to the PWD system. The 2020 Well Rehabilitation Prioritization Program found that seven wells, Wells 7A, 10, 14A, 16, 18, 21, and 25, were structurally unsound and unsuitable for well rehabilitation because of the low probability of improving performance. These wells were recommended for routine maintenance, or, if a well is considered critical to the system, repairs; however, ultimately, they should be replaced because they were nearing the end of their useful lives. The 2020 Well Rehabilitation Prioritization Program recommended focusing replacement efforts on the north wellfield (also known as pressure zone 2800) because wells situated in the north wellfield tend to be more productive. The 2020 Well Rehabilitation Prioritization Program noted that a well site assessment and preliminary design had been completed on two potential new replacement production wells, designated Well 36 and 37, which would be situated in the north wellfield (pressure zone 2800). No CEQA documentation was prepared for the 2020 Well Rehabilitation Prioritization Program.

The remaining 15 wells were prioritized in order of condition and performance characteristics; the likelihood of successful rehabilitation at the least cost; and their significance to PWD's system (see **Table 2-4**).

Table 2-4: Well Rehabilitation and Replacement Prioritization

Well Designation	Pressure Zone	Final Prioritization Rank	Recommended Effort
26	2850	1	Rehabilitate (CH-I, R)
3A	2800	1	Rehabilitate (M, CH-I)
15	2800	3	Rehabilitate (M, CH-I, CH-II, R)
2A	2800	4	Rehabilitate (M, CH-I, CH-II, R)
11A	2800	5	Rehabilitate (M, CH-I, R)
29	2950	6	Rehabilitate (M, CH-I, CH-II, R)
6A	2800	7	Rehabilitate (M, CH-I, CH-II, R)
19	3250	8	Rehabilitate (M, CH-I, CH-II, R)
35	2950	9	Rehabilitate (CH-I, R, CP)

Well Designation	Pressure Zone	Final Prioritization Rank	Recommended Effort
23A	2800	9	Rehabilitate (M, CH-I, CH-II, R)
30	2850	11	Rehabilitate (M, CH-I, R)
8A	2800	11	Rehabilitate (CH-I, R)
22	2850	13	Rehabilitate (M, CH-I, R, CP)
32	2800	14	Rehabilitate (M, CH-I, CH-II, R)
33	2800	15	Rehabilitate (CH-I, R)
7A	2800	16	Maintain, then Replace
10	2800	16	Maintain, then Replace
14A	2800	16	Maintain, then Replace
16	2950	16	Maintain, then Replace
18	3250	16	Maintain, then Replace
21	2950	16	Maintain, then Replace
25	2950	16	Maintain, then Replace
36	2800	N/A	New Replacement
37	2800	N/A	New Replacement

Source: 2020 Well Rehabilitation Prioritization Program
Notes:
M: Mechanical cleaning.
CH-I: Phase I chemical treatment with polymer dispersant and/or surfactant.
CH-II: Phase II chemical treatment with acid.
R: Redevelopment.
CP: Casing patch installation.

2.5.3.2 New Groundwater Production Wells

PWD has a groundwater production right of 2,769 AFY and PWD's average share of unused Federal Reserved Water Right is 1,450 AFY. The proposed Project assumes PWD would be able to pump its share of unused Federal Reserved Water Right at least until 2050.

Climate change will have increasing impacts on groundwater resources. While groundwater is often considered a drought-resistant water resource, warmer temperatures, changing precipitation patterns, and more extreme drought conditions can all have an impact on rainfall and streamflow and, as a result, natural groundwater recharge. Climate change data developed by DWR for the California Water Commission's Water Storage Investment Program for hydrology in the region estimates streamflow may decrease groundwater recharge by 8 percent by 2070. The SWRP Update adjusted PWD's Production Right to reflect decreased groundwater availability because of climate change. Projected groundwater supplies from PWD's Production Right, Federal Reserved Water Right Production, and return flow credit are shown in **Table 2-5**.

Table 2-5: Projected Groundwater Supplies (AFY)

	2025	2030	2035	2040	2045	2050
Production Right	2,769	2,750	2,720	2,700	2,670	2,650
Federal Reserved Water Right	1,450	1,450	1,450	1,450	1,450	1,450
Return Flow Credits	4,220	4,200	4,170	4,150	4,120	4,100

Under the proposed Project, PWD would increase groundwater production by 3,200 AFY using existing and new wells. PWD would construct new wells to pump the banked water

and connect it to the existing distribution system for use during dry or drought periods. In addition, PWD would purchase 1,000 AFY of groundwater production rights from other pumpers in the Antelope Valley Groundwater Basin. In total, seven new wells would be drilled and equipped to extract the purchased groundwater rights and to extract banked water (assuming a well capacity of 1.7 million gallons per day per well). The location of the new wells is currently undetermined. Conveyance pipeline locations are yet to be determined but would be constructed within existing roadways whenever possible. CEQA documentation for new groundwater production wells was prepared by PWD in 2018 (see summary in **Section 2.6** below). Accordingly, the environmental impacts of new groundwater production well facilities are not analyzed further in this document because they have been previously evaluated under CEQA.

2.5.4 Local Surface Water

PWD estimates an available local surface water supply of approximately 3,000 AFY from Littlerock Reservoir. The SWRP Update projected local surface water supplies, accounting for climate change impacts, are summarized in **Table 2-6**.

Table 2-6: Projected Local Surface Water Supplies (AFY)

	2025	2030	2035	2040	2045	2050
Littlerock Reservoir	3,000	2,973	2,946	2,919	2,892	2,868

Littlerock Creek is the primary tributary stream that supplies surface water to the PWD service area, flowing north from the San Gabriel Mountains to Littlerock Dam and Reservoir, south of PWD's southern boundary and continuing northeast through the service area. PWD and LCID jointly hold long-standing water rights to divert a combined total of 5,500 AFY from Littlerock Creek. Pursuant to an agreement between the two districts, the first 13 cfs of Littlerock Creek flows are available to LCID. Any flow above 13 cfs is shared between the two districts with 75 percent going to PWD and 25 percent to LCID. LCID transferred its diversion rights to PWD when the Littlerock Dam was modified, such that PWD's diversion right is currently 5,500 AFY.

Littlerock Reservoir is a man-made feature formed by the impoundment of water by the Littlerock Dam. The Littlerock Reservoir is currently managed by PWD to intercept flows from Littlerock Creek. The initial design capacity of Littlerock Reservoir was 4,300 AF; however, this capacity was substantially reduced to approximately 2,800 AF because of the deposition of sediment behind Littlerock Dam. LCID and PWD are each entitled to 50 percent of the Littlerock Reservoir's storage capacity, which was renovated in 1994 to increase storage capacity back to 3,500 AF. Future storage capacity in Littlerock Reservoir may decline over time if not maintained due to sediment deposits. Water is conveyed from Littlerock Reservoir in Angeles National Forest (managed by the United States Forest Service) to Lake Palmdale (managed by PWD) via the Palmdale Ditch, an 8.5- mile-long, mostly open ditch, before being conveyed to and treated at PWD's Leslie O. Carter Water Treatment Plant.

Surface water runoff to the Littlerock Reservoir is seasonal and varies widely from year to year. Although Littlerock Creek flows mainly during winter and spring months, this is buffered somewhat by Littlerock Reservoir, allowing this water to be available throughout the year. The Reservoir must maintain a minimum water level of 500 AF through Labor Day (i.e., the first week of September), after which PWD and LCID draw water as needed.

2.5.4.1 Littlerock Reservoir Sediment Removal

The proposed Project includes future sediment removal at Littlerock Reservoir in order to maintain storage capacity. PWD's ongoing sediment removal activities have allowed for the maintenance of the current reservoir storage capacity. PWD would continue with these efforts to remove approximately 38,000 cubic yards of annual sedimentation every one to two years, depending on sediment inflow to the reservoir.

Environmental impacts associated with implementation of the Littlerock Reservoir Sediment Removal Project were evaluated in the Littlerock Reservoir Sediment Removal Project EIR, which was adopted by PWD in 2017 (see summary in **Section 2.7** below). The Littlerock Reservoir Sediment Removal Project EIR is incorporated into this document by reference. The environmental impacts of the Littlerock Reservoir Sediment Removal Project are not analyzed further in this document because the Littlerock Reservoir Sediment Removal Project has been previously evaluated under CEQA and discretionary permits, including from the California Department of Fish and Wildlife (CDFW) have already been obtained.

2.5.4.2 Palmdale Ditch Conversion Project

The Palmdale Ditch (Ditch) is an 8.5-mile-long conveyance system that transports water from Littlerock Reservoir to Lake Palmdale for treatment and use as potable supply within PWD's service area. The Ditch has a conveyance maximum capacity of 20 cfs and is owned by PWD. It is operated by PWD intermittently in accordance with seasonal availability and PWD water allocations. Approximately 1.3 miles of the Ditch has been previously converted to an underground pipeline; the remaining 7.2 miles is an open channel with a mixture of concrete-lined and earthen-bottomed segments. Approximately 30 percent of the Ditch is either lined with concrete or passes through culverts and tunnels, while almost 70 percent of its length remains an unlined, open earthen ditch. There is also one remaining aerial flume supported by a steel trestle located approximately midway between Sierra Highway and Pearblossom Highway.

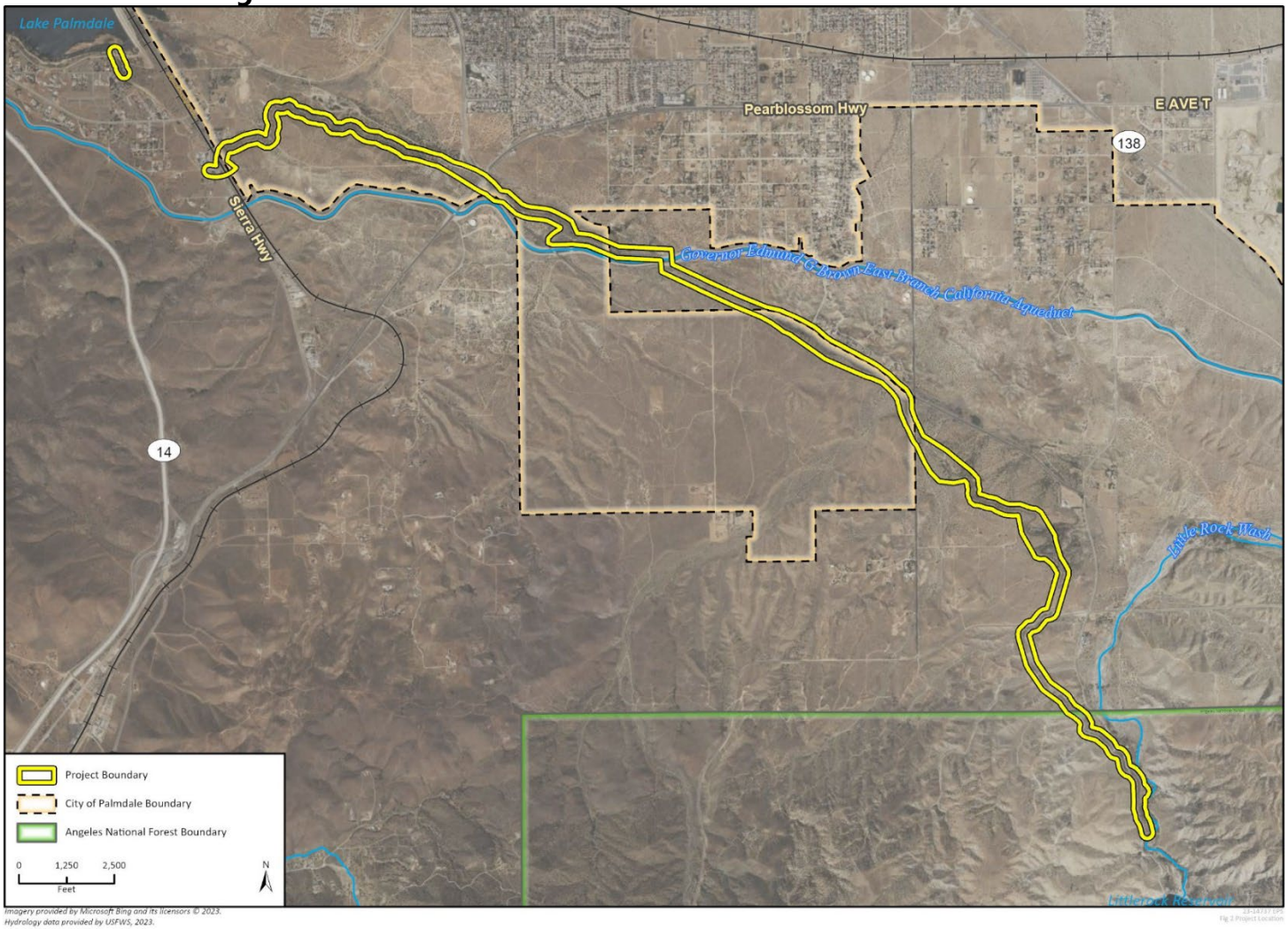
It is estimated that up to 25 percent of water supplies are lost due to evaporation and seepage from the Ditch. To reduce conveyance losses and increase local water supply, PWD would improve the Ditch by replacing the remaining open channel segments with a buried pipeline and increasing the design flow from approximately 20 cfs to 60 cfs. The Ditch conversion is expected to provide an additional 1,450 AFY of local supplies. PWD has received grant funding from both DWR and the United States Bureau of Reclamation to support the Ditch improvements.

The Palmdale Ditch Conversion site consists of an approximately 7.2-mile-long corridor that overlaps 88 parcels in the City of Palmdale and unincorporated Los Angeles County. The site extends generally southeast to northwest from Littlerock Reservoir to Lake Palmdale. The study area includes the existing Ditch and a buffer of varying widths surrounding the Ditch alignment (from 300 to 750 feet wide, depending on the segment). The buffer is intended to encapsulate the existing Ditch, areas where the Ditch may be re-aligned as compared to its current alignment, and potential temporary access, staging, and stockpiling areas. The Palmdale Ditch Conversion site consists of two discontinuous areas. The largest area covers approximately 7.1 miles of continuous Ditch from Littlerock Reservoir to the Los Angeles County Metropolitan Transportation Authority (LA Metro) rail tracks, while the second area covers approximately 0.1 mile of existing Ditch where it outfalls into Lake Palmdale. These two areas are separated by an existing underground pipeline.

The southeastern end of the Palmdale Ditch Conversion site begins at the terminus of an existing pipeline that currently feeds into the Palmdale Ditch approximately 0.3 mile downstream of Littlerock Reservoir within the San Gabriel Mountains National Monument in the Angeles National Forest. From Littlerock Reservoir, the site extends northwest, parallel to Cheseboro Road and within Angeles National Forest, for approximately 4,000 linear feet. After exiting the Angeles National Forest, the site continues to proceed north for approximately one mile, then curves to the northwest and proceeds in a northwesterly direction for approximately 4.6 linear miles, roughly parallel to Barrel Springs Road. Along this 4.6-mile stretch, the site crosses the California Aqueduct, Pearblossom Highway, and the LA Metro rail tracks. This portion of the site terminates at an existing pipeline that proceeds generally northwest for approximately 0.6 mile. This pipeline discharges into the remaining 0.1-mile stretch of the Ditch that proceeds from a point east of existing residences on Rozalee Drive to the northwest where it ends at Lake Palmdale. In total, the Palmdale Ditch Conversion site encompasses approximately 309 acres. The site has variable topography, ranging from approximately 3,200 feet above mean sea level in Angeles National Forest to approximately 2,815 feet above mean sea level at Lake Palmdale.

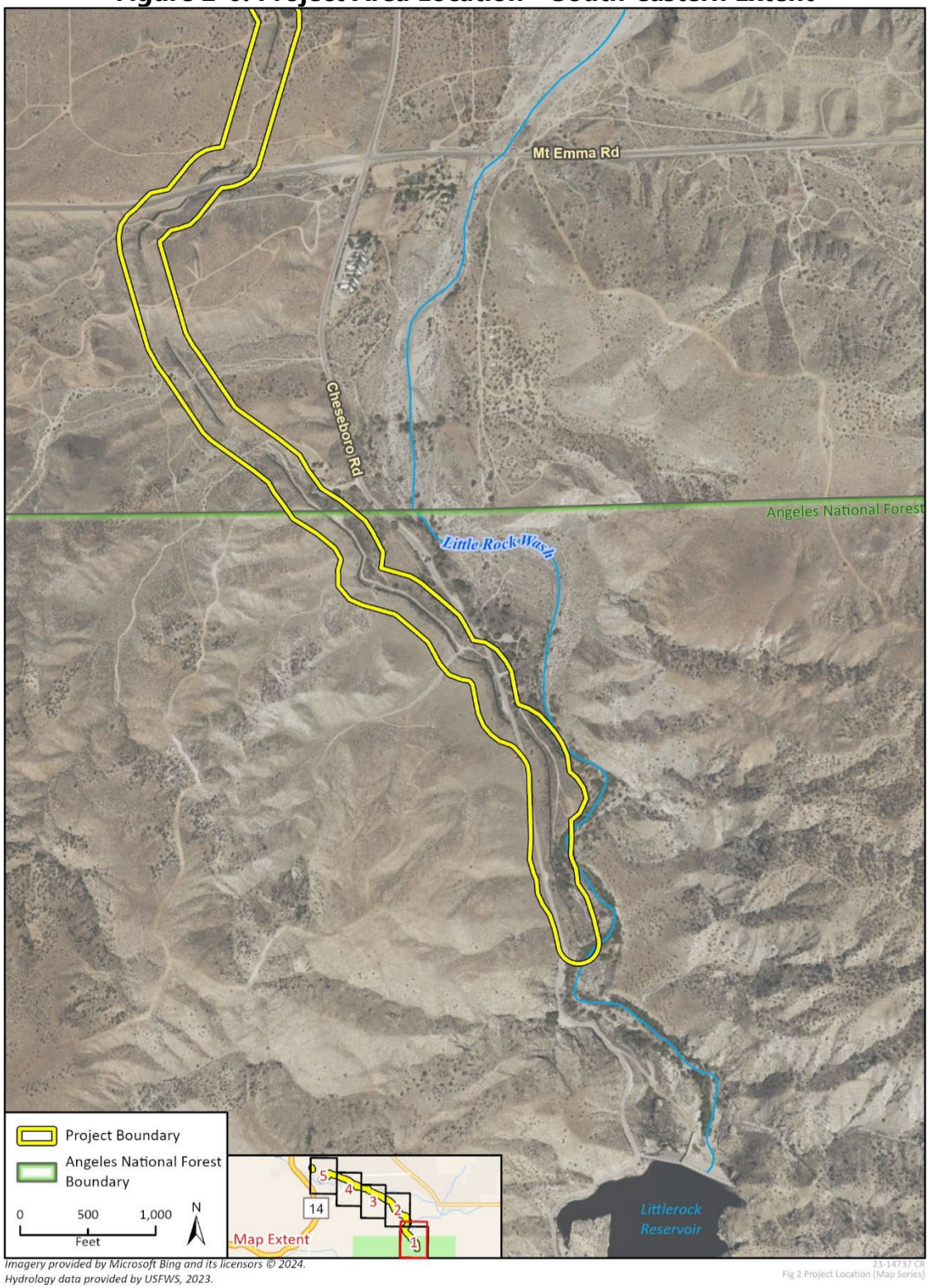
Land uses surrounding the Palmdale Ditch Conversion site consist generally of forest land within Angeles National Forest, open space, rural land, and scattered residential development. At various locations, the site is adjacent to the California Aqueduct, Barrel Springs Road, Pearblossom Highway, Sierra Highway, and the Metrolink Antelope Valley Line. Lake Palmdale is adjacent to the northernmost end of the site. The portion of the Palmdale Ditch Conversion site within Angeles National Forest is designated as Formally Classified Lands, which are defined in 7 Code of Federal Regulations (CFR) Section 1970.555 to include properties administered by federal, State, or local agencies or those that have been given special protection through formal legislative designation and include national and State parks, wilderness areas, State or national forests, wild and scenic rivers, and the Coastal Zone. **Figure 2-5** through **Figure 2-10** show the site in context. **Figure 2-11** and **Figure 2-12** show representative photographs of the existing Palmdale Ditch Conversion site.

Figure 2-5: Palmdale Ditch Conversion Site Location – Full Extent



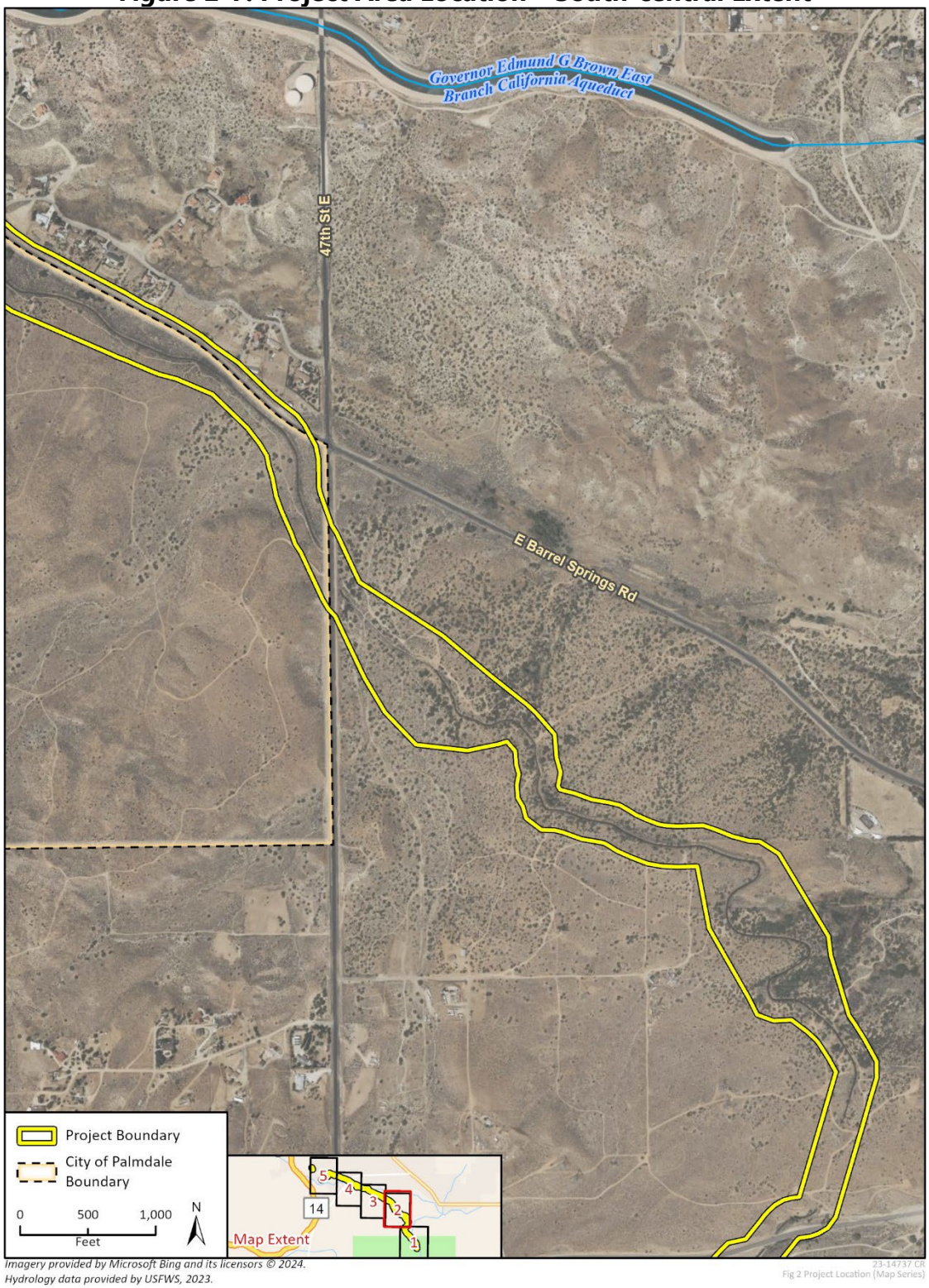
Source: Rincon 2024

Figure 2-6: Project Area Location – South-eastern Extent



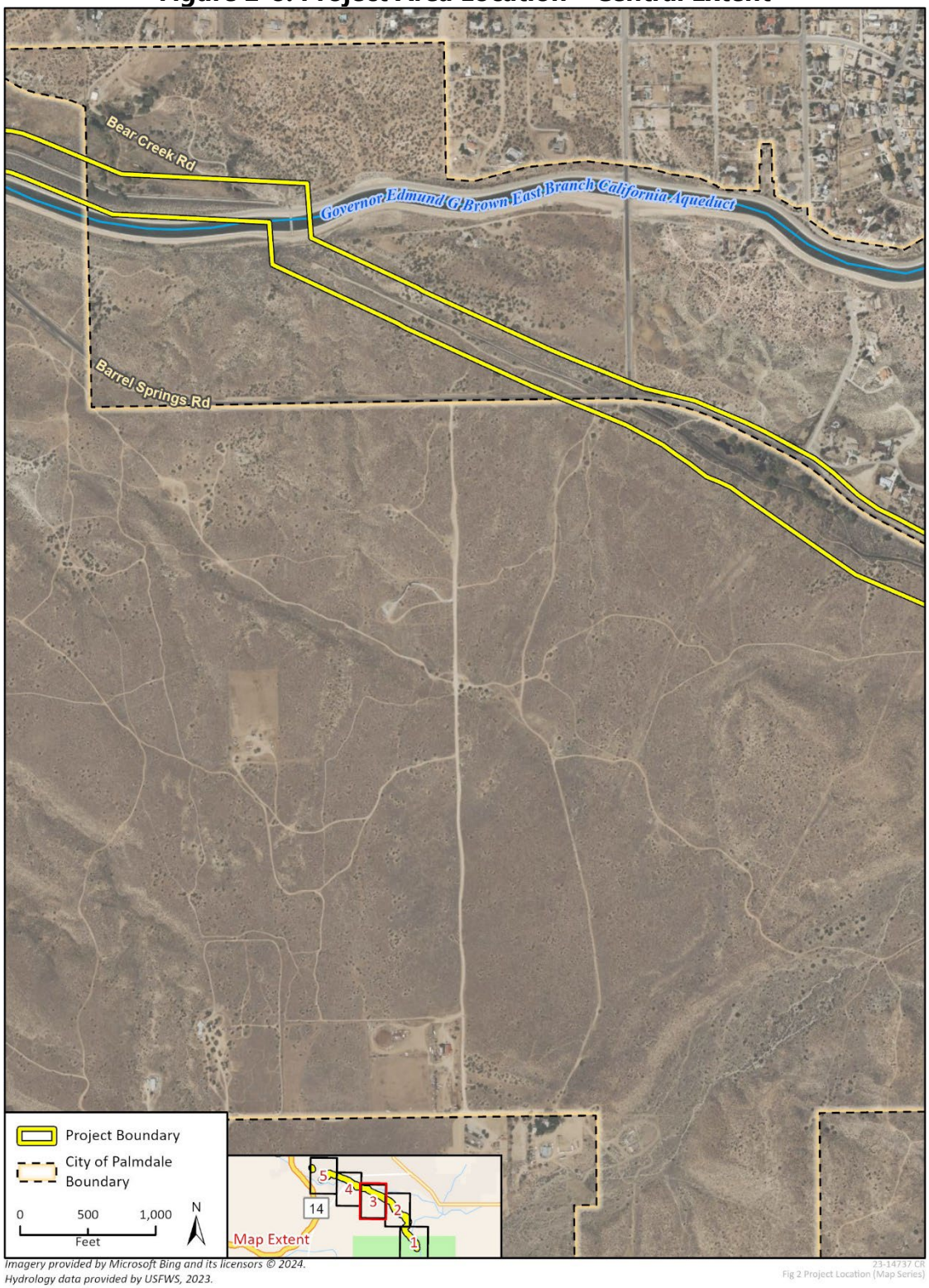
Source: Rincon 2024

Figure 2-7: Project Area Location – South-central Extent



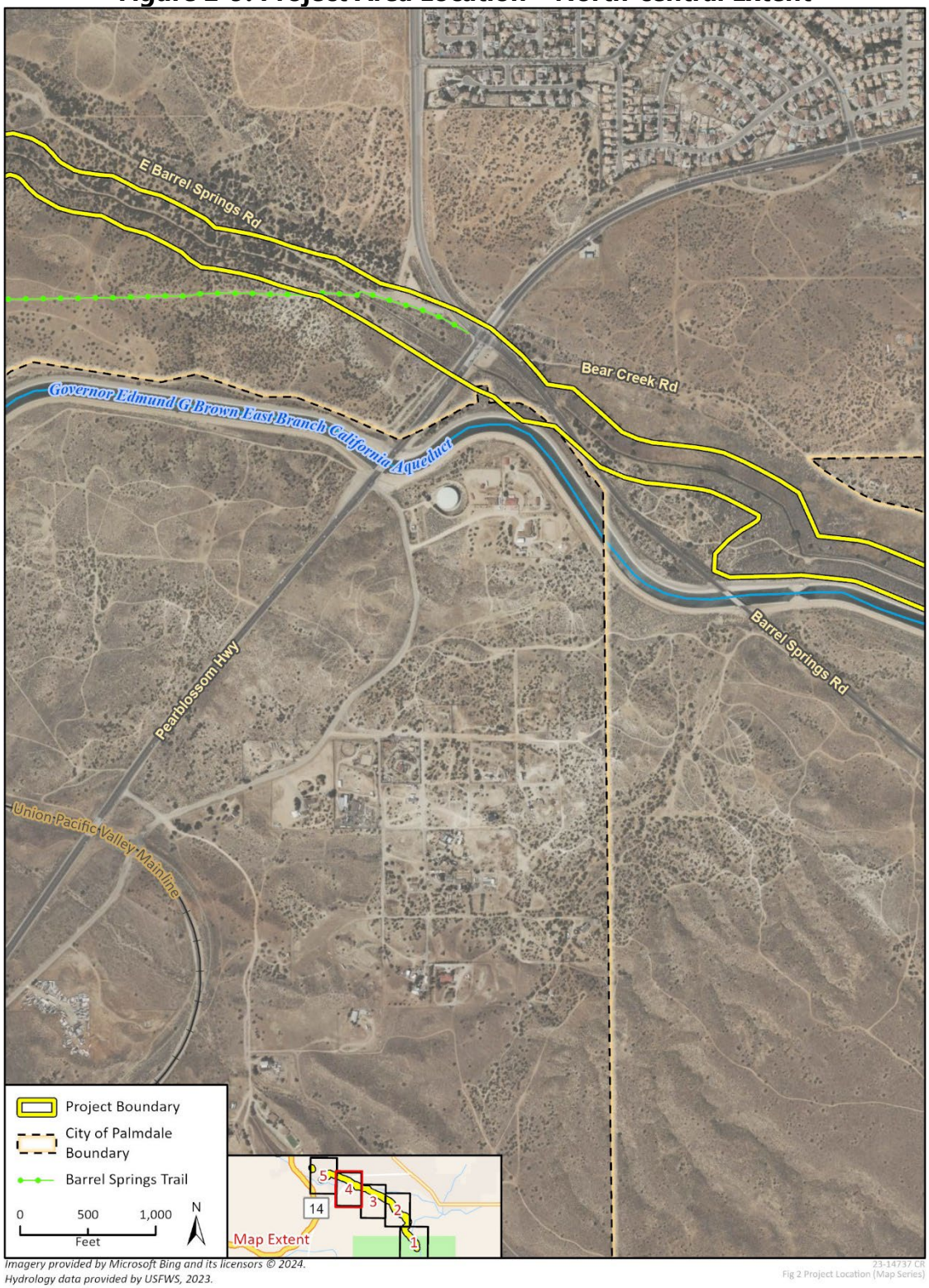
Source: Rincon 2024

Figure 2-8: Project Area Location – Central Extent



Source: Rincon 2024

Figure 2-9: Project Area Location – North-central Extent



Source: Rincon 2024

Figure 2-10: Project Area Location – Northwestern Extent

Source: Rincon 2024

Figure 2-11: Representative Site Photographs – Set 1

Photograph 1. View southeast of Palmdale Ditch approximately 1,500 feet northeast of Cheseboro Road undercrossing in Angeles National Forest.

Photograph 2. View southeast of Palmdale Ditch, approximately 760 feet northwest of the Barrel Springs Road undercrossing.

Photograph 3. View southwest of Palmdale Ditch, immediately south of the Mt. Emma Road undercrossing.

Photograph 4. View northeast of Palmdale Ditch near Bear Creek Road undercrossing.

Figure 2-12: Representative Site Photographs – Set 2

Photograph 1. View southeast of Palmdale Ditch approximately 425 feet east of 47 Street E undercrossing.

Photograph 2. View southeast of Palmdale Ditch approximately 630 feet west of Barrel Springs Park and Ride lot.

Photograph 3. View north of Palmdale Ditch approximately 2,700 feet east of State Route 14 undercrossing.

Photograph 4. View south of Palmdale Ditch approximately 240 feet north of Lake Palmdale.

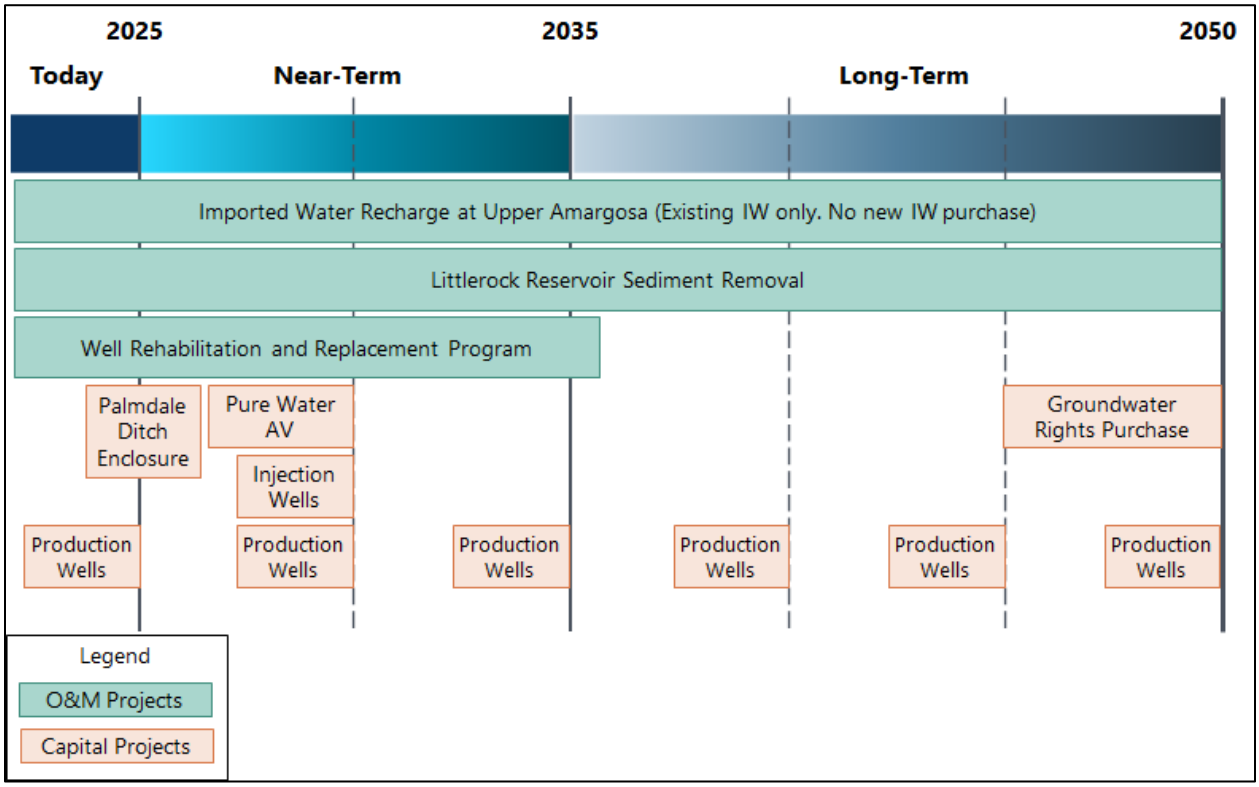
2.5.5 CONSERVATION

Under the proposed Project, PWD would continue to monitor and report on effectiveness of conservation programs; regularly review and coordinate PWD and City Ordinances and Policies; coordinate its conservation efforts with other Antelope Valley water purveyors; and achieve conservation objectives set by the State as part of Assembly Bill (AB) 1668 and Senate Bill (SB) 606. No activities that meet the definition of a "Project" under CEQA are planned for conservation activities and therefore no CEQA documentation is required.

2.5.6 CONSTRUCTION SCHEDULE

The proposed implementation schedule for these actions is summarized in **Figure 2-15** below. High-priority activities are scheduled for implementation in the near-term (2025 to 2035) to maximize existing supplies and meet long-term demands. The proposed implementation schedule is divided into operation and maintenance (O&M) and capital projects. Projects that would maintain current facilities or would not require capital outlay are designated as O&M projects, while new facilities that would require capital outlay are designated as capital projects. In the near-term, PWD would continue to recharge imported water at the Upper Amargosa Creek Recharge Project, continue to remove sediment to maintain capacity at Littlerock Reservoir, and would implement the well rehabilitation and replacement program. It is assumed that the Palmdale Ditch Conversion and Pure Water Antelope Valley projects would be implemented in the near-term, along with necessary injection and production wells to produce stored water. Given that significant capital projects would be implemented in the near-term, additional new supply from groundwater rights purchases would not be required until the end of the planning period (2045 to 2050).

Figure 2-13: Implementation Schedule



Note: The Palmdale Ditch Conversion project is referred to as the Palmdale Ditch Enclosure in the figure above.

2.5.7 Construction Activities

Construction activities would be required for the installation of new facilities and rehabilitation of existing facilities throughout the PWD service area. Construction activities would not be required for proposed Project components that are already operational, including SWP turn-outs, the Upper Amargosa Creek Water Recharge Project, and Littlerock Reservoir sediment removal, nor would construction activities be required for conservation. Construction activities discussed below do not include proposed Project components that are already evaluated under separate project-specific CEQA documents, such as new groundwater production wells. PWD conducts project-level CEQA evaluation for groundwater production wells under its 2018 Water System Master Plan (WSMP) Program EIR (see Section 2.7.3). Project-specific construction activities discussed in this section are for Project components still to be constructed: the Palmdale Ditch Conversion project, the Pure Water Antelope Valley project, and rehabilitation or replacement of existing wells.

2.5.7.1 Pure Water Antelope Valley

The Pure Water Antelope Valley project would directly inject purified water from an Advanced Water Purification Facility (AWPF) into the saturated zone of an aquifer via an injection. The location of the AWPF is sited near East Avenue Q and 25th Street East on currently undeveloped land, just east of the PWD headquarters (see **Figure 2-4**). Construction of the AWPF would include approximately 7,700 linear feet of 18-inch diameter pipe to convey tertiary treated water from the Palmdale Water Reclamation Plant to the AWPF. The AWPF would be comprised of major treatment units, including microfiltration, primary reverse osmosis, secondary reverse osmosis, ultraviolet systems, and ancillary facilities such as break tanks, transfer pumps, and chemical pump skids. Equipment for the AWPF would be housed in a pre-engineered metal building, and a separate operations and laboratory building would be constructed adjacent to the AWPF. Purified water, treated and produced from the AWPF, would be conveyed by approximately 500 linear feet of 16-inch diameter pipelines to new injection wells, which would be located in the vicinity of the AWPF site. Approximately 17,000 linear feet of 6-inch diameter pipelines would convey brine from the reverse osmosis system to new evaporation ponds for disposal at a separate nearby location. The brine ponds are sited northeast of the Palmdale Water Reclamation Plant (see **Figure 2-4**).

2.5.7.2 Pipelines

Construction of proposed pipelines would involve trenching using a conventional cut and cover technique, or jack-and-bore or directional drilling techniques where necessary to avoid sensitive land features or roadway intersections. Dewatering may be required depending on the location. New pipelines would be installed primarily within existing roadways and easements to the extent feasible. The trenching technique would include saw cutting of the pavement where applicable, trench excavation, pipe installation, backfill operations, and re-surfacing to the original condition.

Trench width and depth would depend on the size of the pipe to be installed, which would range from six to 36 inches. Excavation depths would be six inches below the bottom of the pipes, and typically, the top of all water mains would be 42 inches below the curb at the street surface. Trench width would be at least 12 inches greater than pipe diameters. The construction corridor would be wide enough to accommodate the trench and to allow for staging areas and vehicle access. Offsite construction staging areas would be identified by contractors for pipe lay-down, soil stockpiling, and equipment storage. The length of an open trench would not exceed 100 feet at any time, and on average 50 to 500 feet of pipeline would be installed per day.

The recycled water conveyance pipelines associated with the Pure Water Antelope Valley would be constructed in a similar method as those evaluated in the 2014 Recycled Water Facilities Plan Mitigated Negative Declaration. As described in the 2014 Recycled Water Facilities Plan Mitigated Negative Declaration, recycled water conveyance pipelines would be constructed within existing roadways whenever possible. The majority of sections would use standard open-cut trenching techniques, except where surface features such as high-volume roadways, state routes, or storm drains may require special techniques to avoid disturbance, such as jack-and-

bore or directional drilling. Standard installation of the pipelines using trenching techniques would proceed at the rate of approximately 100 feet per day in more difficult conditions, and 200 to 300 feet per day in easier conditions, with an average estimate of 200 feet per day. The work zone (maximum construction area at any given time) would be between 300 to 400 feet long. For work within the roadways, trench width would be approximately four feet, with active work areas of about eight feet on one side of the trench and 10 to 12 feet on the other side for access by trucks and loaders. This would result in a total construction zone approximately 20 to 30 feet wide. Pipeline excavation depths would probably range from five to 20 feet, with an average of about six to seven feet to the bottom of the pipe. Excavated trench materials would be redistributed over the completed pipeline area and/or transported off site.

Trenches would be backfilled at the end of each work day or temporarily closed by covering with steel trench plates. The construction equipment needed for pipeline installations generally includes backhoes, excavators, dump trucks, shoring equipment, steam roller, and plate compactor. Typically, three to six workers would be required during various phases of pipeline installation. Excavated soils would be reused as backfill and otherwise disposed offsite. Once pipelines are installed, the disturbed area would be restored to pre-construction conditions.

Traffic control would be necessary during pipeline construction within city and county roadways. Typically, five to 10 workers would be required for traffic control during pipeline installation. Equipment necessary for traffic control includes changeable message signs, delineators, arrow boards, and K-Rails. The traffic control plan for each pipeline project would be coordinated with the applicable jurisdictions, including the City and County of Los Angeles.

Palmdale Ditch Conversion Project

The Palmdale Ditch Conversion project component would involve the conversion of approximately 7.2 miles of the Palmdale Ditch with a buried 48-inch diameter pipeline made from reinforced concrete or high-density polyethylene. Of the 7.2-mile length, approximately 6.4 miles is currently open-channel with a mixture of concrete-lined and earthen-bottomed segments, which would be converted to pipeline. Approximately 0.5 mile of the Ditch is currently within pipelines, specifically at its overcrossing of the California Aqueduct and below Los Angeles Department of Water and Power electrical lines, or concrete tunnels. These pipelines and tunnels would be inspected and rehabilitated. Approximately 0.1 mile of the Ditch currently feeds through road culvert crossings under various City and County roads. The Palmdale Ditch Conversion project component involves inspection, rehabilitation, and replacement of these crossings, as needed. Along open-channel segments of the Ditch where the proposed pipeline is placed directly in the existing Ditch alignment, the Ditch would be backfilled following pipeline installation. Along open-channel segments of the Ditch where the proposed pipeline is placed outside the existing alignment, the Ditch would either be left in its current condition or filled in, depending on the results of ongoing discussions with interested parties and regulatory agencies. In addition, any buried pipelines or tunnels expected to remain in service as part of the

improved Ditch would also be inspected and rehabilitated, as necessary, to ensure a fully functioning system upon completion of the improvements.

Ditch components would be located primarily underground. Minor aboveground facilities, such as blow-off and air release assemblies and flumes approximately two to three feet in height, may be installed for proper pipeline operation. To the extent feasible, these facilities would be sited outside of the public's line of sight. No new permanent sources of lighting would be installed as part of the Ditch improvements.

The Ditch improvements would also include installation of a new future turnout to the California Aqueduct, which would be located on the north side of the California Aqueduct, west of the Ditch's overcrossing of the Aqueduct. The new future turnout would be sized to convey up to approximately 30 cfs of water from the California Aqueduct to the proposed pipeline. The new future turnout would include a connection to the proposed pipeline, a new headwall[3], a trash rack, a meter, an approximately 5 to 10-kilowatt diesel backup generator (similar or equivalent to Cummins Model C10D6), and other required appurtenances. The new future turnout may also include a one-story controls/electrical building that would have a footprint of approximately 100 square feet. The building would likely be constructed with masonry block walls and a sheet metal roof, or equivalent. The new future turnout and associated components would be designed and implemented in accordance with DWR's Division of Operations and Maintenance's General Components for New Turnouts guidance. The new future turnout would provide PWD with improved redundancy and reliability in accessing its existing State Water Project allocation and would not result in additional water supplies.

Construction of the Ditch improvements would occur over an approximately 10-month period between approximately March 2025 and December 2025 and would involve clearing/grubbing, demolition, excavation, pipeline installation, paving, and site restoration. Construction is expected to proceed linearly along the alignment, beginning with clearing/grubbing, followed by demolition and pipeline installation at a rate of approximately 200 linear feet per day. Asphalt paving at roadway crossings disturbed by construction would be accomplished initially with temporary paving and ultimately with permanent paving once all road crossings have been completed. Approximately two to 10 construction workers would be on site on any given day. Depending on schedule constraints, construction may occur simultaneously at multiple locations along the alignment at any given time. Project construction would be scheduled to avoid construction activities within 500 feet of suitable habitat for tricolored blackbird (Agelaius tricolor) in the vicinity of Lake Palmdale from mid-March to June. In addition, Project construction would be scheduled to avoid construction activities within 500 feet of suitable habitat for southwestern willow flycatcher (*Empidonax traillii extimus*) and least Bell's vireo (*Vireo bellii pusillus*) in the vicinity of Little Rock Wash from mid-March to August. Suitable habitat for these species would not be removed during Project construction.

Construction activities would typically occur on Monday through Friday during work hours allowed by local ordinances (6:30 a.m. to 8:00 p.m. on Monday through Saturday in Palmdale

[3] A headwall is a wall that is placed at the entrance or outlet of a drainage pipe to prevent erosion.

and 7:00 a.m. to 9:00 p.m. on weekdays/8:00 a.m. to 6:00 p.m. on Saturday in unincorporated Los Angeles County). Due to schedule constraints, work on Saturdays and Sundays may be required and would be conducted in locations at least 500 feet from residential areas during similar timeframes. Nighttime construction is unlikely to be required; however, portions of the proposed pipeline requiring road crossings within City and/or County rights-of-way constructed via open-cut methods may require nighttime construction to minimize traffic impacts.

Demolition of some existing infrastructure would be required to accommodate the proposed Ditch improvements. Some of the existing 48-inch diameter culverts within City and County roadways, ranging in length from 125 to 350 feet, would be removed and replaced. Portions of headwalls at bridges and tunnels along the proposed alignment may also need to be demolished or modified to allow for the construction of new manhole structures and the associated tie-ins. Stormwater overcrossings may be demolished as well to allow for pipeline installation. In addition, some portions of the existing Ditch may require demolition, such as an existing flume supported by a trestle located approximately 0.6 mile west of the intersection of State Route 138 and Barrel Springs Road. The existing concrete lining along portions of the Ditch would be removed in locations where the proposed pipeline is placed in the same alignment as the existing Ditch. Rock breaking may be required to install portions of the proposed pipeline in locations with exposed boulders and rock faces.

To install approximately 30,000 linear feet of the new pipeline open-cut methods would be used. For open-cut excavation, the width of the trench would be approximately eight feet wide and eight feet in depth on average with a maximum depth of approximately 18 feet. For certain segments of the proposed pipeline (approximately 6,800 linear feet), the new pipeline would be placed in the same alignment as the existing Ditch or nearby. The trench would be backfilled with a specified engineered import fill material, such as a select granular aggregate material, controlled low-strength material (CLSM), or concrete. For sections of the alignment beneath existing bridges and through tunnels (approximately 1,400 linear feet), the proposed pipeline would be installed by slip-lining, a process that involves installing a smaller carrier pipeline into a larger host pipeline, which avoids disturbance of the surrounding structures. The existing pipeline over the California Aqueduct that is part of the existing Ditch system would be rehabilitated either via cured-in-place pipeline or other slip-lining method. Trenchless methods (e.g., auger bore/jack) would be used to install the new pipeline below the alignment's crossing of Pearblossom Highway (approximately 150 linear feet). If trenchless methods are required, the bore pit would be approximately 400 square feet, and the receiving pit would be approximately 100 square feet. Where existing culverts or tunnels exist, the new pipeline would connect to these existing facilities, provided they are sized to convey the anticipated increased flow rate and are in good condition. A minor amount of groundwater dewatering during construction may be necessary in two locations where the groundwater table was found to be near the planned depth of excavations during the geotechnical field investigation. The exact method of disposal for groundwater produced during dewatering would be determined by the construction contractor(s) and may include methods such as land application or discharge to the existing Ditch. However, disposal to other surface water bodies, such as Little Rock Wash, would not be allowed. The contractor would be required to comply with applicable National Pollutant

Discharge Elimination System (NPDES) permit and/or Waste Discharge Requirements for the selected method(s) of disposal, including any water quality standards that may require pre-treatment prior to discharge.

Construction equipment would generally consist of a backhoe, concrete and mortar mixer, concrete/industrial saw, compactors, compressor, crane, crawler tractor, dozer, excavator, generator, front-end loader, paving equipment, roller, forklift, signal board, sweeper, and surfacing equipment (or similar/equivalent equipment types) as well as material delivery trucks and personal contractor vehicles. Construction would require approximately 110,000 cubic yards of cut and 126,000 cubic yards of fill material. Assuming only 75 percent of the cut material is suitable for re-use, approximately 82,500 cubic yards of the cut soil would be reused as fill material with the remainder exported. Approximately 44,000 cubic yards of fill material would be imported.

At each active construction site along the Ditch alignment, haul trucks would make approximately 18 roundtrips per day to and from the site. Solid waste and soil material generated during construction would be hauled primarily to the Antelope Valley Public Landfill using Barrel Springs Road, the State Route 14, Pearblossom Highway, Sierra Highway, East Avenue S, Tierra Subida Avenue, and West City Ranch Road. The exact haul route would ultimately depend on the location of construction along the Ditch alignment at any given time. The travel distance for haul trips would range from approximately 4.5 miles to 12.5 miles.

Construction equipment and materials staging, stockpile areas, and construction worker parking areas would occur within the site. The specific locations of staging, stockpile areas, and parking areas within the boundaries of the Project area would ultimately be determined by the contractor. To provide a conservative estimate of project impacts, this EIR evaluates potential impacts from staging, stockpiling, and parking within the entirety of the Palmdale Ditch Conversion site.

Construction activities would be subject to the requirements of the statewide NPDES Construction General Permit, which requires preparation of a Stormwater Pollution Prevention Plan (SWPPP). Exposed areas would be watered as necessary to control fugitive dust, and watering would likely occur on an hourly basis during site preparation and grading activities. Vehicle speeds on unpaved roads would be limited to 15 miles per hour. As part of the encroachment permitting process, traffic control plans would be prepared for work within the City, County, and LA Metro/Metrolink/Southern California Regional Rail Authority rights-of-way as well as within Angeles National Forest.

2.5.7.3 Well Replacement

Under the proposed Project, five of PWD's existing groundwater production wells would be replaced in the near term (i.e., between 2025 and 2035). Replacement wells would be developed in the same physical location as existing wells. Well replacement would consist of three stages: drilling and construction of the new well, well equipping, and destruction of the old well. Construction activities would take place over the course of approximately one year per well,

including well drilling and construction, well equipping, and demolition. No more than one of PWD's existing groundwater production wells would be replaced within a single year between 2025 and 2035.

Well drilling and design would be completed in accordance with California Well Standards Bulletin 74-81 and Bulletin 74-90. Well drilling is assumed to require two to five weeks of continuous drilling operation (depending on well depth), where drilling operations for 24 hours/day are needed to prevent borehole collapse. Well equipping includes the construction of all replacement above-grade facilities as well as below grade pipelines to connect the replacement well to the potable water distribution system. Above grade facilities that may need replacement include control building ventilation, equipment, pumps, filters, tanks, and/or meters. Below grade facilities may include drain system piping or air gap structures, in addition to the pipelines to connect the replacement well to the potable water distribution system. Additional structures at replacement wells may include fencing or walls with bollards around the pump and controls to prevent potential damage by on-site utility vehicles.

Potable water distribution pipelines could include either a 12-inch diameter ductile pipeline or 18-inch diameter ductile, concrete mortar and lined steel per PWD standards. Sewer system pipelines would include PVC pipelines potentially ranging in diameter from 6- to 8-inches to allow discharge of raw groundwater prior to bringing the well online or out of standby mode. Construction of pipeline to connect the replacement wells to the PWD's water distribution and sewer systems would occur within the existing right-of-way (i.e., along public roads, existing easements) with proper notice and traffic mitigation measures in place prior to and during construction.

The width of pipeline construction zones generally would be 20 feet. In general, the pipeline trench would be excavated to a depth of up to six feet and would be approximately 10 feet wide. After trenching, the pipeline would be placed in the trench. The trench would then be backfilled with native soil excavated from the trench to the extent feasible and appropriate, and then compacted to meet applicable compaction requirements. However, depending on the soil conditions of the excavated materials, imported backfill could be necessary for compatibility and stability. Once the trenches are backfilled, disturbed areas would be graded to restore to approximate pre-construction conditions and repaved or revegetated with native plant seed mix or turf as appropriate for the site. During installation, open trenches within roadways would be covered at the end of each workday with steel plates or trench backfilling to accommodate vehicle access during non-work hours. Temporary lane or road closures may be required during construction along some of the pipeline routes.

Construction of replacement well equipping facilities would begin approximately six weeks after the beginning of well drilling. Additional site clearing and grubbing beyond that conducted for well drilling may be required. Site excavation and grading would be minor. Following the completion of all construction activities, unpaved areas disturbed due to equipment staging or use will be restored to pre-construction conditions.

The process for well destruction depends on the size and depth of the well and casing materials. Generally, for shallower and/or small diameter wells, the well would be over-drilled, and the borehole would be backfilled with grout or another annular sealing material. Larger or deeper wells would require perforating the casing (often with a subsurface explosion containing bb's) and then pressure-grouting the well/borehole and capping above-grade with cement. The sealing material would completely fill the boring. Well deconstruction would range from approximately one to four weeks depending on the size and depth of the well from start to finish of construction activities. All wells would be destroyed in accordance with California Well Standards (DWR Bulletin 74-81 and 74-90).

Construction equipment would generally consist of a backhoe/loader, excavator, compactor, drilling rig with support vehicles, crane, utility truck, water truck, welder, compressor, pump, pick-up trucks, concrete pumper, cement mixer, asphalt truck, and generator. There would be an average of approximately 30 worker trips per day during construction with intermittent days requiring up to 90 vehicle trips and some days requiring only one or two trips. In addition to the well site footprint, a nearby staging area of approximately 60 feet by 90 feet would be needed for all required equipment to minimize disturbance to existing facilities during construction. Existing paved areas at replacement well locations would be used for staging and materials lay-down. Where paved areas for staging are not available, staging would occur within the 100-foot radius of the wellhead location and the site restored following construction.

Construction activities would typically occur on Monday through Friday during work hours allowed by local ordinances (6:30 a.m. to 8:00 p.m. on Monday through Saturday in Palmdale and 7:00 a.m. to 9:00 p.m. on weekdays/8:00 a.m. to 6:00 p.m. on Saturday in unincorporated Los Angeles County). Due to schedule constraints, work on Saturdays and Sundays may be required and would be conducted in locations at least 500 feet from residential areas during similar timeframes. Nighttime construction is unlikely to be required.

2.5.8 Operation and Maintenance

The proposed Project represents a shift in PWD's water supply portfolio, which, in turn, would result in a shift in O&M activities and energy. A comparison of the water deliveries between the proposed Project and current PWD operations is presented in **Figure 2-3** above.

Operation of facilities that are already operational, such as ongoing groundwater recharge, imported supplies, and Littlerock Reservoir sediment removal would not substantially change as a result of the shift in PWD's water supply portfolio. Facilities in the PWD service area would be supplied with electrical power from Southern California Edison. In addition, PWD generates power through solar panels. PWD's operations electricity usage was 17,220,534 kilowatt hours (kWh) in 2022.

The Pure Water Antelope Valley project may involve a minimal increase in PWD staff to operate the site. Maintenance activities of the facilities may include, but are not limited to, periodic removal of accumulated sediment and debris, replacement of non-operational machinery, and inspection and maintenance of all structures.

Once the Palmdale Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Palmdale Ditch. Maintenance would involve inspection of the pipeline approximately every five years, which would consist of accessing the pipeline at various manhole structures, cleaning the pipeline as needed using a jetter truck and vacuum truck to remove debris, and using inspection equipment to take video footage of the pipeline interior. Vegetation maintenance and trash removal activities along the Ditch would no longer be conducted because the pipeline would be located underground and would not be subject to obstruction by vegetation overgrowth and trash dumping. Portions of the existing Ditch that are not backfilled during Project construction would be left in place and would no longer be maintained by PWD staff. A future turnout would only operate at times when PWD is not using the proposed pipeline to convey water from Littlerock Reservoir to Lake Palmdale. The proposed Project would not require modifications to PWD's existing water rights or SWP allocation and would not result in additional water supplies beyond those afforded to PWD under its existing water rights. A nominal increase in PWD's systemwide electricity consumption may occur to intermittently operate the new future turnout. The backup generator associated with the new future turnout would be tested upon initial start-up and on a monthly basis thereafter with each testing event lasting for approximately 30 minutes during normal working hours (7:00 a.m. to 5:00 p.m.).

2.5.9 Anticipated Permits and Approvals

Construction and operation of proposed facilities would occur within existing PWD facilities sites, roadways, on vacant lands, or on other private lands. Ultimate locations of necessary facilities would be determined during the design and implementation phases and would be evaluated in subsequent CEQA review. Potential regulatory agencies that may have approval requirements are identified in **Table 2-7**, and this list may be expanded for individual activities.

Table 2-7: Regulatory Requirements and Authorizations and Approvals

Agency	Type of Approval	Water Supply Element
California Department of Fish and Wildlife	Section 1602 Streambed Alteration Agreement	Local Supplies – Palmdale Ditch Conversion
California Department of Fish and Wildlife	Incidental Take Permit	Local Supplies – Palmdale Ditch Conversion
Antelope Valley Air Quality Management District (AVAQMD)	Permit to Construct and Operate	Local Supplies – Palmdale Ditch Conversion
LA Metro	License Agreement, Encroachment Permit	Local Supplies – Palmdale Ditch Conversion

Agency	Type of Approval	Water Supply Element
Metrolink	Encroachment Permit	Local Supplies – Palmdale Ditch Conversion
Los Angeles County	Grading Permit, Road Permit, Encroachment Permit	Local Supplies – Palmdale Ditch Conversion
Los Angeles County Sanitation District	Industrial Wastewater (IW) Discharge permit; Trunk Sewer Connection permit to discharge brine or other wastewater into sewerage system	Recycled Water – Pure Water Antelope Valley
Los Angeles County Sanitation District	Submittal of detailed project plans and specifications	Groundwater - injection wells and conveyance pipelines Recycled Water – Pure Water Antelope Valley
Los Angeles County Airport Land Use Commission	Submittal of plans for facilities occurring within the Palmdale Regional Airport airport influence area prior to final design	Recycled Water – Pure Water Antelope Valley
Federal Aviation Administration	Notice of Proposed Construction or Alteration	Recycled Water – Pure Water Antelope Valley
Los Angeles Department of Water and Power	Encroachment Permit	Local Supplies – Palmdale Ditch Conversion
City of Palmdale	Encroachment Permit, Grading Permit	Local Supplies – Palmdale Ditch Conversion
U.S. Army Corps of Engineers	Clean Water Act Section 404 Permit	Local Supplies – Palmdale Ditch Conversion
United States Forest Service	Special Use Permit	Local Supplies – Palmdale Ditch Conversion
Lahontan Regional Water Quality Control Board	Clean Water Act Section 401 Water Quality Certification	Local Supplies – Palmdale Ditch Conversion
State Water Resources Control Board	Approval of the SWPPP under the statewide NPDES Construction General Permit	Local Supplies – Palmdale Ditch Conversion

Agency	Type of Approval	Water Supply Element
California Department of Water Resources	Encroachment Permit for facilities that cross the California Aqueduct	Local Supplies – Palmdale Ditch Conversion
California Department of Water Resources	Encroachment Permit, Turnout Agreement	Local Supplies – Palmdale Ditch Conversion
California Division of Occupational Safety and Health	Mining and Tunneling Unit Permit	Local Supplies – Palmdale Ditch Conversion

2.6 SUMMARY OF PREVIOUS AND PLANNED PROJECT SPECIFIC CEQA DOCUMENTATION

An EIR can be prepared on a series of related actions characterized as one large project or program (CEQA Guidelines Section 15168(a)). Prior to implementation, each action in the program must be evaluated to determine if additional environmental documentation is required (CEQA Guidelines Section 15168(c)). If the environmental effects resulting from an action are fully covered by the analysis in the Program EIR and no new mitigation measures are required, then the action is within the scope of the EIR and no additional environmental documentation is necessary (CEQA Guidelines Section 15168(c)(2)). If an action would result in environmental effects not included in the EIR, then additional environmental documentation, such as a Negative Declaration or EIR, would be required (CEQA Guidelines Section 15168(c)(1)). The mitigation measures developed in an EIR may be incorporated into subsequent environmental documents (CEQA Guidelines Section 15168(c)(3)).

This Draft EIR provides an analysis of potential impacts of all construction and operational actions reasonably foreseeable with implementation of the proposed Project. The environmental baseline for determining potential impacts is the date the NOP for the proposed Project was published (CEQA Guidelines Section 15125(a)), in this case August 15, 2023. For each resource area assessed in this EIR, the environmental setting describes existing conditions as of August 15, 2023, unless otherwise indicated. The impact analysis is based on changes to existing conditions that result due to implementation of the proposed Project.

It is the intention of this EIR to provide program-level assessments of the proposed management strategies and projects contained in the proposed Project, unless otherwise noted. Prior to implementation of these strategies and projects, additional analysis will be required to determine the need for subsequent environmental documentation.

Several components of the SWRP Update have been evaluated in previous CEQA documents or are planned to be evaluated in CEQA separate documents, listed and described in the subsections below. The following CEQA documents are incorporated into this EIR by reference.

1. DWR 2020 State Water Project Long-Term Operations EIR
2. City of Palmdale 2009 Upper Amargosa Creek Water Recharge Project EIR, State Clearinghouse (SCH)# 2008091061), and 2018 Supplemental EIR.
3. PWD 2018 Water System Master Plan Program EIR (SCH#2017021042), and 2021 Addendum (provides coverage of the groundwater wells component of the SWRP Update)
4. PWD 2017 Littlerock Reservoir Sediment Removal Project EIR (SCH# 2005061171)
5. PWD 2015 Recycled Water Facilities Plan Mitigated Negative Declaration (SCH# 2014101064) (provides coverage of the advanced recycled water purification facility demonstration plant component of the SWRP Update)
6. Palmdale Recycled Water Authority (PRWA) 2023 PRWA Recycled Water Facilities Plan Addendum No. 2 (SCH# 2014101064) (provides coverage of the pipelines connecting to the advanced recycled water purification facility demonstration plant component of the SWRP Update)
7. PWD Pure Water Antelope Valley future CEQA document

CEQA has been completed on these documents and doesn't require subsequent CEQA review, however, brief descriptions of the projects have been incorporated into this EIR for evaluation of cumulative impacts of the SWRP Update. The following subsections include further descriptions of the previous documentation.

2.6.1 CEQA Documentation for the State Water Project

The environmental impacts of the Long-Term Operation of the California State Water Project (SWP) were evaluated in an EIR (SCH# 2019049121) that was adopted by the California Department of Water Resources in 2020. The Long-Term Operation EIR is incorporated into this document by reference. Copies can be accessed online. The environmental impacts of the Long-Term Operation of the California SWP are not analyzed further in this document because the Long-Term Operation of the California SWP has been previously evaluated under CEQA, and discretionary permits, including from the California Department of Fish and Wildlife have already been obtained.

The purpose of the Long-Term Operation of the California SWP was to (1) provide for continued operation of the SWP and (2) enable delivery of up to the full contracted water amounts while minimizing and fully mitigating the take of listed species consistent with California Endangered Species Act requirements. The objectives included, "to store, divert, and convey water in accordance with DWR's existing water rights to deliver water pursuant to water contracts and agreements up to full contract quantities."

The project consisted of multiple elements that would characterize future operations of SWP facilities, modify ongoing programs being implemented as part of the SWP operations, improve

specific activities to enhance protection of special-status fish species, and support ongoing studies and research on these special-status species to improve the basis of knowledge and management of these species.

A summary of the mitigation measures for the Long-Term Operation of the California SWP is presented in the following table, along with the associated impact significance. An initial study was prepared in November 2019, included as Appendix A to the Final EIR for the State Water Project Long-Term Operations. According to the Initial Study, the project would not have an impact on aesthetics, agricultural resources, air quality, cultural resources, energy, geology, greenhouse gas emissions, hazards and hazardous materials, land use, mineral resources, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, terrestrial biological resources, or wildfire. The long-term operation of the SWP had the potential to adversely affect fish habitat, cause a fish population to drop below self-sustaining levels, and substantially reduce the number or restrict the range of an endangered, rare, or threatened species by altering Delta hydrology and water quality. The EIR focused on the topics that had the potential to result in impacts, aquatic biological resources, and hydrology/ water quality. The EIR also summarized the results of the tribal cultural resources consultations.

Table 2-8: CEQA Impact Summary for Long-Term Operations of the State Water Project

Impact	Impact Significance	Summary of Impacts	Mitigation Measures
Hydrology and Water Quality	Less than significant	SWP operations generally would increase salinity during the late fall and early winter in the years following wet and above-normal water years. However, the SWP will comply with the applicable salinity standards that were established specifically to protect water quality, including beneficial uses for fish and wildlife and agricultural and urban uses. The SWP would not result in a violation of any water quality standard or waste discharge requirement, or otherwise substantially degrade water quality.	None.
Aquatic Biological Resources	Less than significant	The analyses conducted for each life stage of Delta Smelt, Longfin Smelt, Winter-run Chinook Salmon, Spring-run Chinook Salmon, Fall-run and Late Fall-run Chinook Salmon, Green Sturgeon, White Sturgeon, Pacific Lamprey and River Lamprey, native minnows, Striped Bass, American Shad, and non-native freshwater bass, show that impacts on all life stages are less than significant. In addition, because reductions in Chinook Salmon abundance in the ocean likely would not result in population-	None.

Impact	Impact Significance	Summary of Impacts	Mitigation Measures
		level impacts on killer whale, the impacts on Southern Resident Killer Whale are considered less than significant. Therefore, impacts associated with SWP long-term operations in its entirety would not cause a substantial adverse impact on aquatic biological resources, relative to existing conditions.	

2.6.2 CEQA Documentation for Upper Amargosa Creek Water Recharge Project

The environmental impacts of the Upper Amargosa Creek Recharge Project were evaluated in an EIR (SCH# 2008091061) that was adopted by the City in 2009. A Supplemental EIR was adopted in 2018 that evaluated a change in turnout location and pipeline alignment. Construction of the Recharge Project was completed in December 2019. The 2009 EIR and 2018 Supplemental EIR for the Upper Amargosa Creek Recharge Project (SCH #2008091061) are incorporated into this document by reference. Copies can be made available upon request. The environmental impacts of the Recharge Project are not analyzed further in this document because the Upper Amargosa Creek Recharge Project has been previously evaluated under CEQA, and discretionary permits, including from the California Department of Fish and Wildlife (CDFW) have already been obtained.

2009 Environmental Impact Report

The goal of the Upper Amargosa Creek Recharge Project, one of several projects proposed in the Antelope Valley Integrated Regional Water Management Plan, was to increase the ability of local SWP contractors to more fully utilize their allocation of imported SWP water by storing available but unused allocations in the Antelope Valley Groundwater Aquifer for extraction at a later date to satisfy peak summertime demand or improve overall water supply reliability in dry years. The purpose of the Project was to: (1) recharge the Antelope Valley Groundwater Basin using surface water supplies from the SWP and excess stormwater runoff from Armargosa Creek and (2) provide a community native habitat conservation area and nature park. The Upper Amargosa Creek Water Recharge Project consisted of four components:

- Approximately 20-acre recharge facility, including recharge basins and infrastructure;
- a 38-acre community nature park containing multi-use pathways, picnic tables, interpretive plaques, and habitat enhancement/restoration areas;
- a 22-acre native habitat conservation area; and
- 7 acres of open stream channel

The 2009 EIR estimated that maximum recharge, based on a full year operation schedule, ranged from approximately 22,000 AFY to 80,000 AFY, and would average 36,500 AFY. However, because the recharge basins would be expected to be out of operation during summer months when water may not be available, actual operation was expected to recharge between 14,500 AFY to 53,000 AFY and would average approximately 24,300 AFY.

A summary of the CEQA impacts for implementation of the Upper Amargosa Creek Water Recharge Project as evaluated in the 2009 EIR is presented in the table below.

Table 2-9: CEQA Impact Summary for the Upper Amargosa Creek Water Recharge Project

Impact	Impact Significance	Mitigation Measures
Greenhouse Gas Emissions	Unavoidable significant	No feasible mitigation measures
Biological Resources	Less than significant	BIO-1 (Biological Resources Protection Plan) BIO-2 (Reduce Impacts to Amargosa Creek and Associated Riparian and Wetland Habitat) BIO-3 (Reduce Impacts to Migratory and Resident Breeding Birds, Wildlife Movement) BIO-4b.1 (Tamarisk and Cardaria: Identification and Mapping) BIO-4b.2 (Treatment and Control of Invasive Plant Species) BIO-4b.3 (Treatment and Control of Invasive Plant Species) BIO-4b.4 (Invasive Plant Species Removal within the Nature Park) BIO-4b.5 (Preparation of a "Weed Manual") BIO-4b.6 (Annual Inspection of Project Site for Invasive Species) BIO-5.1 (Avoidance of Juniper and Joshua Trees) BIO-5.2 (Transplant of Individual Joshua Trees)
Cultural Resources	Less than significant	CR-1.1 (Archaeological Monitor) CR-1.2 (Project Archaeologist) CR-1.3 (Proper Notification of Human Remains) CR-2.1 (Project Paleontologist)
Geology and Soils	Less than significant	GEO-6 (Installation of Groundwater Monitoring Wells)
Hydrology and Water Quality	Less than significant	WR-1a (Streamflow Monitoring) WR-2a (In-Channel Construction Restrictions) WR-3a (In-Channel Construction Restrictions)

Noise	Less than significant	Noise-1.1 (Construction Equipment) Noise-1.2 (Idling Prohibitions) Noise-1.3 (Equipment Location)

2018 SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

The Upper Amargosa Creek Water Recharge Project evaluated in the 2018 Supplemental EIR remains the same as described in the 2009 EIR except for a turnout location and pipeline alignment, and would consist of:

- A 14.3-acre recharge facility, including recharge basins and infrastructure consisting of six off-channel recharge basins;
- 5,302 feet of 48-inch steel pressure collector pipe from the diversion structure along the margins of the recharge basins;
- 3,269 feet of PVC pressure class collector pipe between 36 and 16 inches in diameter;
- 38-acre community nature park containing multi-use pathways, picnic tables, interpretive plaques;
- Habitat enhancement/restoration areas;
- 22-acre native habitat conservation area;
- 12.4 acres of open stream channel;
- A turnout from the SWP California Aqueduct; and
- An aqueduct diversion pipeline, connecting to the low-pressure collector pipeline.

In summary, the recharge facility would consist of 11 off-channel basins designed to retain water and allow it to infiltrate into the ground. The annual average capacity for the Upper Amargosa Creek Water Recharge Project would be approximately 18,000 AFY.

The CEQA impacts for the turnout location and pipeline alignment changes as evaluated in the 2018 Supplemental EIR were found to be similar to the 2009 EIR, summarized in the table above.

2.6.3 CEQA DOCUMENTATION FOR RECYCLED WATER FACILITIES

As stated in Section 2.4.2, the recycled water facilities included in the proposed Project consist of three components: the Pure Water Antelope Valley Advanced Water Treatment Plant, recycled water conveyance pipelines, and up to five new recycled water injection wells. The Pure Water Antelope Valley Project's advanced water purification facility will be constructed on vacant land near the intersection of 25th Street East and East Avenue Q, located near the existing Palmdale Water Reclamation Plant. Recycled water injection wells will be constructed within the advanced water purification facility area. The tertiary effluent pipeline will be constructed along 30th Street East, East Avenue Q, and 25th Street East. The brine line will be constructed along 25th Street

East, Avenue P, and 40th Street East to connect to the planned brine ponds. The design and location of these facilities has not been finalized, and project specific CEQA documentation will be required prior to construction. However, CEQA documentation has been prepared for the construction of recycled water infrastructure similar to the proposed Project components and review of these documents provides an estimate of the potential impacts and required mitigation anticipated from implementation of the proposed Project recycled water facilities.

Notice of Exemption - Pure Water Antelope Valley Advanced Water Treatment Demonstration Facility

Prior to the implementation of a full-scale advanced water treatment plant, a demonstration facility was constructed for necessary data collection and research to inform the design of a full-scale advanced water treatment plant. The Pure Water Antelope Valley Advanced Water Treatment Demonstration Facility Project was determined to be exempt from CEQA and a Notice of Exemption (SCH# 2022110190) was adopted in 2022.

PWD has been working towards implementation of an advanced water treatment project for recycled water for several years and is currently in the pilot testing phase with the Pure Water Antelope Valley Advanced Water Treatment Demonstration Facility Project. In order to establish the design and operational criteria for a full-scale advanced water treatment plant, and to support regulatory approvals for the full-scale plant, a 30 to 60 gallons per minute demonstration facility will be constructed on a vacant lot adjacent to existing PWD offices (see **Figure 2-2**). Groundbreaking is expected in the summer of 2024. Data collected at the Demonstration Facility will assist in the evaluation of equipment for a full-scale plant, determination of effective treatment and brine disposal, and required microbial reduction to meet the Title 22 requirements for indirect potable reuse and direct potable reuse.

The Pure Water Antelope Valley Advanced Water Treatment Demonstration Facility Project would result in the construction of a new small structure for necessary data collection and research to inform the design of a full-scale advanced water treatment plant. Review of the site did not identify any sensitive biological or cultural resources, and the site is not listed pursuant to Section 65962.5 of the Government Code. Therefore, the project was found to be exempt from CEQA evaluation under Categorical Exemption Class 3 (15303 New Construction or Conversion of Small Structures) and Class 6 (15306 Information Collection).

2014 Recycled Water Facilities Plan Mitigated Negative Declaration -Recycled Water Conveyance Pipelines

As stated in Section 2.4.2, new recycled water conveyance pipelines would be needed between the future Pure Water Antelope Valley facility and the new injection wells. Because the pipeline alignment has not been finalized, no CEQA documentation has been prepared. However, the pipeline would be constructed using similar construction equipment and methods as the recycled water pipeline evaluated in the 2014 Recycled Water Facilities Plan Mitigated Negative Declaration (SCH# 2014101064). While project specific CEQA documentation would be prepared prior to construction of the proposed Project recycled water conveyance pipelines, review of the

2014 Recycled Water Facilities Plan Mitigated Negative Declaration provides a comparison to the potential impacts for the construction and operation of similar recycled water pipeline.

Similar to the recycled water pipeline included in the proposed Project, the majority of the 2014 Recycled Water Facilities Plan Mitigated Negative Declaration pipeline alignment were within developed and paved portions of existing roadways and installed with standard open-cut trenching techniques, except where surface features such as high-volume roadways, State routes, or storm drains may require special techniques to avoid disturbance, such as jack-and-bore or directional drilling. Following the environmental analysis, the Mitigated Negative Declaration determined construction and installation of the recycled water pipeline would not result in any direct significant effects that could not be mitigated to a less than significant level. With implementation of mitigation measures, pipeline construction would not result in substantial adverse effects to biological resources, cultural resources, or humans either directly or indirectly. Once constructed, operation would have no long-term permanent impacts.

2.6.4 CEQA Documentation for the Groundwater Production Wells

The environmental impacts of production wells were evaluated in the PWD Water System Master Plan (WSMP) Program EIR (SCH #2017021042) that was adopted by the PWD in 2018. The WSMP Program EIR evaluated the implementation of the Capital Improvement Plan included in the WSMP. This included construction of various aboveground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. Projects to be implemented by 2020 were considered near-term project components, while projects that would be constructed between 2021 and 2040 were considered long-term projects. The long-term components included five groundwater production wells, identified as FW-01, FW-02, FW-03, FW-04, and FW-05. In 2021, PWD prepared an Addendum to the WSMP PEIR for construction and operation of new Well 36. The Addendum found that Well 36 was within the scope of the original proposal WSMP project and no further environmental analysis was needed.

A summary of the mitigation measures identified for the WSMP project is presented in the following table, along with the associated impact significance. The WSMP Program EIR SCH# 2017021042 is incorporated into this document by reference and copies can be made available upon request.

Table 2-10: CEQA Impact Summary and Mitigation Measures for New Groundwater Production Wells

Impact	Mitigation Measure(s)	Impact Significance
Air Quality and Climate Change	AQ-1, AQ-2	Less than significant with mitigation
Biological Resources	BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6	Less than significant with mitigation

Impact	Mitigation Measure(s)	Impact Significance
Cultural Resources	CUL-1, CUL-2, CUL-3, CUL-4, CUL-5, CUL-6, CUL-7, CUL-8, CUL-9, CUL-10	Less than significant with mitigation
Geology and Soils	GEO-1, GEO-2	Less than significant with mitigation
Hazards and Public Safety	HAZ-1, HAZ-2	Less than significant with mitigation
Hydrology and Water Quality	HYD-1, HYD-2, HYD-3	Less than significant with mitigation
Land Use, Planning, and Recreation	LU-1, LU-2, LU-3, REC-1	Less than significant with mitigation
Noise	NOISE-1, NOISE-2, NOISE-3, NOISE-4, CUM-1	Potentially significant and unavoidable with mitigation
Transportation and Traffic	TR-1, TR-2, TR-3, TR-4	Less than significant with mitigation
Tribal Cultural Resources	TCR-1	Less than significant with mitigation

2.6.5 CEQA Documentation for Littlerock Reservoir Sediment Removal Project

Potential environmental impacts associated with implementation of the Littlerock Reservoir Sediment Removal project were evaluated separately at the project level in accordance with CEQA in the Littlerock Reservoir Sediment Removal project EIR (SCH# 2005061171), which was adopted by PWD in 2017. The Littlerock Reservoir Sediment Removal project EIR (SCH #2005061171) is incorporated into this document by reference. Copies can be made available upon request. The environmental impacts of the Littlerock Reservoir Sediment Removal project are not analyzed further in this document because the Littlerock Reservoir Sediment Removal project has been previously evaluated under CEQA and discretionary permits, including from the California Department of Fish and Wildlife (CDFW) have already been obtained.

The purpose of the Littlerock Reservoir Sediment Removal project was to: (1) restore the Reservoir to 1992 water storage and flood control capacity and maintain that capacity through annual sediment removal; and (2) preserve habitat for the arroyo toad (*Anaxyrus californicus*) through construction of a grade control structure that prevents sediment loss and head cutting of the stream channel upstream of Rocky Point. The project consisted of three components:

- Construction of a subterranean grade control structure within the Reservoir at Rocky Point;

- Total initial removal of approximately 1,165,000 cubic yards of accumulated sediment from within the Reservoir to restore 1992 design water storage and flood control capacity. This initial removal period would occur over a 7 to 12 year timeframe and would include annual restoration activities; and

- Ongoing annual sediment removal (estimated at 38,000 cubic yards per year) to maintain Reservoir design capacity, including annual restoration activities.

The Littlerock Reservoir Sediment Removal project EIR estimated that the reservoir capacity is reduced by siltation at an average annual rate of approximately 38,000 cubic yards of sediment per year, amounting to a loss of approximately 23 AF of water capacity annually. Annual O&M sediment removal would need to occur for the life of the Reservoir in order to maintain the 1992 design capacity. This would require sediment stockpiling and removal. The following table provides a summary of the annual O&M sediment removal evaluated in the Littlerock Reservoir Sediment Removal project EIR.

Table 2-11: Summary of Annual Operation and Maintenance Sediment Removal

Summary of Annual Operation and Maintenance Sediment Removal
Approximately 38,000 cubic yards of sediment removed from the Reservoir annually (actual amount removed would be based on the expected amount of sediment deposition carried into the Reservoir during each year's winter storms)
Would occur sometime after Labor Day and be finished prior to mid-November of each year
Sediment removal activities would occur during daylight hours up to 12 hours per day Monday through Saturday (no work on Sundays or federal holidays)
Maximum annual disturbance of approximately 15 acres within the Reservoir bed.
Maximum of 180 (90 round trip) dump truck trips per day. Requires the use of 6 dump trucks that haul 12 cubic yards/trip, for a total maximum disposal of 1,080 cubic yards per day.
All excavated sediment would be trucked off site to one of two locations: (1) exhausted mining pits at existing quarries within Littlerock or (2) PWD-owned property on 47th Street East, just north of the California Aqueduct
Annual restoration of disturbed areas

A summary of the CEQA impacts for implementation of the Littlerock Reservoir Sediment Removal project EIR is presented in the table below.

Table 2-12: CEQA Impact Summary and Mitigation Measures for Littlerock Reservoir Sediment Removal Project

Impact	Impact Significance	Mitigation Measures/SPCs
Air Quality and Climate Change	Adverse, but not significant	SPC AQ-1 (Limit Engine Idling) SPC AQ-2 (Fugitive Dust Controls) SPC AQ-3 (Off-Road Engine Specifications) SPC AQ-4 (On-Road Engine Specifications) SPC AQ-5 (Reduce Off-Road Vehicle Speeds) SPC GHG-1 (Recycle Construction Wastes)

Impact	Impact Significance	Mitigation Measures/SPCs
Biological Resources	Adverse, but not significant	SPC AQ-2 (Fugitive Dust Controls) SPC AQ-5 (Reduce Off-Road Vehicle Speeds) SPC BIO-1a (Provide Restoration/Compensation for Impacts to Native Vegetation Communities) SPC BIO-1b (Worker Environmental Awareness Program) SPC BIO-2 (Prepare and Implement a Weed Control Plan) SPC BIO-4 (Conduct Pre-Construction Surveys and Monitoring for Breeding Birds) SPC BIO-5 (Conduct Preconstruction Surveys for State and federally Threatened, Endangered, Proposed, Petitioned, Candidate, and Forest Service Sensitive Plants and Avoid Any Located Occurrences of Listed Plants) SPC BIO-6a (Conduct Surveys and Implement Avoidance Measures) SPC BIO-6b (Conduct Clearance Surveys and Construction Monitoring) SPC BIO-6c (Seasonal Surveys During Water Deliveries) SPC BIO-7 (Monitor Construction and Remove Trash and Microtrash) SPC BIO-8 (Conduct Protocol Surveys for Least Bell's Vireo and Avoid Occupied Habitat) SPC BIO-9 (Conduct Pre-Construction Surveys for Swainson's hawks) SPC BIO-11 (Conduct Focused Surveys for Ringtail and Avoid Denning Areas) SPC BIO-14 (Conduct Surveys for Southwestern Pond Turtle and Implement Monitoring, Avoidance, and Minimization Measures) SPC BIO-15 (Conduct Surveys for Two-Striped Garter Snakes and Implement Monitoring, Avoidance, and Minimization Measures) SPC BIO-16 (Conduct Surveys for Coast Range Newts and Implement Monitoring, Avoidance, and Minimization Measures) SPC BIO-17 (Conduct Surveys for Terrestrial Herpetofauna and Implement Monitoring, Avoidance, and Minimization Measures) SPC BIO-18 (Conduct Protocol Surveys for Burrowing Owls) SPC BIO-20 (Survey for Maternity Colonies or Hibernaculum for Roosting Bats)

Impact	Impact Significance	Mitigation Measures/SPCs
		SPC BIO-22 (Conduct Surveys for American Badger and Desert Kit Fox and Avoid During the Breeding Season) SPC FIRE-1 (Curtailment of Activities) SPC FIRE-2 (Preparation of a Fire Plan) SPC FIRE-3 (Spark Arrester Requirements) SPC HYDRO-1 (Fill From Reservoir Excavation Will Not Be Placed in Stream Channels) SPC WQ-1 (Prepare Spill Response Plan) SPC WQ-2 (Prepare a Storm Water Pollution Prevention Plan [SWPPP])
Cultural Resources	Significant impact that cannot be mitigated to a level that is not significant	SPC CUL-3 (Unidentified Human Remains Discovery Procedures)
Geology and Soils	Adverse, but not significant	SPC GEO-1 (Geotechnical Investigation) SPC HYDRO-1 (Fill From Reservoir Excavation Will Not Be Placed in Stream Channels)
Hazards and Public Safety	Adverse, but not significant	SPC WQ-1 (Prepare Spill Response Plan)
Hydrology	Adverse, but not significant	None
Noise	Adverse, but not significant	SPC NOI-1 (Prepare a Construction Noise Complaint and Vibration Plan) SPC NOI-2 (PWD Site Buffer Requirements)
Recreation and Land Use	Significant impact that can be mitigated to a level that is not significant	SPC AQ-1 (Limit Engine Idling) SPC AQ-2 (Fugitive Dust Controls) SPC AQ-3 (Off-Road Engine Specifications) SPC AQ-4 (On-Road Engine Specifications) SPC AQ-5 (Reduce Off-Road Vehicle Speeds) SPC NOI-1 (Prepare a Construction Noise Complaint and Vibration Plan) SPC NOI-2 (PWD Site Buffer Requirements) Mitigation Measure L-1a: Coordinate Project scheduling and maintenance activities with Forest Service Authorized Officer

Impact	Impact Significance	Mitigation Measures/SPCs
		Mitigation Measure L-1b: Provide Compensation to Forest Service for Lost Recreational Opportunity SPC TRA-2 (Pavement Rehabilitation– Public or National Forest Roadways) SPC LAND-2 (Design Grading to Accommodate OHV Access)
Transportation and Traffic	Significant impact that can be mitigated to a level that is not significant	Mitigation Measure T-1 (Restrict Haul Truck Movements during PM Peak Period) SPC TRA-1 (Prepare Traffic Control Plan)
Water Quality	Adverse, but not significant	SPC WQ-1 (Prepare Spill Response Plan) SPC HYDRO-1 (Fill From Reservoir Excavation Will Not Be Placed in Stream Channels)

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CHAPTER 3. ENVIRONMENTAL IMPACT ASSESSMENT

This chapter of the Environmental Impact Report evaluates the potential environmental impacts associated with the construction and operation of the proposed Project. Chapter 3 has been prepared in accordance with CEQA Guidelines Section 15125 and 15126. The EIR is intended to serve as an informational document for public agency decision-makers and the public regarding the proposed Project.

3.0 INTRODUCTION AND ENVIRONMENTAL ANALYSIS APPROACH

3.0.1 SCOPE OF THE ENVIRONMENTAL IMPACT ANALYSIS

Chapter 3 provides an analysis of the direct and indirect environmental effects of the proposed Project with respect to existing conditions at the time the Notice of Preparation (NOP) was published in August 2023. A determination of whether an impact is significant has been made based on the physical conditions established at the time the NOP was published (CEQA Guidelines, Section 15125(a)). The proposed Project consists of management strategies and implementation actions that would require construction of various water facilities and infrastructure.

The proposed Project proposes to implement actions that would increase water supply and reliability by maximizing the use of imported water, augmenting recycled, groundwater, and local surface water supplies, and recharging groundwater supplies. Activities such as the Palmdale Ditch Conversion and Pure Water Antelope Valley are scheduled for implementation in the near-term (2025 to 2035), whereas groundwater rights purchases would not be required until the end of the planning period (2045 to 2050). Implementation of actions under the proposed Project would require construction of facilities and support infrastructure. Near-term projects that have developed descriptions, including the Palmdale Ditch Conversion project, are analyzed at a site-specific level. Projects that are still under development, including Pure Water Antelope Valley and groundwater well replacement, with locations that are subject to change based on the need of facilities in the future are evaluated generally and broadly, at a programmatic level, in accordance with CEQA Guidelines, Section 15168.

Proposed Project components that have already been constructed and/or were analyzed under previous CEQA documents are not further analyzed further in this document. These components include:

- The Upper Amargosa Creek Water Recharge Project,
- The Pure Water Antelope Valley Advanced Water Treatment Demonstration Facility Project,
- The Littlerock Reservoir Sediment Removal Project, and

- The State Water Project.
- The construction of new groundwater production wells and purchase 1,000 acre-feet of groundwater production.

The following environmental resources are assessed in this chapter in accordance with Appendix F and Appendix G of the CEQA Guidelines:

- Section 3.1 Aesthetics
- Section 3.2 Air Quality and Greenhouse Gas Emissions
- Section 3.3 Biological Resources
- Section 3.4 Cultural Resources and Tribal Cultural Resources
- Section 3.5 Energy
- Section 3.6 Geology, Soils, Seismicity, and Paleontological Resources
- Section 3.7 Hazards, Hazardous Materials, and Wildfire
- Section 3.8 Hydrology, Groundwater, and Water Quality
- Section 3.9 Land Use, Agriculture and Forestry Resources
- Section 3.10 Noise and Vibration
- Section 3.11 Recreation
- Section 3.12 Transportation
- Section 3.13 Utilities, Service Systems, and Public Services

The following environmental issues were determined to have no potential environmental impacts associated with implementation of the proposed Project and are thereby not further analyzed in the EIR:

Population and Housing: The proposed Project involves the construction and operation of advanced water recycling and distribution facilities, groundwater production and injection wells, and transmission pipelines. The proposed Project would not displace existing housing or substantial numbers of people and would not require construction of replacement housing. The proposed Project would not directly induce population growth by constructing new homes or businesses. Therefore, no impact would occur.

The potential for the proposed Project to indirectly induce population growth, or significant or irreversible effects is evaluated in **Chapter 5, Other CEQA Considerations**.

3.0.2 Approach to Analysis of Cumulative Impacts

3.0.2.1 CEQA Requirements

CEQA requires consideration of cumulative impacts. A cumulative impact is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. Cumulative impacts, as defined in Section 15355 of the CEQA Guidelines, refer to two or more individual effects that, when considered together, are considerable or that compound

or increase other environmental impacts. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the proposed Project added to the impacts of other past, present, or reasonably foreseeable future projects. Pertinent guidance for cumulative impact analysis is provided in Section 15130 of the CEQA Guidelines, and summarized below:

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (i.e., the incremental effects of an individual project are considerable when viewed in connection with effects of past, current, and probable future projects, including those outside the control of the agency, if necessary).
- An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.
- The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not be as detailed as it is for the effects attributable to the project alone.
- A project's contribution is less than cumulatively considerable, and thus not significant, if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.
- The focus of analysis should be on the cumulative impact to which the identified other projects contribute, rather than on attributes of the other projects that do not contribute to the cumulative impact.

The cumulative impact analysis for each individual resource topic is described at the end of each resource section in this Chapter.

3.0.2.2 Approach to Analysis

This EIR uses a plan-based approach to evaluate cumulative impacts. A plan-based approach uses a summary of projections contained in adopted local, regional, or statewide plans, or related planning documents, to assess cumulative impacts. This approach was selected rather than a project list approach due to the long timeframe of the proposed Project. The proposed Project reflects projections out to 2050, meaning that information about individual projects that may occur in the Project area over this time horizon is not readily available or reasonably foreseeable. Thus, applicable planning documents and projections are used to inform evaluation of cumulative impacts over the proposed Project implementation timeframe. The cumulative analysis focuses on local General Plans because they are long-term planning documents, with typical horizons of 20 years and buildout projections which would reflect a 25–30-year time horizon. General Plans inform issues such as population and housing, which can contribute significantly to cumulative impacts in the short- and long-term.

The first step in conducting a cumulative analysis is to identify the geographic area affected for each impact category, typically within one mile of the Project area, but which may vary for each resource topic. Each EIR section identifies the appropriate geographic area for that particular resource topic. The proposed Project is located roughly within Palmdale Water District's service area, which overlaps with the majority of the City of Palmdale (City) and some unincorporated

parts of Los Angeles County (County). Therefore, land use planning information from both the City and County has been used to evaluate potential cumulative impacts based on the potential for future development or redevelopment. Depending on the current and future land uses of surrounding areas, there may be projected increases in impacts associated with population, housing, traffic, construction noise, dust, or other issues that could contribute to cumulatively considerable impacts.

In addition to the General Plans, long-range planning documents from other entities were reviewed for potential contributions to cumulative impacts. These included documents from the City, Los Angeles County Public Works and Sanitation Districts, the Southern California Association of Governments, and the California Department of Transportation. The City's long-range plans—the *General Plan: Envision Palmdale 2045* and *2020-2024 Consolidated Strategic Plan*—discuss priority development projects to support projected increases in the City's population over the next 20 to 25 years. However, the proposed Project will not directly induce additional growth, as discussed in **Section 3.02** and **Chapter 5** of this EIR. Therefore, according to their long-term planning documents, there will be no significant cumulative impacts between the City and Palmdale Water District (PWD). Review of the long-range planning documents for the other entities considered—Los Angeles County, Southern California Association of Governments, and California Department of Transportation—revealed negligible cumulative impacts with the proposed Project. Analysis of other cumulative impacts are discussed by topic in **subchapters 3.1-3.13**.

3.1 AESTHETICS

This section describes the environmental and regulatory setting for aesthetic resources in the Project area, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts on energy resources that could result from implementation of the proposed Project.

3.1.1 ENVIRONMENTAL SETTING

3.1.1.1 Visual Resources Concepts and Terminology

VISUAL RESOURCES

Visual resources consist of natural landscapes and scenic views, including landforms, vegetation, and water features, as well as unique elements of the built environment.

SCENIC VISTA

A scenic vista is a publicly accessible viewpoint that provides expansive views of a highly valued landscape.

LIGHT

There are two primary anthropogenic sources of light: light emanating from building interiors passing through windows, and light originating from exterior sources (e.g., street lighting, building illumination, security lighting, parking lot lighting, landscape lighting, and signage). Anthropogenic sources of light can be a nuisance to adjacent residential areas, diminish the view of the clear night sky, and if uncontrolled, can cause disturbances for motorists traveling in the area. Land uses such as residences and hotels are considered light sensitive because occupants have expectations of privacy during evening hours and may be subject to disturbances by bright light sources. Light spill is typically defined as the presence of unwanted light on properties adjacent to the property being illuminated.

GLARE

Glare is caused by the reflection of sunlight or artificial light by highly polished surfaces such as window glass or reflective materials and, to a lesser degree, from broad expanses of light-colored surfaces or vehicle headlights. Perceived glare is the unwanted and potentially objectionable sensation observed by a person as they look directly into the light source of a luminaire. Daytime glare generation in urban areas is typically associated with buildings with exterior facades largely or entirely comprised of highly reflective glass. Glare can also be produced during evening and nighttime hours by the reflection of artificial light sources, such as automobile headlights. Glare generation is typically related to either moving vehicles or sun angles, although glare resulting from reflected sunlight can occur regularly at certain times of

the year. Glare sensitive uses include residences, and transportation corridors. Potentially affected viewers in the local viewshed include motorists, residents, and recreational visitors.

3.1.1.2 Regional Setting

The topography of the Antelope Valley, where the proposed Project occurs, provides scenic views from various public vantage points. Key regional visual resources include the San Gabriel Mountains to the southwest, Tehachapi Mountains to the northwest, the extensive flatlands of the Mojave Desert, and the hills and buttes of San Bernardino County. The general aesthetic and visual character of the Project area consists of an expansive desert horizon and sparsely inhabited landscape with views of the surrounding Tehachapi and San Gabriel Mountain ranges. The urbanized aesthetic and visual character of the Project area is defined by development within the City of Palmdale (City), the City of Lancaster, and smaller communities in unincorporated Los Angeles County such as Littlerock and Alpine. The built environment is dominated by low-lying residential, industrial, and commercial buildings with local views of the surrounding buttes and panoramas of the San Gabriel Mountains and desert expanses.

3.1.1.3 Local Setting

The Project area is primarily in the City as discussed in the **Chapter 2.0 Project Description**. The Project area is characterized primarily by residential land uses interspersed among open space and distant mountain vistas. Specifically, the Palmdale area is characterized by three distinct landscape types: mountainous areas, open space landforms of the desert slope and rift zone of the San Andreas Fault, and high desert plain, buttes, and alkali sinks. Vegetation is typical of the western Mojave Desert that includes creosote and desert shrubs with some portions of the valley containing large stands of Joshua Trees. The perimeter of the valley includes low brush covered hills that transition into the Tehachapi Mountains and San Gabriel Mountains to the west and south. The Project area has views of the Tehachapi Mountains to the northwest and the San Gabriel Mountains to the south from various public vantage points and roadways. In the City, the Lamon Odett Vista Point, just off the Antelope Valley Freeway, provides a view of Lake Palmdale and the City. Views from the mountains capture the Project area's natural and built-up landscape characterized by residential land uses and open space. Residential lots are a mix of planned communities with uniform architectural characteristics and typical ranch-style homes. This is a unique feature of the desert communities that can be viewed regionally and locally within the Project area from the surrounding mountains.

RECYCLED WATER

The Pure Water Antelope Valley project is proposed in an undeveloped area that is vacant and graded with scattering drainages running through the area (PWD 2023). The proposed site does not contain any public roads, trails, paths, or viewpoints. Views of the proposed site are limited to vehicles traveling along the nearest road to the south (East Avenue Q), to the east (30th Street East), and to the west (25th Street East). Recycled water injection wells are anticipated to be within the location of the Pure Water Antelope Valley project property. The property has a flat

and rural characteristic with sparse vegetation. The visual character experienced by public views from the roadways is represented onError! Reference source not found. **Figure 3.1-1.**

Figure 3.1-1: View looking West from 25th Street East to site of future Pure Water Antelope Valley Facilities

Recycled water pipelines are anticipated to be near the Palmdale Water Reclamation Plant property and in surrounding roadways and easements. The area surrounding the Palmdale Water Reclamation Plant has a flat and rural characteristic with predominantly disturbed vacant lots with impervious hardscape areas and graded, disturbed dirt lots. Public views in this area are limited to vehicles traveling along the nearest road to the north (East Avenue P), to the south (East Avenue Q), to the east (40th Street East), and to the west (30th Street East). **Figure 3.1-2** represents typical views of the proposed locations for recycled pipelines along 30th Street East.

Figure 3.1-2: View looking North (along 30th Street East) at approximate Location of Recycled Water Pipelines Near Palmdale Water Reclamation Plant

GROUNDWATER

Rehabilitation of groundwater wells would occur at existing well buildings (represented in **Figure 3.1-3)** throughout Palmdale Water District's (PWD) boundaries as described in **Chapter 2.0 Project Description**. Replacement wells would be sited in areas with high production rates anticipated in the rural and industrial areas in the north and eastern parts of the Antelope Valley Groundwater Basin as described in **Chapter 2.0 Project Description**. These areas are characterized by rural areas with occasional commercial, industrial, and residential development. Open spaces are predominant providing a separation from developments such as the Palmdale airport located to the north. The well field area is generally located near residential developments to the south but is primarily dominated by the open space desert landscape. Replacement wells would be of similar size and appearance as existing wells as shown in **Figure 3.1-3).**

Figure 3.1-3: Representative Visual Character of an Existing Groundwater Well

LOCAL SUPPLIES

The aesthetic of the Palmdale Ditch (Ditch) originates from the original construction in the 1880s. Almost 70 percent of its 8.5 miles of total length remains an unlined earthen ditch while the remaining 30 percent is either concrete-lined or enclosed in tunnels or culverts. The Ditch has one remaining steel trestle located west of Pearblossom Highway at approximate station 387+03. In the southernmost portion of the Ditch, it is partially located within Angeles National Forest, which includes views of the San Gabriel Mountains. Additionally, long-range views of the ridges and hills of the Antelope Valley are visible along the proposed ditch alignment. Limited publicly-accessible views of the Ditch are currently available on area roadways and trails, such as Barrel Springs Road, Sierra Highway, Pearblossom Highway, and Barrel Springs Trail; however,

because the existing Ditch is at or below ground level and is largely surrounded by vegetation and hilly terrain, it is generally not visible from publicly-accessible viewpoints. **Figure 3.1-4** shows the existing condition of a lower elevation part of the Ditch.

Figure 3.1-4: Representative Visual Character of Existing Conditions of Palmdale Ditch in Urbanized Area (City of Palmdale)

3.1.2 REGULATORY FRAMEWORK

This section describes local, state, and federal laws, policies and regulations that apply to the proposed Project. The proposed Project actions are located in the City and unincorporated areas of the County of Los Angeles; therefore, the City and County General Plans are applicable to the proposed Project.

3.1.2.1 Federal Policies and Regulations

NATIONAL SCENIC BYWAYS & ALL-AMERICAN ROADS

The National Scenic Byways Program is part of the U.S. Department of Transportation, Federal Highway Administration. The program is a grass-roots collaborative effort established to help recognize, preserve, and enhance selected roads throughout the United States. The U.S. Secretary of Transportation recognizes certain roads as All-American Roads or National Scenic Byways based on one or more archeological, cultural, historic, natural, recreational, and scenic qualities. To be designated as a National Scenic Byway, a byway must meet the criteria for at least one of six "intrinsic qualities": archeological, cultural, historic, natural, recreational, and

scenic. The features contributing to the distinctive characteristics of the corridor's intrinsic quality are recognized throughout the region and are considered regionally significant. To be designated as an All-American Road, a byway must meet criteria for at least two intrinsic qualities that are nationally significant and have one-of-a-kind features that do not exist elsewhere. The road or highway must also be considered a "destination unto itself." That is, the road must provide an exceptional traveling experience so recognized by travelers that they would make a drive along the highway a primary reason for their trip. There are no National Scenic Byways or All-American Roads within or adjacent to the Project area.

3.1.2.2 State Policies and Regulations

CALIFORNIA STATE SCENIC HIGHWAYS

The State Scenic Highway Program was established in 1963 by the State Legislature to protect and enhance the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. The California Department of Transportation (Caltrans) manages the State Scenic Highway Program. Caltrans provides guidance to local government agencies, community organizations and citizens that are pursuing the official designation of a State Scenic Highway. There are no officially designated Scenic Highways within the proposed Project area (Caltrans 2019). The nearest officially designated State Scenic Highway is State Route 2, approximately 10 miles south of the Project area through the San Gabriel Mountains.

3.1.2.3 Local Policies and Regulations

CITY OF PALMDALE GENERAL PLAN

The City of Palmdale 2045 General Plan (General Plan) is a policy document required by State law that provides long range guidance for various city issues. The General Plan is a comprehensive update to the City's 1993 General Plan. The General Plan is effective from October 22, 2022, and was amended on March 15, 2023. The following goals, objectives and policies in the General Plan are related to scenic resources.

GOAL PR-8: Preserve significant natural and constructed open space areas that give the city its distinct form.

- **PR-8.4: Open Space preservation through Hillside Management Ordinance.** Implement the standards adopted under the City's Hillside Management Ordinance for new development including clustering and density transfer of housing units, in order to maintain areas of scenic and other open space within hillside areas.

CITY OF PALMDALE MUNICIPAL CODE

The intent and purpose of Chapter 17.100 Hillside Management is to help maintain the visual, open space, and recreational amenities provided by hillside areas bordering the city. The ordinance protects against insensitive development and contains standards which apply to areas

with a natural slope of ten percent or more. The standards were designed to preserve open space, natural grades, scenic views, and visually prominent landforms (City of Palmdale 2023).

Section 17.100.190D. Development is designed in a manner that substantially retains the visual qualities and natural elevations of the significant ridgelines and prominent landforms forming the City's skyline backdrop and preserves those portions of the ridgelines visible from the valley floor, or adjacent valleys, as a scenic skyline backdrop to the city.

COUNTY OF LOS ANGELES GENERAL PLAN

The Los Angeles County General Plan 2035 Conservation and Natural Resources Element (County of Los Angeles 2022) guides the long-term conservation of natural resources and preservation of available open space areas. The Conservation and Natural Resources Element addresses the following conservation areas: Open Space Resources; Biological Resources; Local Water Resources; Agricultural Resources; Mineral and Energy Resources; Scenic Resources; and Historic, Cultural and Paleontological Resources. The Mineral and Energy Resources section of the Conservation and Natural Resources Element addresses the use and management of valuable energy and mineral resources in the unincorporated areas, and the importance of sustaining and maintaining these resources for future users. The plan identifies the San Gabriel Mountains, Verdugo Hills, Santa Susana Mountains, Simi Hills, and the Santa Monica Mountains as features with visual and aesthetic value. The following goals and policies in the County's General Plan are related to energy resources.

Goal C/NR 13: Protected visual and scenic resources.

- **Policy C/NR 13.1:** Protect scenic resources through land use regulations that mitigate development impacts.
- **Policy C/NR 13.2:** Protect ridgelines from incompatible development that diminishes their scenic value.
- **Policy C/NR 13.3:** Reduce light trespass, light pollution, and other threats to scenic resources.
- **Policy C/NR 13.4:** Encourage developments to be designed to create a consistent visual relationship with the natural terrain and vegetation.
- **Policy C/NR 13.5:** Encourage required grading to be compatible with the existing terrain.

COUNTY OF LOS ANGELES MUNICIPAL CODE

Chapter 22.80 of the County of Los Angeles Municipal Code established the Rural Outdoor Lighting District (ROLD), which is a supplemental district for the rural areas of the County to promote and maintain dark skies for the health and enjoyment of individuals and wildlife. This ordinance includes general development standards such as lighting allowances, no lighting trespasses, shielding and maximum heights of lighting for different land uses (County of Los

Angeles 2023). The proposed Project is located within the County of Los Angeles ROLD and subject to these requirements.

3.1.3 IMPACT ANALYSIS

This section includes a description of existing visual resources and aesthetic conditions in the Project area and an evaluation of potential effects on visual resources, including scenic vistas and views, and on the visual character of proposed Project sites and surrounding areas that would support aboveground facilities, and describes mitigation measures that would reduce impacts to a less than significant level.

3.1.3.1 Methodology for Analysis

This section evaluates whether construction and operation of the facilities associated with the proposed Project would result in significant impacts related to visual and aesthetic resources. Visual and aesthetic impacts were based off existing environmental impact analysis and review of the Project area's existing environmental condition.

The proposed Project would be regulated by various laws, regulations, and policies summarized in the Regulatory Framework (**Section 3.6.2**). Project compliance with applicable federal, state, and local laws and regulations is assumed in this analysis, and local and state agencies would be expected to continue to enforce applicable requirements to the extent that they do now.

3.1.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines,* as updated in December 2018, an impact on aesthetic resources would be considered significant if the proposed Project would:

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
- In nonurbanized areas (i.e., outside of the City of Palmdale Sphere of Influence), substantially degrade the existing visual character or quality of public views of the site and its surroundings?
- In an urbanized area (i.e., within the City of Palmdale Sphere of Influence), conflict with applicable zoning and other regulations governing scenic quality.
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

3.1.3.3 Criteria Requiring No Further Evaluation

The proposed Project would not have significant impacts associated with the following criteria:

- **Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.** There are no

scenic highways in the Project area. State Route 2, located approximately 10 miles south of the Palmdale Ditch Conversion project, is the nearest officially designed State scenic highway to the proposed Project (Caltrans 2018). No pipelines associated with recycled water or groundwater would be located in the area of State Route 2 and would be below ground. The Project area of the Palmdale Ditch Conversion project is not visible to motorists traveling along State Route 2 due to distance and intervening topography. Therefore, would be no impact on State scenic highways.

3.1.3.4 Impacts and Mitigation Measures

Impact AES-1 Have a substantial adverse effect on a scenic vista.

IMPACT AES-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley facilities would result in the modification of a vacant lot which could result in a change in the existing visual setting of the Project area. Typical sizing for an advanced water purification facility (AWPF) infrastructure (i.e., residuals facility, oxidation ditches, influent pumps, secondary clarifiers) are typically between 15 to 20 feet tall and would all appear as light industrial facilities. Views from the proposed site would be limited to the surrounding roadways, which would last seconds to minutes depending if viewers were in a car, a bike, or on foot. The treatment plant structures would appear substantially different than the existing open space. However, the surrounding landscape does not offer a scenic vista with expansive views of the San Gabriel Mountains and Tehachapi Mountains. Therefore, impacts would be less than significant.

Recycled water injection wells and associated recycled water pipelines are anticipated to be constructed within the vicinity of the Pure Water Antelope Valley project property. An above-ground booster station would also be constructed within the vicinity or on of the Palmdale Water Reclamation Plant property. The height of the aboveground components of a booster station are generally 10 to 20 feet tall. Construction of the wells could introduce the potential for a significant impact to existing visual resources. However, the views surrounding Pure Water Antelope Valley project property are not considered as a scenic vista with expansive views of the San Gabriel Mountains and Tehachapi Mountains. Therefore, impacts would be less than significant.

Recycled water pipelines would be constructed near Palmdale Water Reclamation Plant. During construction, views would be temporarily altered and obstructed by construction workers, equipment, and vehicles. Although construction activities would result in visual changes, these potential changes would be short-term as temporary impacts on views would cease upon completion of recycled water pipelines. Once recycled water pipelines are completed, the area of

temporary disturbance would be restored to its original condition and would not be visible as pipelines would be below ground. Furthermore, the views surrounding the vicinity of Palmdale Water Reclamation Plant are not considered as a scenic vista with expansive views of the San Gabriel Mountains and Tehachapi Mountains. Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Well rehabilitation would occur within existing well buildings and would not significantly modify the existing well housing. As a result, the rehabilitated wells would not have the potential to result in a significant impact to scenic vistas. There would be no impact to scenic vistas from well rehabilitation.

Replacement wells would require demolition of existing well housing. Replacement and new extraction wells would be located within the Antelope Valley Groundwater Basin in areas with high groundwater production rates. Replacement wells may also be located at the same locations as the existing wells. The replacement wells would be of similar size and appearance as the existing wells. Replacement groundwater wells would be housed within single-story buildings, with heights of approximately 10 to 15 feet. The proposed wells would be located in the southern and eastern portion of the Antelope Valley Groundwater Basin area, in undeveloped areas near industrial facilities and residential land uses. This area is sparsely developed with commercial, industrial, and business park buildings. Given the rural nature of the environment and muted nature and small footprint of groundwater wells, it is not anticipated that groundwater wells would substantially impact public views of scenic vistas such as providing a substantial obstruction the surrounding landscape, including views of the San Gabriel Mountains and Tehachapi Mountains. However, the surrounding landscape does not offer a scenic vista with expansive views of the San Gabriel Mountains and Tehachapi Mountains. Therefore, impacts would be less than significant. However, to ensure the new buildings blend with the environment and are sited in locations where public views would not be significantly altered, **Mitigation Measures AES-1**, **AES-2**, and **AES-3** would be implemented. **Mitigation Measure AES-1** would require a landscape plan to screen facilities from public view and reduce impacts to less than significant levels. Implementation of **Mitigation Measure AES-2** and **AES-3** would require aboveground buildings to be designed to minimize contrasting features and blend with the surrounding landscape. Impacts associated with construction of the proposed Project would be less than significant with mitigation.

Local Supplies

Palmdale Ditch Conversion Project

Construction of the proposed Project, which would occur over approximately 10 months, would result in minor, temporary effects to publicly accessible views of the San Gabriel Mountains and hillsides and ridges of the Antelope Valley along the proposed Project alignment. Construction equipment and materials would disrupt otherwise uninterrupted long-range views of ridges, hillsides, mountains, and the Antelope Valley at certain locations, such as along Barrel Springs

Road, Barrel Springs Trail, Pearblossom Highway and Sierra Highway. However, construction equipment and materials would be low profile and would not substantially obscure views from publicly accessible vantage points. Therefore, the proposed Project would not have a substantial adverse effect on a scenic vista, and impacts would be less than significant.

Conservation

There is no aesthetic impact associated with conservation actions because there would be no physical features or locations associated with conservation.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of Pure Water Antelope Valley would occur entirely within the AWPF and associated infrastructure. Operation of the recycled water injection wells would occur entirely within the well housing and associated infrastructure. As a result, there would be no potential for additional impact to existing visual resources associated with operation of the proposed Project.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of the rehabilitated and replacement would occur entirely within the well housing and associated infrastructure. As a result, there would be no potential for additional impact to existing visual resources associated with operation of the proposed Project.

Local Supplies

Palmdale Ditch Conversion Project

Once construction and conversion of the Ditch is complete, the proposed Project would be located almost entirely below ground and would not be visible. Minor aboveground features, such as blow-off and air release assemblies and flumes, would be approximately two to three feet in height, and the potential aboveground controls/electrical building associated with the new future turnout would be relatively small and would not exceed one story in height. These low-profile features of the proposed Project would not have the potential to impact publicly accessible views of ridges, hillsides, mountains, and the Antelope Valley. Therefore, operation of the proposed Project would not have a substantial adverse effect on a scenic vista, and impacts would be less than significant.

Conservation

There is no aesthetic impact associated with conservation actions because there would be no physical features or locations associated with conservation.

IMPACT AES-1 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measures AES-1, AES-2, AES-3

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact AES-2 In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings.

IMPACT AES-2 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project would require the use of construction equipment and storage of materials onsite at various sites. Excavated areas, stockpiled soils and other materials generated during construction would present negative aesthetic elements to the existing visual landscape. While these effects would be temporary and would cease after construction is completed, the treatment plant structures may contrast with the visual character of the nonurbanized open space areas by potentially requiring the removal of desert vegetation that is a notable characteristic of the area. This removal of desert vegetation would be limited to the small footprints and occur on previously disturbed sites, however, to ensure the disturbance does not substantially degrade the existing visual character or quality of public views, **Mitigation Measures AES-1**, **AES-2**, and **AES-3** would be required. These mitigation measures would reduce impacts to the visual character to a less than significant level by incorporating unique design features for above-ground facilities that would blend structures with the surrounding landscape. Impacts would be less than significant with mitigation.

Construction of offsite Pure Water Antelope Valley facilities such as injection wells, brine ponds, and pipelines would require the use of construction equipment and storage of materials onsite at various sites. Excavated areas, stockpiled soils and other materials generated during construction would present negative aesthetic elements to the existing visual landscape. However, these effects would be temporary and would cease after construction is completed. Proposed project facilities outside of the Palmdale Water Reclamation Plant may also affect the existing visual character or quality of public views if they remove native desert vegetation and add buildings to the rural viewshed. Therefore, **Mitigation Measures AES-1**, **AES-2**, and **AES-3** would be required to reduce impacts to the visual character to a less than significant level by incorporating design features for above-ground facilities that would blend structures with the surrounding landscape. Impacts would be less than significant with mitigation.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation, replacement, and construction of the identified groundwater production wells would require the use of construction equipment and storage of materials onsite at various sites. Excavated areas, stockpiled soils and other materials generated during construction would present negative aesthetic elements to the existing visual landscape. While these effects would be temporary and would cease after construction is completed, the specific location of the new and replacement wells is not finalized, and construction of the aboveground well housing may occur in a nonurbanized area where construction of the aboveground well housing may contrast with the visual character of open space areas and potentially removing desert vegetation that is a notable characteristic of the area. **Mitigation Measures AES-1**, **AES-2**, and **AES-3** would be required to reduce impacts to the visual character to a less than significant level by incorporating unique design features for above-ground facilities that would blend structures with the surrounding landscape. Impacts would be less than significant with mitigation.

Local Supplies

Palmdale Ditch Conversion Project

The portion of the proposed Project alignment within Angeles National Forest and unincorporated Los Angeles County is in a nonurbanized area. Limited publicly accessible views of the Ditch within Angeles National Forest and unincorporated Los Angeles County are currently available on area roadways and trails; however, because the existing Ditch is at or below ground level and is generally surrounded by vegetation and intervening terrain, it is generally not visible from publicly accessible viewpoints. Construction of the proposed Project would temporarily impact the existing visual character of the proposed Project alignment because construction equipment and materials would be staged on the Project area and would disrupt otherwise uninterrupted, long-range views of ridgelines and hillsides at certain publicly accessible locations, such as along Barrel Springs Road, Barrel Springs Trail, and Sierra Highway, as shown in **Figure 3.1-4**. However, construction equipment and materials would be low profile and would not substantially degrade the existing visual character or quality of public views of the Project area and its surroundings. Therefore, construction of the portion of the proposed Project in nonurbanized areas would not substantially degrade the existing visual character or quality of public views of the site and its surroundings, and impacts would be less than significant.

Conservation

There is no aesthetic impact associated with conservation actions because there would be no physical features or locations associated with conservation.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of Pure Water Antelope Valley would occur entirely within the AWPF and associated infrastructure. Operation of the recycled water injection wells would occur entirely within the well housing and associated infrastructure. As a result, there would be no potential for additional impact to existing visual resources associated with operation of the proposed Project.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of wells would occur entirely within the well housing and associated infrastructure. As a result, there would be no potential for additional impact to existing visual resources associated with operation of the proposed Project.

Local Supplies

Palmdale Ditch Conversion Project

Once construction of the proposed Project is complete, the pipeline and potential turnout would be located entirely below ground. Minor aboveground features located in unincorporated Los Angeles County, such as blow-off and air release assemblies and flumes, would be approximately two to three feet in height, and the potential aboveground controls/electrical building near the potential turnout would be relatively small and would not exceed one story in height. Visibility of these proposed Project features from nearby publicly accessible viewpoints, such as Bear Creek Road, would be limited. In addition, the potential aboveground controls/electrical building would be visually consistent with existing aboveground water infrastructure present at the Ditch's crossing with the California Aqueduct and would not substantially impact the visual character of the proposed Project alignment. Along segments of the Ditch where the pipeline is placed in the existing Ditch alignment, the Ditch would be backfilled, and minor site grading would be conducted with vegetation allowed to re-establish naturally. The remaining Ditch segments may either be left in place, resulting in no change to existing visual character, or be backfilled and graded with vegetation allowed to re-establish naturally. The post-construction visual character along segments of the Ditch that are backfilled would thus be similar to the visual character of its immediate surrounding areas (see **Figure 3.1-4**). Furthermore, **Mitigation Measure BIO-8** would require sensitive natural communities to be returned to pre-project conditions with pre-project elevation contours and revegetation. Therefore, the portion of the proposed Project in nonurbanized areas would not substantially degrade the existing visual character or quality of public views of the site and its surroundings, and impacts would be less than significant.

Conservation

There is no aesthetic impact associated with conservation actions because there would be no physical features or locations associated with conservation.

IMPACT AES-2 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measures AES-1, AES-2, AES-3, and Mitigation Measure BIO-8.

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact AES-3 In an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.

IMPACT AES-3 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley would be constructed in a nonurbanized, open area, where there would be no conflict with applicable zoning or other regulations governing scenic property. The surrounding land use is nonurbanized, open area. Therefore, there would be no impact.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Well rehabilitation will occur within existing well sites, while replacement wells would be located within the south and eastern parts of the Antelope Valley Groundwater Basin. The specific locations of replacement wells are not finalized, and construction of the aboveground well housing may occur in an urbanized area. However, the groundwater wells would be exempt from applicable zoning and other regulations governing scenic quality pursuant to Government Code Section 53091. As a result, there would be no potential for conflict with City zoning or scenic quality regulations.

Local Supplies

Palmdale Ditch Conversion Project

The portion of the proposed Project alignment within the City of Palmdale Sphere of Influence is an urbanized area. The City's General Plan and PMC contain policies that pertain to scenic quality and do not focus on short-term construction activities. Therefore, there are no scenic

quality regulations that would apply to proposed Project construction activities, and as a result, construction of the portion of the proposed Project in urbanized areas would not conflict with applicable zoning and other regulations governing scenic quality. No impact would occur.

Conservation

There is no aesthetic impact associated with conservation actions because there would be no physical features or locations associated with conservation.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of Pure Water Antelope Valley would occur entirely within the AWPF and associated infrastructure. Operation of the recycled water injection wells would occur entirely within the well housing and associated infrastructure. As a result, there would be no potential for additional impact to existing visual resources associated with operation of the proposed Project.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of wells would occur entirely within the well housing and associated infrastructure. As a result, there would be no potential for additional impact to existing visual resources associated with operation of the proposed Project.

Local Supplies

Palmdale Ditch Conversion Project

The portion of the proposed Project alignment within Palmdale is in an urbanized area (see Figure 28 through Figure 30 in Chapter 2, *Project Description*). The City's General Plan contains policies that pertain to scenic quality. These policies include LUD 5.7, Natural Topography, which encourages preservation of natural topographic features during the proposed Project planning and design to the greatest extent feasible, and PR-8.4, which encourages minimizing the visual effects of development on hillsides. In addition, Section 17.100.190, Hillside Development Findings, of the PMC also includes standards to minimize effects to visual resources and scenic hillsides in the City. However, pursuant to California Government Code Section 53091, the building and zoning ordinances of a city (i.e., PMC Section 17.100.190) do not apply to the location or construction of facilities for the production, storage, or transmission of water by a local agency.

Publicly accessible views of the Ditch within Palmdale are extremely limited because the existing Ditch is at or below ground level and is generally surrounded by vegetation and hilly terrain (see **Figure 3.1-5**). Publicly accessible viewpoints of the Ditch within Palmdale primarily consist of the

intersection of Barrel Springs Road and 40th Street East and Barrel Springs Trail near the Barrel Springs Park and Ride parking lot. Conversion of the Ditch to a pipeline would reduce the visual presence of water conveyance infrastructure compared to the existing Ditch because 1) most of the pipeline and potential future turnout would be located below ground and 2) the portions of the alignment where the pipeline is placed in the current Ditch alignment would be backfilled. Minor aboveground features, such as blow-off and air release assemblies and flumes, would not substantially disturb the natural topography of the Project area and would not involve development on hillsides or block views of hillsides. As such, the proposed Project would not conflict with applicable General Plan policies governing scenic quality. Therefore, the portion of the proposed Project in urbanized areas would not conflict with applicable zoning and other regulations governing scenic quality, and impacts would be less than significant.

Conservation

There is no aesthetic impact associated with conservation actions because there would be no physical features or locations associated with conservation.

IMPACT AES-3 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measures AES-1, AES-2, AES-3.

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact AES-4 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

IMPACT AES-4 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

A significant impact would occur if construction of the Pure Water Antelope Valley project caused a substantial increase in ambient light levels near light-sensitive land uses such as residential and natural/open space areas. After construction is completed, permanent visible nighttime lighting may be installed on the exterior of the proposed aboveground facilities for safety. Implementation of **Mitigation Measure AES-4** would require any permanent lighting on buildings/structures to be shielded and directed downward to avoid light intrusion onto surrounding land uses. While construction of the Pure Water Antelope Valley treatment plant is anticipated to occur during daytime hours, if nighttime construction is required, implementation of **Mitigation Measure AES-5** would require nighttime construction lighting be shielded and pointed away from surrounding light-sensitive land uses. Furthermore, while the treatment plants recharge basins are relatively flat, earthen excavations surrounded by earthen berms, the

potential for glare from recharge spreading facilities containing surface water to affect motorists and/or view sheds for short periods of time is low and would not substantially change the existing conditions. Nonetheless, implementation of **Mitigation Measure AES-6** would ensure the treatment plant is designed to minimize glare or reflection, including non-glare exterior materials or coatings. The proposed Project area is located in Los Angeles County's designated Rural Outdoor Lighting District. However, the groundwater wells would be exempt from the Los Angeles County municipal code pursuant to Government Code Section 53091.

Groundwater

Existing Wells Rehabilitation and/or Replacement

A significant impact would occur if the rehabilitation or replacement groundwater productions wells caused a substantial increase in ambient light levels near light-sensitive land uses such as residential and natural/open space areas. After construction is completed, permanent visible nighttime lighting may be installed on the exterior of the proposed well housing for safety. Implementation of **Mitigation Measure AES-4** would require any permanent lighting on buildings/structures to be shielded and directed downward to avoid light intrusion onto surrounding land uses. Security lighting used during the construction phase of the recycled water injection wells may introduce new sources of light and glare to the existing views of the area. Nighttime construction, such as 24-hour drilling required during construction of replacement wells, would cause a potentially significant impact. However, with implementation of **Mitigation Measure AES-5**, nighttime construction lighting would be shielded and pointed away from surrounding light-sensitive land uses. The proposed Project area is located in Los Angeles County's designated Rural Outdoor Lighting District. However, the groundwater wells would be exempt from the Los Angeles County municipal code pursuant to Government Code Section 53091.

Local Supplies

Palmdale Ditch Conversion Project

The Palmdale Ditch Conversion project is unlikely to require nighttime construction; however, portions of the pipeline that require road crossings within City and/or county existing roadways and that are constructed via open-cut methods may require nighttime construction, which would involve nighttime lighting. However, these portions of the Project area would generally not be located in close proximity to residences, and temporary nighttime lighting would be shielded and directed downwards to minimize light spillover, as required by **Mitigation Measure AES-5**. As a result, if nighttime construction is required, construction lighting would not create a new source of substantial light that would adversely affect nighttime views in the area. Construction equipment would be staged on-site and could generate glare; however, the exposure of any given receptor to this glare would be short-term and temporary because equipment would move along the linear proposed Project alignment at an average rate of approximately 200 feet per day. Therefore, proposed Project construction would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area. With mitigation, impacts would be less than significant.

Conservation

There is no aesthetic impact associated with conservation actions because there would be no physical features or locations associated with conservation.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of Pure Water Antelope Valley would occur entirely within the AWPF and associated infrastructure. Operation of the recycled water injection wells would occur entirely within the well housing and associated infrastructure. As a result, there would be no potential for additional impact to existing visual resources associated with operation of the proposed Project.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of wells would occur entirely within the well housing and associated infrastructure. As a result, there would be no potential for additional impact to existing visual resources associated with operation of the proposed Project.

Local Supplies

Palmdale Ditch Conversion Project

The Palmdale Ditch Conversion project does not involve the installation of permanent lighting. Minor aboveground features, such as blow-off and air release assemblies, flumes, or the potential aboveground controls/electrical building, would not generate substantial amounts of glare. Therefore, the proposed Project operation would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the Project area, and impacts would be less than significant.

Conservation

There is no aesthetic impact associated with conservation actions because there would be no physical features or locations associated with conservation.

IMPACT AES-4 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measures AES-4, AES-5, AES-6.

Significance after Mitigation: Less than Significant after Mitigation Incorporated

3.1.3.5 Mitigation Measures

MITIGATION MEASURE AES-1: LANDSCAPE PLAN

During project design, a landscape plan shall be prepared for proposed Project features that may affect scenic vistas and/or are visible from scenic roadways. The landscape plan shall include measures to restore disturbed areas by replanting trees and/or reseeding with a native seed mix typical of the surrounding area. Vegetation screening shall also be included in order to assist in shielding the proposed aboveground facilities from public vantage points.

MITIGATION MEASURE AES-2: PRE-CONSTRUCTION AESTHETIC DESIGN

Aboveground buildings/structures shall be designed to have similar aesthetic qualities to existing structures in the vicinity to minimize contrasting features in the visual landscape.

MITIGATION MEASURE AES-3: ABOVEGROUND BUILDING/STRUCTURE DESIGN

Aboveground buildings/structures shall be designed to have color palettes and vegetation screening as necessary to blend with the surrounding character of the site and to minimize contrasting features in the visual landscape.

MITIGATION MEASURE AES-4: PERMANENT EXTERIOR LIGHTING

All new permanent exterior lighting associated with proposed Project components shall be shielded and directed downward to avoid any light intrusion to surrounding uses.

MITIGATION MEASURE AES-5: NIGHTTIME CONSTRUCTION LIGHTING

Lighting used during nighttime construction, including any associated 24-hour well drilling, shall be shielded and pointed away from surrounding light-sensitive land uses.

MITIGATION MEASURE AES-6: NON-GLARE DESIGN

The proposed advanced water purification facility shall be designed to include non-glare exterior materials and coatings to minimize glare or reflection.

3.1.3.6 Cumulative Impact Analysis

Cumulative impacts to aesthetic and visual resources are less than significant when mitigation measures are incorporated. The proposed Project is consistent with the City 2045 General Plan and adheres to the City's policies. The proposed Project's impacts would be less than significant

and the Project's contribution to these impacts would not be cumulatively considerable. Therefore, the proposed Project would not considerably contribute to a cumulative impact on aesthetic and visual resources.

3.1.4 REFERENCES

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3.2 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

This section describes the environmental and regulatory setting for air quality and greenhouse (GHG) emissions impacts associated with the implementation of the proposed Project. This section provides an overview of existing air quality conditions within the proposed Project area and surrounding region, the regulatory framework applicable to air pollutant and GHG emissions, and an analysis of potential air quality and GHG emissions, and an analysis of potential air quality and GHG emissions that would result from implementation of the proposed Project.

3.2.1 ENVIRONMENTAL SETTING

3.2.1.1 Regional Climate and Meteorology

The proposed Project is located in the western portion of the Mojave Desert Air Basin (MDAB). The Antelope Valley Air Quality Management District (AVAQMD) is the local air district with jurisdiction over air pollution sources in the City of Palmdale (City). The MDAB encompasses an assemblage of mountain rangers interspersed with long broad valleys, some of which include dry lakes. Many of the lower mountains rise from 1,000 to 4,000 feet above the valley floors. The MDAB is separated from the southern California coastal and central California Valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for air masses. Antelope Valley is bordered on the northwest by the Tehachapi Pass (highest elevation of approximately 3,800 feet). The Antelope Valley is bordered to the south by the San Gabriel Mountains, bisected by Soledad Canyon (highest elevation of approximately 3,300 feet).

The prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions, and the blocking nature of the Sierra Nevada Mountains to the north. Air masses pushed onshore in Southern California by differential heating are channeled through the MDAB.

During the summer, the MDAB is generally influenced by the Pacific Subtropical High, which is a high-pressure cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south. The MDAB averages between three and seven inches of precipitation per year. The MDAB is classified as a dry-hot desert climate, with portions classified as dry-very hot desert; at least three months have maximum average temperatures over 100.4 °F (AVAQMD 2016).

3.2.1.2 Air Quality Principles

CRITERIA AIR POLLUTANTS

Poor air quality is a measurable environmental hazard that impacts public health, welfare and the economy. The California Air Resources Board (CARB) and the United States Environmental

Protection Agency (U.S. EPA) currently focus on the following air pollutants as indicators of ambient air quality: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and PM_{25}) and lead (Pb). Ambient air quality criteria standards have been set for these criteria pollutants at the federal level by U.S. EPA and the State level by CARB. These pollutants are referred to as "criteria air pollutants" because they are the most prevalent air pollutants known to be harmful to human health, and extensive health-effects criteria documents are available about their effects on human health and welfare.

Ozone (O_3)

Ground-level O_3, also known as smog, forms from Reactive Organic Gases (ROG) and oxides of nitrogen (NO_X) emissions, which come primarily from internal fuel combustion engines and the evaporation of solvents, paints, and fuels. Ozone causes respiratory irritation, constriction of the airways, and – at high concentrations – lung tissue damage. It increases susceptibility to respiratory infections and diseases. In addition to its public health concerns, ozone can cause damage to the leaf tissues of crops and natural vegetation; it also can damage materials such as rubber, fiber, and plastics.

Carbon Monoxide (CO)

Carbon monoxide (CO), a colorless and odorless gas, is a relatively nonreactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980s, when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts because of the retirement of older polluting vehicles, lower emissions from new vehicles, and improvements in fuels.

Nitrogen Dioxide (NO_2)

Nitrogen dioxide (NO_2) is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as oxides of nitrogen (NO_X), which are reported as equivalent NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high-pollution days, especially in conjunction with high ozone levels.

Sulfur Dioxide (SO_2)

Sulfur Dioxide (SO_2) is a colorless, extremely irritating gas or liquid. SO_2 enters the atmosphere as a pollutant, mainly as a result of burning high-sulfur-content fuel oils and coal, and from

chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as oxides of sulfur (SO_X).

Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil burning residential heaters. Emissions of SO_2 aggravate lung diseases, especially bronchitis. It also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. SO_2 potentially causes wheezing, shortness of breath, and coughing. Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease.

Particulate Matter (PM)

Particulate matter consists of a mixture of solid particles and liquid droplets that can remain in the atmosphere for many days before settling or washing out. Particulate matter emission sources include combustion, grading and construction, industrial and agricultural processes, tail pipe emissions, fire smoke, tire and brake wear, unpaved road dust, and wood burning. Particulate matter is described by its size: PM_{10}, with diameters 10 micrometers and smaller, and $PM_{2.5}$, which can lodge deep in the lungs, block the flow of oxygen from the lungs to the bloodstream, and even pass from the lungs to the bloodstream and heart, causing respiratory illness, aggravated asthma, development of chronic respiratory disease in children, and many other health problems. It is also the main cause of haze.

Lead (Pb)

Lead is a metal found naturally in the environment and present in some manufactured products. There are a variety of activities that can contribute to lead emissions, which are grouped into two general categories, stationary and mobile sources. On-road mobile sources include light-duty automobiles; light-, medium-, and heavy-duty trucks as well as motorcycles.

Emissions of lead have dropped substantially over the past 40 years. The reduction before 1990 was largely due to the phase-out of lead as an anti-knock agent in gasoline for on-road automobiles. Substantial emission reductions have also been achieved through enhanced controls in the metals-processing industry. In the MDAB, atmospheric lead is generated almost entirely by the combustion of leaded gasoline and contributes less than one percent of the material collected as total suspended particulates.

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 200 compounds, including diesel particulate emissions from diesel fueled engines.

Odorous Emissions

Though offensive odors from stationary sources rarely cause any physical harm, they still are unpleasant and can lead to public distress generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency and intensity of the source; wind speed and direction; and the sensitivity of receptors. Generally, increasing the distance between the receptor and the source will mitigate odor impacts.

3.2.1.3 Greenhouse Gas Principles

GREENHOUSE GAS TERMINOLOGY

GHGs are the gases in earth's atmosphere that trap low-frequency infrared radiation that is emitted from earth's surface. Some GHGs occur naturally; however, human activities have led to an increase in the concentration of certain GHGs since the mid-20th century. GHGs of primary concern from human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases (U.S. EPA 2022).

The greenhouse effect is the phenomenon that occurs when solar radiation enters earth's atmosphere. Part of the solar radiation is reflected back to space. However, a portion of it is absorbed by the earth's surface, then emitted in low-frequency infrared radiation, which is absorbed by GHGs in earth's atmosphere, raising the temperature of the surface of the earth, similar to the way a greenhouse captures and retains warmth from the sun.

Global warming and climate change are terms that describe the increase in the average temperature of the earth's near-surface air and oceans since the mid-20th century, the effects on weather variability, and the impact on natural resources and society.

Carbon dioxide (CO_2)

Carbon dioxide enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and other biological materials, and also as a result of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

Methane (CH_4)

Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices, land use and by the decay of organic waste in municipal solid waste landfills.

Nitrous oxide (N_2O)

Nitrous oxide is emitted during agricultural, land use, and industrial activities; combustion of fossil fuels and solid waste; as well as during treatment of wastewater.

Fluorinated gases

These gases are synthetic, powerful GHGs that are emitted from a variety of household, commercial, and industrial applications and processes. Fluorinated gases (especially hydrofluorocarbons) are sometimes used as refrigerants, and in industrial processes such as aluminum and semiconductor manufacturing as substitutes for stratospheric ozone-depleting substances (e.g., chlorofluorocarbons, hydrochlorofluorocarbons, and halons)

GLOBAL WARMING POTENTIAL

Global Warming Potential (GWP) compares the global warming impacts of different gases. Two ways in which GHGs differ are their ability to absorb energy (their "radiative efficiency"), and how long they stay in the atmosphere (also known as their "lifetime"). GWP is a measure of how much heat the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of CO_2. The larger the GWP, the more that gas warms the earth compared to CO_2 over the given time period. The time period usually used for GWPs is 100 years. CO_2, by definition, has a GWP of 1 because it is the gas being used as the reference. CH_4 has a GWP of 27-30 over 100 years. CH_4 lasts about a decade in earth's atmosphere on average, which is less time than CO_2; however, CH_4 absorbs more energy than CO_2, giving it a higher GWP value. N_2O has a GWP of 273 over 100 years; it can remain in the atmosphere for more than 100 years, on average. Fluorinated gases are sometimes called high-GWP gases because they trap substantially more heat than CO_2; the GWPs for these gases can be in the thousands or tens of thousands (U.S. EPA 2022).

CARBON DIOXIDE EQUIVALENT

Carbon dioxide equivalent is a unit of measure to compare the emissions from various GHGs based on their GWP. Carbon dioxide equivalents are commonly expressed as metric tons of carbon dioxide equivalents ($MTCO_2e$). The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by its associated GWP (U.S. EPA 2022).

3.2.1.4 Project Area

EXISTING CONDITIONS

AVAQMD maintains the monitoring stations throughout the MDAB that monitor air quality and compliance with associated ambient standards. The closest station to the proposed Project area is approximately six miles north of the Palmdale Water District (PWD) service area at 43301 Division Street in the City of Lancaster, CA. The following pollutants are monitored at this station: ozone, PM_{10} and $PM_{2.5}$, and NO_2. The most recent published data for the monitoring station are presented in **Table 3.2-1**.

Figure 3.2-1: Air Quality Data Summary (2020 – 2022)

Pollutant	Monitoring Data by Year			
	Standard	2020	2021	2022
Ozone (O_3)				
1 Hour Average (ppm)				
Days over National Standard	N/A	-	-	-
Days over State Standard	0.09 ppm	4	0	3
8 Hour Average (ppm)				
Days over National Standard	0.070 ppb	8	3	33
Days over State Standard	0.070 ppm	8	4	36
Nitrogen Dioxide (NO_2)				
1 Hour Average (ppm)				
Days over National Standard	0.100 ppm	0	0	0
Days over State Standard	0.18 ppm	0	0	0
Annual Average (ppm)				
Days over National Standard	0.053 ppm	0	0	0
Days over State Standard	0.030 ppm	0	0	0
Particulate Matter (PM_{10})				
24 Hour Average (µg/m^3)				
Days over National Standard	150 µg/m^3	1	1	0
Days over State Standard	50 µg/m^3	-	-	-
Annual Average (µg/m^3)				
Days over National Standard)	N/A	-	-	-
Days over State Standard	20 µg/m^3	-	-	-
Particulate Matter ($PM_{2.5}$)				
24 Hour Average (µg/m^3)				
Days over National Standard	35 µg/m^3	1	1	0
Days over State Standard	N/A	-	-	-
Annual Average (µg/m^3)				
Days over National Standard	12 µg/m^3	-	-	-
Days over State Standard	12 µg/m^3	-	-	-

ppm = parts per million; µg/m3 = micrograms per cubic meter.
Source: CARB n.d.

Attainment Status

Both CARB and U.S. EPA use the type of monitoring data shown in **Table 3.2-1** to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment. The current attainment status for the AVAQMD is provided in **Table 3.2- 2**.

Figure 3.2-2: Antelope Valley AQMD Attainment Status

Pollutant	Averaging Time	Attainment Status	
		California Standard	Federal Standard
Ozone (O_3)	1 Hour	Nonattainment	Nonattainment
	8 Hour		
Respirable Particulate Matter (PM_{10})	24 Hour	Nonattainment	Unclassified/ Attainment
	Annual Arithmetic Mean		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No State Standard	Unclassified/ Attainment
	Annual Arithmetic Mean	Unclassified	
Carbon Monoxide (CO)	8 Hour	Attainment	Unclassified/ Attainment
	1 Hour		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	Attainment	Unclassified/ Attainment
	1 Hour		
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	Attainment	Unclassified/ Attainment
	24 Hour		
	3 Hour		
	1 Hour		
Lead (Pb)	30 Day Average	Attainment	Unclassified/ Attainment
	Calendar Quarter		
	Rolling 3-Month Average		
Visibility Reducing Particles	8 Hour	Unclassified	No Federal Standard
Sulfates	24 Hour	Attainment	
Hydrogen Sulfide	1 Hour	Unclassified	
Vinyl Chloride	24 Hour	Unclassified	

Source: AVAQMD 2017

Sensitive Receptors

Sensitive receptors are facilities or land uses that house or attract people who are especially sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Residences, schools, daycare centers, playgrounds and medical facilities are considered sensitive receptor land uses (AVAQMD 2016). The proposed Project components, including pipelines, water treatment, and wells which would likely be located in proximity to sensitive land uses in various locations throughout the PWD service area.

3.2.2 REGULATORY FRAMEWORK

This section describes local, state, and federal laws, policies and regulations that apply to the proposed Project. The proposed Project actions are located in the City and unincorporated areas of the County of Los Angeles; therefore, the City and County General Plans are applicable to the proposed Project.

3.2.2.1 Federal Policies and Regulations

CLEAN AIR ACT

Federal air quality programs are administered by the United States Environmental Protection Agency. U.S. EPA's air quality mandates come from the federal Clean Air Act, which was enacted in 1963. The following timeline includes the major accomplishments in air pollution regulation (U.S. EPA 2023).

- **1970** Congress passes the first major Clean Air Act, requiring a 90 percent reduction in emissions from new automobiles by 1975. President Richard Nixon establishes U.S EPA, and the new agency is given it broad responsibility for regulating motor vehicle pollution. New cars must meet U.S EPA emission standards for hydrocarbons (HC), carbon monoxide (CO), nitrogen oxide (NO_x). The law also directs U.S EPA to set health-based "National Ambient Air Quality Standards" for six pollutants, known as criteria air pollutants.
- **1975** Congress passes the Energy Policy Conservation Act, setting the first fuel economy goals. The Corporate Average Fuel Economy program establishes a phase-in of more stringent fuel economy standards beginning with 1975 model vehicles.
- **1977** Congress amends the Clean Air Act which set a schedule for continued reductions in emissions from automobiles.
- **1985** The U.S. EPA sets stringent standards for emissions of NO_x from heavy-duty engines and of PM from heavy-duty diesel-powered trucks and buses.
- **1990** Congress amends the Clean Air Act to require further reductions in HC, CO, NO_x, and PM emissions. The 1990 amendments also give the U.S. EPA, for the first time, specific authority to regulate emissions from nonroad engines and vehicles.
- **1997** The U.S. EPA finalizes emission standards for NO_x, HC, CO, PM, and smoke for newly manufactured and re-manufactured diesel-powered locomotives and locomotive engines.
- **1998** The U.S. EPA issues more stringent emissions standards for diesel engines used in nonroad construction, agricultural, and industrial equipment, as well as in certain marine applications.

- **1999** The U.S. EPA issues a final rule to reduce NO_x and PM emissions from new large marine diesel engines. These engines are used in a variety of capacities, including fishing boats, tug and tow boats, dredgers, coastal and Great Lakes cargo vessels, and ocean-going vessels.
- **2001** The U.S. EPA issues final regulations to control emissions of air toxics from mobile sources.
- **2007** The U.S. EPA issues final regulations to reduce air toxics from mobile sources.
- **2011** The U.S. EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announce the first-ever regulations to improve fuel efficiency of heavy-duty trucks and buses. This national program applies to combination tractors (semi-trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks).
- **2014** The U.S. EPA finalized Tier 3 Standards for gasoline and the vehicles passenger cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty vehicles. Starting in 2017, Tier 3 sets new vehicle emissions standards and lowers the sulfur content of gasoline, considering the vehicle and its fuel as an integrated system.

3.2.2.2 State Policies and Regulations

CALIFORNIA AIR RESOURCES BOARD

The California Air Resources Board (CARB) implements the California Clean Air Act. The California Clean Air Act (CCAA), which was adopted in 1988, required CARB to establish the California Ambient Air Quality Standards (CAAQS). The CAAQS must be at least as protective as the National Ambient Air Quality Standards (NAAQS), but in most cases are more stringent. The CCAA allowed for areas in California to be designated as attainment or nonattainment of the CAAQS and required the air districts that oversee nonattainment areas to prepare a plan to show progress toward attainment. The CCAA specifies that local air districts should focus on reducing emissions from transportation and area-wide emission sources. The CCAA also provides air districts with the authority to regulate air pollution sources.

The CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and State air pollution control programs within California to achieve and maintain the NAAQS. CARB has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts. Local air districts provide additional strategies for sources under their jurisdiction. The CARB combines these data and submits the completed SIP to U.S. EPA. Other CARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles. The SIP is required for the State to take over implementation of the CAA from U.S. EPA.

CEQA GUIDELINES FOR GHG

CEQA Guidelines, Section 15064.4 addresses the significance of GHG emissions. Section 15064.4 calls for a lead agency to make a "good-faith effort" to "describe, calculate or estimate" GHG emissions in CEQA environmental documents. Section 15064.4 further states that the analysis of GHG impacts should include consideration of (1) the extent to which a project may increase or reduce GHG emissions, (2) whether project emissions would exceed a locally applicable threshold of significance, and (3) the extent to which a project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (see, e.g., section 15183.5(b))." The CEQA Guidelines also state that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project would comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of GHG emissions) that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (CEQA Guidelines Section 15064(h)(3)). The CEQA Guidelines revisions do not, however, set a numerical threshold of significance for GHG emissions.

CEQA Guidelines, Section 15183.5(b) describes the elements of plans for the reduction of greenhouse gas emissions that can be used for tiering later project-specific environmental analysis to determine whether a project's incremental contribution is cumulatively considerable. A previously approved plan or mitigation program for reduction of GHG emission should:

- Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;
- Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
- Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
- Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
- Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels;
- Be adopted in a public process following environmental review.

The CEQA Guidelines also include the following guidance on measures to mitigate GHG emissions, when such emissions are found to be significant. Consistent with Section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of GHG emissions. Measures to mitigate the significant effects of GHG may include, among others:

- Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
- Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;
- Measures that sequester GHGs; and
- In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

CALIFORNIA GREENHOUSE GAS REDUCTION TARGETS

2005 Governor Arnold Schwarzenegger signs Executive Order S-03-05, requiring the Secretary of the California Environmental Protection Agency to report to the Governor and the state legislature by January 2006, and every two years afterwards, on the impacts of global warming to California. Specifically, the Executive Order established these targets:

- By 2010, California shall reduce GHG emissions to 2000 levels;
- By 2020, California shall reduce GHG emissions to 1990 levels; and
- By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

2006 Governor Arnold Schwarzenegger signs Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 established regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 required that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 also included guidance to institute emission reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

2007 Senate Bill (SB) 97, enacted in 2007, amended the CEQA statute to establish that GHG emissions and their effects are a prominent environmental issue that require analysis and identification of feasible mitigation under CEQA.

2008 CARB adopted its Climate Change Scoping Plan (Scoping Plan), which is the State's plan to achieve GHG reductions in California required by AB 32. The Scoping Plan includes CARB-recommended GHG reductions for each emission sector of the State's GHG inventory. The largest proposed GHG reductions recommended are from improving emission standards for light-duty vehicles, implementation of the Low-Carbon Fuel Standard, employing energy efficiency measures in buildings and appliances, the widespread development of

combined heat and power systems, and applying a renewable portfolio standard for electricity production.

In addition, CARB's In-Use Off-Road Diesel Vehicles regulation became effective in 2008. The regulation covers a wide scope of vehicle types, including those used in construction. Although the stated goal of the regulation is to reduce particulate matter (PM) and NO_X emissions from existing (i.e., in-use) off-road heavy-duty diesel vehicles in California, the regulation limits vehicle idling. Under the rule, no vehicle or engine may idle for more than five minutes, which conserves fuel and reduces GHG emissions from burning fuel.

2010 Greenhouse gas emissions were incorporated into the CEQA Guidelines.

2011 The federal Heavy-Duty GHG Phase 1 regulation (Phase 1) was adopted in 2011 by the U.S. EPA and NHTSA as the first federal GHG emission standards and fuel economy standards for heavy-duty engines and vehicles.

2013 CARB approved for adoption California Phase 1 GHG regulations that were substantially identical to the federal Phase 1 regulations.

2014 CARB adopted the First Update to the Climate Change Scoping Plan. The update reported on the progress made towards meeting the 2020 GHG reduction goals; laid the groundwork for longer term reduction goals; and discussed opportunities to leverage funds to drive additional GHG reductions.

2015 Governor Edmund Brown Jr. issued Executive Order B-30-15, which required GHG emissions in California be reduced by 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.

2016 Governor Brown signed SB 32 into law which codified the mandate to reduce GHG emissions by 40 percent below 1990 levels by 2030.

In addition, U.S. EPA and NHTSA adopt Phase 2 GHG standards.

2017 CARB adopted the 2017 Climate Change Scoping Plan, the strategy for achieving California's 2030 GHG target. The 2017 Climate Change Scoping Plan established the strategy to achieve California's GHG reduction target of 40 percent below 1990 levels by 2030 and set the path towards achieving the statewide 2050 target of 80 percent below 1990 levels.

2022 CARB adopted the 2022 update to the Climate Change Scoping Plan, the State's plan to achieve GHG reductions in California required by AB 32. The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) lays out a path to achieve targets for carbon neutrality and reduce anthropogenic greenhouse gas (GHG) emissions by 85 percent below 1990 levels no later than 2045, as directed by Assembly Bill 1279. The actions and outcomes in the plan will achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and

working lands to reduce emissions and sequester carbon, and the capture and storage of carbon.

RENEWABLE ENERGY

The California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) jointly implement the statewide Renewable Portfolio Standard (RPS) program through rulemakings and monitoring the activities of electric energy utilities in the State. SB 1078 established the RPS in 2002, which required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from eligible renewable sources by 2017. SB 107 changed the target date to 2010. In November 2008, Executive Order S-14-08 expanded the State's RPS goal to 33 percent renewable power by 2020. In September 2009, Executive Order S-21-09 directed CARB (under its AB 32 authority) to enact regulations to help the State meet the 2020 goal of 33 percent renewable energy. The 33 percent by 2020 RPS goal was codified in April 2011 with SB X1-2. SB X1-2 required retail sellers of electricity to provide at least 33 percent of their electricity supply (portfolio) from renewable sources by 2020. This requirement applied to investor-owned utilities, publicly owned utilities, and community choice aggregators. Senate Bill 350, the Clean Energy and Pollution Reduction Act of 2015, was signed into law on October 7, 2015. It established new goals for clean energy, clean air, and GHG reduction goals for 2030 and beyond. SB 350 required California's renewable electricity procurement goal to be increased under the RPS from 33 percent by 2020 to 50 percent by 2030. On September 10, 2018, Governor Brown signed SB 100, which increased the RPS requirement to 60 percent eligible renewables by 2030 and 100 percent by 2045.

The State's cap-and-trade program is administered by CARB. It covers GHG emission sources that emit more than 25,000 $MTCO_2e$/year, such as refineries, power plants, and industrial facilities. The market-based approach to reducing GHG emissions provides economic incentives for achieving GHG emission reductions.

STATE VEHICLE EFFICIENCY POLICIES AND REGULATIONS

CARB approved the Low Carbon Fuel Standard (LCFS) regulation in 2009, and implementation began in 2011. The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels and encourage the production of those fuels. Providers of transportation fuels must demonstrate that the mix of fuels they supply for use in California meets the LCFS carbon intensity standards for each annual compliance period. In 2018, CARB approved amendments to the regulation, which included strengthening and smoothing the carbon intensity standards through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote ZEV adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The federal Heavy-Duty GHG Phase 1 regulation (Phase 1) was adopted in 2011 by the U.S. EPA and NHTSA as the first federal GHG emission standards and fuel economy standards for heavy-duty engines and vehicles. In 2013, the CARB approved for adoption California Phase 1 GHG

regulations that were substantially identical to the federal Phase 1 regulations. CARB staff worked closely with U.S. EPA and NHTSA over the past several years on the development of Phase 2 GHG standards, which were adopted by U.S. EPA and NHTSA on October 25, 2016.

3.2.2.3 Local Policies and Regulations

ANTELOPE VALLEY AIR QUALITY MANAGEMENT DISTRICT

AVAQMD has jurisdiction over air quality for the proposed Project area. AVAQMD was established in 1997 by the California State Legislature which separated the Antelope Valley and northern Los Angeles County from the South Coast Air Quality Management District. The AVAQMD is the local agency with the primary responsibility for the control of non-vehicular sources of air pollution throughout the Antelope Valley. AVAQMD lies within the northern part of Los Angeles County. AVAQMD boundaries start on the south just outside of community of Acton, north to the Kern County line, east to the San Bernardino County line, and west to the Quail Lake area. The AVAQMD has adopted several regulations and documents to reduce air pollution within its boundaries.

Federal 70 ppb Ozone Attainment Plan

The United States Environmental Protection Agency designated the Western Mojave Desert area as nonattainment for the 2015 70 ppb 8-hour ozone NAAQS pursuant to the provisions of the federal Clean Air Act. The AVAQMD is included in the Western Mojave Desert nonattainment area and is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the MDAB is in nonattainment. AVAQMD has not adopted an Air Quality Management Plan (AQMP) for its jurisdiction. However, AVAQMD has adopted an Ozone Attainment Plan which contains a comprehensive list of pollution control and contingency measures directed at reducing emissions and attaining the NAAQS. The Ozone Attainment Plan: (1) demonstrates that the AVAQMD will meet the primary required Federal ozone planning milestone, attainment of the 70 ppb 8-hour ozone NAAQS, by August 2033; (2) presents the progress the AVAQMD will make towards meeting all required ozone planning milestones; and (3) discusses the 2015 70 ppb 8-hour ozone NAAQS, preparatory to an expected non-attainment designation for the new NAAQS. The Ozone Attainment Plan includes the latest planning assumptions regarding population, vehicle activity and industrial activity, and addresses all existing and forecast ozone precursor-producing activities within the AVAQMD through the year 2032. The Ozone Attainment Plan includes all necessary information to allow general and transportation conformity findings to be made within the AVAQMD (AVAQMD 2023).

CEQA and Federal Conformity

The AVAQMD published CEQA and Federal Conformity Guidelines in August 2016. The guidelines are intended to assist persons preparing environmental analysis or review documents for any project within the jurisdiction of the AVAQMD by providing background information and guidance on the preferred analysis approach (AVAQMD 2016).

Rule Book

The AVAQMD has adopted rules and regulations that shall be known as the rules of the Antelope Valley Air Quality Management District (AVAQMD n.d.). The proposed Project would be subject to the applicable AVAQMD rules and regulations with regard to construction equipment, particulate matter generation, architectural coatings, paving materials, and other processes. The following applicable rules of AVAQMD would apply to the proposed Project:

- **Rule 201: Permit to Construct.** A person shall not build, erect, install, alter or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce or control the issuance of air contaminants without first obtaining written authorization for such construction from the Air Pollution Control Officer. A permit to construct shall remain in effect until a permit to operate the equipment for which the application was filed is granted or denied, or the application is canceled.
- **Rule 401 Visible Emissions**. Limits the discharge of pollutants that create visible emissions and opacity. Specifically, Rule 401 prohibits emissions that are darker in color than shade No. 1 on the Ringelmann Chart or that obscure a human observer's view.
- **Rule 402 Nuisance**. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
- **Rule 403 Fugitive Dust.** The purpose of this rule is to reduce the amount of Particulate Matter entrained in the ambient air as a result of anthropogenic (man-made) Fugitive Dust sources by requiring actions to prevent, reduce or mitigate Fugitive Dust emissions.
- **Rule 404 Particulate Matter – Concentration.** A person shall not discharge into the atmosphere from any source, particulate matter in excess of 450 milligrams per cubic meter (0.196 grain per cubic foot) in discharged gas calculated as dry gas at standard conditions.
- **Rule 405 Solid Particulate Matter – Weight.** A person shall not discharge into the atmosphere in any one hour from any source, solid particulate matter including lead and lead compounds in excess of 0.23 kilogram (0.5 pound) per 907 kilograms (2000 pounds) of process weight.
- **Rule 407 Liquid and Gaseous Air Contaminants.** Limits the amount of carbon monoxide (CO) and sulfur dioxide (SO_2) pollutant emissions.
- **Rule 409 Combustion Contaminants.** A person shall not discharge into the atmosphere from the burning of fuel, combustion contaminants exceeding 0.23 gram per cubic meter

(0.1 grain per cubic foot) of gas calculated to 12 percent of carbon dioxide (CO_2) at standard conditions averaged over a minimum of 15 consecutive minutes.

3.2.3 IMPACT ANALYSIS

This section evaluates whether construction and operation of the facilities associated with the proposed Project would result in significant impacts related to air quality and greenhouse gas emissions.

3.2.3.1 Methodology for Analysis

This section focuses on the nature and magnitude of the change in the air quality and greenhouse gas environment due to implementation of the proposed Project. Air pollutant and GHG emissions associated with the proposed Project would result from the construction and operation of the proposed Project components. The emissions generated by these activities and other secondary sources have been estimated and compared to the applicable thresholds of significance recommended by AVAQMD.

CONSISTENCY WITH THE APPLICABLE AIR QUALITY PLAN

AVAQMD's Ozone Attainment Plan contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving the NAAQS. These strategies were developed, in part, based on regional growth projections and existing land use designations prepared by the Southern California Association of Governments. According to the AVAQMD CEQA and Federal Conformity Guidelines (AVAQMD 2016), a project is deemed to not conflict with the applicable air quality plan, and hence not be significant, if it is consistent with the existing land use plan that was used to generate the growth forecast. Zoning changes, specific plans, general plan amendments and similar land use plan changes which do not increase dwelling unit density, do not increase vehicle trips, and do not increase vehicle miles traveled are also deemed to not conflict with the applicable air quality plan.

CONSTRUCTION CRITERIA AIR POLLUTANT EMISSIONS ESTIMATE DEVELOPMENT

Construction of certain proposed Project components, including the Pure Water Antelope Valley project, the rehabilitation and/or replacement of existing groundwater wells, and the Palmdale Ditch Conversion project, have the potential to generate temporary criteria pollutant emissions through the use of heavy-duty construction equipment, such as cranes and excavators, and through vehicle trips generated from worker trips, haul trucks, and vendor/material supply trucks traveling to and from the Project area. In addition, fugitive dust emissions could result from demolition and various soil-handling activities. Evaporative emissions of VOCs can result from the application of asphalt and architectural coatings and vary depending on the amount of asphalt and coatings applied on a daily basis. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of construction activity, and prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources of emissions.

Air pollutant emissions generated by construction were estimated using the most recent version of the California Emissions Estimator Model (CalEEMod), an emissions inventory software program recommended by AVAQMD. CalEEMod is based on outputs from OFFROAD and EMFAC, which are emissions estimation models developed by CARB and used to calculate emissions from construction activities, including on- and off-road vehicles. CalEEMod uses project-specific information, including a project's land uses and location to model a project's construction emissions. The analysis in this EIR reflects the construction of the Project as described under **Chapter 2 Project Description.** Detailed construction equipment lists, construction scheduling, and emissions calculations are provided in **Appendix B** of this EIR.

Construction emissions modeled using CalEEMod are presented below for the Palmdale Ditch Conversion project and the rehabilitation and/or replacement of existing groundwater wells. For the Pure Water Antelope Valley project, detailed information, such as the footprint size of the future plant and the specific types and number of construction equipment or vehicle trips, is not known for these activities. Therefore, it is not possible to quantify specific construction emissions associated with the Pure Water Antelope Valley project and air quality impacts are analyzed qualitatively at a programmatic level.

Construction emissions modeled for the Palmdale Ditch Conversion project include emissions generated by construction equipment used on-site and emissions generated by vehicle trips associated with construction, such as workers, vendor and haul trips. CalEEMod estimates construction emissions by multiplying the amount of time equipment is in operation by emission factors. The approximate 7.2 miles of construction was assumed to occur linearly at a conservative, maximum rate of 200 feet per day per construction site (although the proposed Project is estimated to construct 100 feet per day per construction site on average). This maximum rate of construction was used to develop a construction schedule in CalEEMod with an estimated construction start date of March 1, 2025. Offroad equipment lists for each phase were provided by the Palmdale Ditch Conversion project engineer and input into CalEEMod. Based on information provided by the Palmdale Ditch Conversion project engineer, approximately 44,000 cubic yards of soil import and 27,500 cubic yards of soil export was assumed. Default haul trip lengths were conservatively assumed. Air pollutant emissions were modeled for one active construction site. However, depending on schedule constraints, construction may occur simultaneously at multiple locations along the alignment at any given time. Therefore, for purposes of providing a conservative analysis, air pollutant emissions for one active construction site were doubled to represent two simultaneously active construction sites.

Construction emissions modeled for the rehabilitation and/or replacement of existing groundwater wells also include emissions generated by construction equipment used on-site and emissions generated by vehicle trips associated with construction. Equipment and vehicle trips were modeled consistent with the assumptions found in **Section 2.5.7.4** of the Project Description.

Operation Emissions Estimate Development

Emissions produced from the operation of the proposed Project are analyzed in terms of an increase from existing operational conditions of the existing Project components. Periodic maintenance activities would generate emissions primarily from vehicle trips to the Pure Water Antelope Valley site and associated pipelines, brine pond, and injection wells. Other emissions from maintenance would include the collection of trash generated by the inspection and maintenance activities. Detailed information on the vehicle trips from the Pure Water Antelope Valley project has not yet been developed; therefore, it is not possible to quantify specific emissions. Air quality impacts are analyzed qualitatively at a programmatic level. Once the Palmdale Ditch Conversion project is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Palmdale Ditch (Ditch). Other proposed Project components, including the groundwater wells rehabilitation and/or replacement, maximizing SWP deliveries, and conservation would result in no change to operation activities. Therefore, emissions from operational vehicle trips are discussed qualitatively.

Operation of the Palmdale Ditch Conversion project may require the installation of a backup diesel generator to support the new future turnout. Therefore, operational emissions associated with routine testing and maintenance of the backup generator are quantified in this analysis. The generator was estimated to be between 5 to 10 kW in size (conservatively assumed as 15 horsepower in CalEEMod) and to be operated 30 minutes per month for testing and maintenance.

Operation of certain components of the proposed Project would result in an increase in electricity use that has not been previously evaluated under CEQA, namely the Pure Water Antelope Valley project, and the Palmdale Ditch Conversion new future turnout. Indirect emissions of criteria air pollutants from electrical power plants are regulated at the plant themselves, and therefore CalEEMod does not attribute criteria air pollution emissions to individual CEQA projects. Therefore, emissions of criteria air pollutants from indirect electricity use are not analyzed quantitively.

Greenhouse Gas Emissions

For the groundwater replacement component and the Palmdale Ditch Conversion project, GHG emissions associated with construction were estimated using the most recent available version of CalEEMod with the same assumptions described above for criteria air pollutants. For the Pure Water Antelope Valley project, detailed information, such as the footprint size of the future plant and the specific types and number of construction equipment or vehicle trips, is not known for these activities. Therefore, it is not possible to quantify specific construction emissions associated with the Pure Water Antelope Valley project and GHG impacts are analyzed qualitatively at a programmatic level.

Operation of certain components of the proposed Project would result in an increase in electricity use that has not been previously evaluated under CEQA, namely the Pure Water Antelope Valley project, and the Palmdale Ditch Conversion new future turnout. Operation of the Pure Water Antelope Valley project would require a net increase in PWD's electricity usage. It is estimated that the proposed 5 million gallon per day advanced water purification facility (AWPF) would require approximately 4.2 gigawatt-hours per year of power (Stantec 2023). The indirect GHG emissions from electricity use are estimated in this analysis. Detailed information on the vehicle trips from the Pure Water Antelope Valley project, however, has not yet been developed; therefore, it is not possible to quantify specific emissions. GHG impacts are analyzed qualitatively at a programmatic level.

Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Palmdale Ditch. In addition, the increase in electricity that may occur due to operation of the new future turnout would be nominal because the new future would operate infrequently. Because the increase in baseline operational GHG emissions would be minimal, these emissions were not quantified.

Likewise, once the well rehabilitation and/or replacement is complete, the amount of operation and maintenance conducted by PWD staff would be the same as current activities. Because there would be no net increase in activities that have the potential to result in GHG emissions, these emissions were not quantified.

Sensitive Receptors

Certain population groups, such as children, the elderly, and people with health problems, are particularly sensitive to air pollution. The majority of sensitive receptor locations are schools, hospitals, and residences. Because operational activities consist of emission sources (mobile sources) of criteria pollutants from maintenance activities at sites that do not have schools, hospitals, and residences, the localized impacts from operation would be minimal, and therefore, the analysis includes a qualitative discussion of associated impacts. The qualitative discussion focuses on pollutants that have localized effects, including diesel particulate matter (DPM), carbon monoxide (CO), and toxic air contaminants (TACs).

Carbon Monoxide Hotspots

A carbon monoxide hotspot is a localized concentration of carbon monoxide that is above an ambient air quality standard. Localized carbon monoxide hotspots can occur at intersections with heavy peak hour traffic. Specifically, hotspots can be created at intersections where traffic levels are sufficiently high such that the local carbon monoxide concentration exceeds the federal one-hour standard of 35.0 parts per million or the federal and State eight-hour standard of 9.0 parts per million (CARB 2023a).

Carbon monoxide decreased dramatically in the MDAB with the introduction of the catalytic converter in 1975. No exceedances of CO have been recorded at monitoring stations in the MDAB for some time and the MDAB is currently designated as a CO attainment area for both the CAAQS and NAAQS. According to modeling conducted by the South Coast Air Quality Management District (SCAQMD) for its 2003 AQMP, an intersection would need to receive more than 400,000 vehicles passing through it each day in order to be considered a CO hotspot. Because the number of additional vehicle trips from operation of the Project would be minimal, CO impacts are discussed qualitatively.

TOXIC AIR CONTAMINANTS

The greatest potential for TAC emissions during construction would be related to DPM emissions associated with heavy-duty equipment during demolition, excavation and grading activities. Construction activities associated with the proposed Project would be sporadic, transitory, and short term in nature. The California Office of Environmental Health Hazard Assessment (OEHHA) is responsible for developing and revising guidelines for performing health risk assessments (HRAs) under the State's Air Toxics Hot Spots Program Risk Assessment (AB 2588) regulation. In March 2015, OEHHA adopted revised guidelines that update the previous guidance by incorporating advances in risk assessment with consideration of infants and children using Age Sensitivity Factors (ASF) (OEHHA 2015). The analysis of potential construction TAC impacts considers the OEHHA revised guidelines as well as the duration of construction, level of construction activity, scale of the proposed project, and compliance with regulations that would minimize construction TAC emissions.

The dose of DPM to which the receptors are exposed was the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that a person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period of time. According to the OEHHA, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/ duration of activities associated with the project. Current models and methodologies for conducting health-risk assessments are associated with longer-term exposure periods of 9, 30, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities, resulting in difficulties in producing accurate estimates of health risk (BAAQMD 2017). Of these, the 30-year exposure period is most commonly used. Thus, the duration of proposed construction activities (i.e., approximately 10 months) was assumed to be approximately three percent of the total exposure period used for 30-year health risk calculations.

3.2.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines,* as updated in December 2018, air quality impacts would be considered significant if the proposed Project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

As guided by Appendix G of the CEQA Guidelines, the significance criteria established by the applicable air quality management district may be relied upon to make the above determinations. As such, the significance thresholds and analysis methodologies developed in AVAQMD's CEQA and Federal Conformity Guidelines (AVAQMD 2016) are used in evaluating the proposed Project's impacts.

AVAQMD CEQA AND FEDERAL CONFORMITY GUIDELINES

According to the AVAQMD CEQA and Federal Conformity Guidelines (AVAQMD 2016), a project would have a significant air quality or greenhouse gas impact if it triggers or exceeds one of the following criteria:

1. Generates total emissions (direct and indirect) in excess of the thresholds shown in **Table 3.2-3**;
2. Generates a violation of any ambient air quality standard when added to the local background;
3. Does not conform with the applicable attainment or maintenance plan(s); or
4. Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.

AVAQMD has established annual and mass daily emissions thresholds for criteria pollutants and ozone precursors, which are shown in **Table 3.2-3**. PWD has not adopted a qualified Climate Action Plan; therefore, AVAQMD's GHG emissions thresholds for significance determinations, shown in **Table 3.2-3**, were replied upon for evaluating the proposed Project's GHG emissions.

Table 3.2-2: AVAQMD Significant Emissions Thresholds

Criteria Pollutant	Annual Threshold (tons)	Daily Threshold (pounds)
Greenhouse Gases (CO_2e)	100,000	548,000
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NO_X)	25	137
Volatile Organic Compounds (VOC)	25	137
Oxides of Sulfur (SO_X)	25	137
Particulate Matter (PM_{10})	15	82
Particulate Matter ($PM_{2.5}$)	12	65

3.2.3.3 Criteria Requiring No Further Evaluation

Impact AIR-4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

During construction activities, heavy equipment and vehicles would emit odors associated with vehicle and engine exhaust and during idling. However, these odors would be intermittent and temporary and would cease upon completion. In addition, odors disperse rapidly with distance, and the majority of the proposed Project is surrounded by low-density residential development and open space. Therefore, construction would not generate other emissions, such as those leading to odors, affecting a substantial number of people, and impacts would be less than significant. The proposed Project does not include components that would generate odors during operation. Therefore, no operational impacts would occur. There would be no impacts and this topic requires no further evaluation.

3.2.3.4 Impacts and Mitigation Measures

Impact AIR-1 Conflict with or obstruct implementation of the applicable air quality plan.

IMPACT AIR-1 ANALYSIS

All components (Imported Supplies, Recycled Water, Groundwater, Local Supplies, Conservation)

As discussed in the Methodology section above, a project is deemed to not conflict with the applicable air quality plan if it is consistent with the existing land use plan that was used to generate the growth forecast and does not increase dwelling unit density, vehicle trips, and vehicle miles traveled due to zoning changes, specific plans and general plan amendments. All components of the proposed Project (Imported Supplies; Pure Water Antelope Valley project; Existing Groundwater Wells Rehabilitation/ Replacement; Palmdale Ditch Conversion; and Conservation) do not include residential or commercial development. Implementation is not forecasted to induce any additional, unplanned growth within the PWD service area. The

proposed Project would not alter the growth projections anticipated in the City General Plan or by SCAG (see Section 5.0, Growth Inducement). The proposed Project would not result in unanticipated long-term population or employment growth. Therefore, implementation of the proposed Project would not conflict with growth projections that underlie the analysis and conclusions in the AVAQMD Ozone Attainment Plan. The proposed Project would also incorporate control strategies, as applicable, consistent with the Ozone Attainment Plan. Construction of the proposed Project would comply with AVAQMD Rule 403 (fugitive dust) requirements and would utilize construction contractors that comply with required and applicable BACT and the CARB In-Use Off-Road Diesel Vehicle Regulation. As such, the proposed Project would not conflict with, or obstruct, implementation of the Ozone Attainment Plan, and this impact would be less than significant.

IMPACT AIR-1 FINDINGS

Significance before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact AIR-2 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard.

IMPACT AIR-2 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Detailed information required to quantitively estimate criteria air pollutant emissions is not yet known for the Pure Water Antelope Valley project. Proposed Project-specific construction details would be developed and evaluated in subsequent CEQA compliance documentation. Estimates of construction-related exhaust emissions from construction equipment and worker trips were not quantified for this analysis. However, construction activities would produce criteria pollutant emissions (primarily ROG and NOx) as a result of using heavy-duty construction equipment. Mobile source emission would also be produced from construction worker vehicle trips to and from the proposed Project area. In addition, fugitive dust emissions would be generated from site preparation and excavation activities and vehicle travel on paved and unpaved surfaces. Construction equipment exhaust also would produce particulate matter emissions. Criteria pollutant emissions of ROG and NO_X from construction equipment and construction worker vehicle trips would incrementally add to regional atmospheric loading of ozone precursors during the construction period.

Construction impacts would be temporary and limited to the period of time when construction activities are taking place, and the Pure Water Antelope Valley project would be subject to

future project-level environmental review, including a determination of whether maximum daily construction-related emissions (lbs/day) would exceed AVAQMD's applicable significance thresholds. However, construction of the Pure Water Antelope Valley project, groundwater well replacement/ rehabilitation, and the Palmdale Ditch Conversion are all planned for the near-term and, therefore, may occur simultaneously. Criteria air pollutant emissions from the groundwater well replacement/rehabilitation, and the Palmdale Ditch Conversion are estimated below and found to be less than the AVAQMD significance thresholds. Criteria pollutant emissions from the Pure Water Antelope Valley project are anticipated to also be less than the AVAQMD significance thresholds. However, if the Pure Water Antelope Valley project is constructed at the same time as other proposed Project facilities, it has the potential to result in total daily emissions that may be in excess of the AVAQMD's significance thresholds. As such, **Mitigation Measures AIR-1** through **AIR-3** would apply to the construction phase. Implementation of **Mitigation Measures AIR-1, AIR-2**, and **AIR-3** would reduce construction-related emissions to below significance thresholds. Impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Construction activities would result in temporary energy use related to fuel consumption for heavy-duty diesel and gasoline-powered equipment, portable auxiliary equipment, material delivery trucks, and worker commuter trips. PWD would replace five wells associated with the proposed Project over a period of approximately 10 years, between 2025 and 2035. Construction activity per well (including well drilling and construction and well equipping) would last approximately six months, as explained in **Section 2.5.7.4** of the Project Description. **Table 3.2-4** presents the estimated emissions during construction from a single replacement well. As shown, construction-related emissions would not exceed AVAQMD daily thresholds, even if PWD were to undertake three groundwater well replacement construction efforts at once. Construction of the groundwater well rehabilitation and/or replacement on its own would not result in a cumulatively considerable net increase of any criteria pollutant for which the proposed Project region is non-attainment (ozone and PM_{10}) under an applicable federal or State ambient air quality standard. Impacts would be less than significant.

Table 3.2-3: Estimated Maximum Daily Construction Emissions (lbs/day)

	NO_X	VOC	PM_{10}	$PM_{2.5}$
Site preparation and mobilization	13.7	1.3	2.0	0.8
Site grading	14.2	1.6	0.8	0.6
Well drilling	17.6	2.5	0.6	0.6
Well construction and equipping	16.0	1.8	0.7	0.6
Site Restoration and Paving	5.9	1.1	0.7	0.2
Coating and striping	0.9	20.1	0.1	0.0
Demolition	13.7	1.6	1.0	0.6

	NO_X	VOC	PM_{10}	$PM_{2.5}$
Max Daily Emissions (one well)	**34.4**	**20.1**	**3.0**	**1.5**
Significance Threshold	*137*	*137*	*82*	*65*
Exceeds Threshold?	No	No	No	No

See Appendix B for calculation sheets. Some numbers may not sum due to rounding.

Local Supplies

Palmdale Ditch Conversion Project

Proposed Project construction would primarily generate temporary air pollutant emissions associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction equipment and construction vehicles. **Table 3.2-5** summarizes the estimated maximum daily air pollutant emissions during construction of the Palmdale Ditch Conversion project. Depending on schedule constraints, construction may occur simultaneously at multiple locations along the alignment at any given time; therefore, **Table 3.2-5** presents estimated daily air pollutant emissions for a single active construction site as well as two simultaneously-active construction sites. As shown, construction-related emissions would not exceed AVAQMD daily thresholds. Therefore, construction of the Palmdale Ditch Conversion on its own would not result in a cumulatively considerable net increase of any criteria pollutant for which the proposed Project region is non-attainment (ozone and PM_{10}) under an applicable federal or State ambient air quality standard. Impacts would be less than significant.

Table 3.2-4: Estimated Maximum Daily Construction Emissions (lbs/day)

	NO_X	VOC	PM_{10}	$PM_{2.5}$
One Active Construction Site	32	2	6	2
Two Active Construction Sites	64	3	13	4
Significance Threshold	*137*	*137*	*82*	*65*
Exceeds Threshold?	No	No	No	No

See Appendix B for calculation sheets. Some numbers may not sum due to rounding.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley would involve a net increase in PWD's electricity usage to operate. It is estimated that the proposed 5 mgd AWPF would require approximately 4.2 gigawatt-hours per year of power (Stantec 2023), although PWD intends to seek opportunities to find clean energy options, such as solar, to offset the Pure Water Antelope Valley project's electrical needs. Increased electricity production is associated with indirect criteria air pollutants. However, these emissions would occur outside the MDAB and would be regulated at the power plants. Therefore, the primary source of emissions generated from operation of the Pure Water Antelope Valley project would be from vehicle trips for worker inspection and maintenance

purposes. Otherwise, operation would be unmanned and there would be no daily worker trips to the facilities. Operational emissions would be less than significant.

Groundwater

Electricity would be necessary for operation of the five replacement groundwater production wells and associated infrastructure, which would result in indirect emissions of criteria air pollutants. However, the replacement wells would be equipped with new machinery, which would presumably be more efficient than the existing wells and would not result in a net increase in emissions. Although it would result in indirect emissions of criteria air pollutants, there would be no net increase from current conditions and impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in weekly maintenance and daily operational needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. The proposed Project may include installation of a new backup generator, which would periodically generate air pollutant emissions during routine testing and maintenance activities. Daily and annual emissions associated with testing and maintenance of the backup generator are provided in **Table 3.2-6** and **Table 3.2-7**, respectively.

Table 3.2-5: Estimated Maximum Daily Operational Emissions (lbs/day)

	NO_X	VOC	PM_{10}	$PM_{2.5}$
Maximum daily emissions	<1	<1	<1	<1
Significance Threshold	*137*	*137*	*82*	*65*
Exceeds Threshold?	No	No	No	No

See Appendix B for calculation sheets. Some numbers may not sum due to rounding.

Table 3.2-6: Estimated Maximum Annual Operational Emissions (tons/year)

	NO_X	VOC	PM_{10}	$PM_{2.5}$
Maximum annual emissions	<1	<1	<1	<1
Significance Threshold	*25*	*25*	*15*	*12*
Exceeds Threshold?	No	No	No	No

See Appendix B for calculation sheets. Some numbers may not sum due to rounding.

As demonstrated in **Table 3.2-6** and **Table 3.2-7**, operational emissions would not exceed AVAQMD daily or annual thresholds. Therefore, operation would not result in a cumulatively considerable net increase of any criteria pollutant for which the proposed Project region is in non-attainment (ozone and PM_{10}). Impacts would be less than significant.

Conservation

The treatment and distribution of water requires energy, which has the potential to result in indirect air pollution. The implementation of water conservation measures would, in turn, result in energy conservation. Therefore, conservation measures would not result in a cumulatively considerable net increase of any criteria pollutant for which the Proposed Project region is in non-attainment (ozone and PM_{10}). Impacts would be less than significant.

IMPACT AIR-2 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measures AIR-1, AIR-2, and AIR-3

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact AIR-3 Expose sensitive receptors to substantial pollutant concentrations.

IMPACT AIR-3 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The nearest sensitive receptors to the Project area include residences along the south side of Avenue Q between East 20th Street and East 22nd Street. These receptors would be approximately 500 feet away from the site of the proposed AWPF and along the alignment of the proposed pipeline between the Palmdale Water Reclamation Plant and the Pure Water Antelope Valley project.

The primary source of construction-related emissions would be exhaust emissions from off-road, heavy-duty diesel equipment. Construction activities would result in temporary Project-generated emissions of diesel particulate matter (DPM). DPM was identified as a TAC by CARB in 1998. Health and cancer risks from DPM depend not just on the quantity of emissions, but also on the duration and proximity to the exposure. As mentioned in the Methodology for Analysis (Section 3.2.3.1 above), this analysis relies on guidance from OEHHA to evaluate duration and proximity risk. As described in the OEHHA guidance (OEHHA 2015), health and cancer risks from DPM are more likely to occur when exposure is on the order of a decade or more (at least 10 times the exposure length associated with the proposed Project), and the proximity is on the order of hundreds of feet. Detailed construction information and schedules for the Pure Water Antelope Valley project are not yet known. However, it is anticipated that construction activities at the site of the proposed plant would not last longer than 3 to 5 years. Construction activities for the pipeline between the Palmdale Water Reclamation Plant and the Pure Water Antelope Valley project would be temporary as construction moves along the alignment. In addition, emissions would be reduced due to the implementation of **Mitigation Measures AIR-2** and

AIR-3. Construction of the Pure Water Antelope Valley project would be evaluated under a future project-level CEQA analysis. However, it is unlikely that sensitive receptors would be exposed to substantial pollutant concentrations as a result of construction. Impacts would be less than significant with mitigation incorporated.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Sensitive receptors are located as close as 50 feet to the existing groundwater well sites. The Project's emissions of DPM during construction of one well would be short (approximately six months), compared to the 9- to 70-year exposure timeframe the OEHHA guidance recommends for evaluating DPM associated health risks. As described in the OEHHA guidance (OEHHA 2015), health and cancer risks from DPM are more likely to occur when exposure is on the order of a decade or more (at least 10 times the exposure length associated with the Project), and the proximity is on the order of hundreds of feet. The nearby receptors would be exposed to exhaust emissions in amounts dependent on the receptors' presence during construction (i.e., residents may not be home during the day for the bulk of construction activities) and dependent on construction phase (with higher on-site emissions shown in **Table 3.2-4** lasting for a matter of weeks rather than the total duration of construction). However, the duration of construction would be short, and the maximum daily $PM_{2.5}$ emissions would be substantially smaller than the allowable levels for achieving the NAAQS and CAAQS. Therefore, sensitive receptors would not be exposed to a substantial level of unmitigated pollutant concentration during construction and emissions of DPM would not result in enough exposure to cause a health impact.

Sensitive receptors are located within close proximity to the well sites. However, Project-related emissions of pollutants, including exhaust and DPM, would be short term, temporary, and at low levels. Sensitive receptors would not be exposed to substantial pollutant concentrations. Therefore, proposed Project construction would have a less than significant impact.

Local Supplies

Palmdale Ditch Conversion Project

The nearest sensitive receptors to the Project area include single-family residences near Lake Palmdale, located approximately 150 feet southwest of the Project area, and single-family residences along Barrel Springs Road, located approximately 200 feet from the Project area. Due to the linear nature of proposed construction activities, any given sensitive receptors would only be exposed to localized construction emissions on a short-term and temporary basis until activities move further along the linear construction path.

Construction-related activities would result in temporary Project-generated emissions of DPM exhaust emissions from off-road, heavy-duty diesel equipment. Generation of DPM from construction projects typically occurs in a single area for a short period of time, which is even shorter for linear construction projects that are constantly moving along an alignment. Construction of the proposed Project would occur over the course of approximately 10 months,

resulting in relatively short-term emissions of DPM during construction of one well when compared to the 9- to 70-year exposure timeframe the OEHHA guidance recommends for evaluating DPM associated health risks. As described in the OEHHA guidance (OEHHA 2015), health and cancer risks from DPM are more likely to occur when exposure is on the order of a decade or more (at least 10 times the exposure length associated with the Project), and the proximity is on the order of hundreds of feet.

For the purposes of this analysis, DPM is assumed to be equivalent to PM_{10} emissions, which is a conservative assumption given that PM_{10} includes both equipment exhaust and fugitive dust emissions. $PM_{2.5}$ is included as a subset of PM_{10} and 90 percent of DPM is typically a subset of $PM_{2.5}$ (CARB 2023b). Maximum PM_{10} emissions would occur during linear grading and excavation activities; however, the location of these activities would move frequently as the construction contractor moves along the linear proposed Project alignment. Due to the short-term nature and constant movement of the locations of the construction activities, the relatively small amounts of DPM generated by proposed Project construction would not create conditions in which sensitive receptors would be exposed to substantial TAC concentrations, and impacts would be less than significant.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

The long-term operation of the Pure Water Antelope Valley project would be evaluated under a future project-level CEQA analysis. However, the primary source of direct air pollution emissions generated from operation of the Pure Water Antelope Valley would be from vehicle trips for worker inspection, maintenance purposes, and supplies deliveries, which would be minimal compared to overall levels in the MDAB. The proposed Project would likely include new diesel-powered emergency generators to provide backup power to the electrical system. Emergency generators would be operated infrequently and would not emit significant amounts of TACs. In addition, operation of the proposed Project would not result in any non-permitted sources of toxic air emissions. As a result, exposure of sensitive receptors to substantial pollutant concentrations would be less than significant.

Groundwater

Once existing groundwater wells are replaced or rehabilitated, there would be no change in operations compared to pre-replacement conditions. The replacement wells would be equipped with new machinery, which would presumably be more efficient than the existing wells and would not result in a net increase in maintenance needs. Existing wells would already have emergency generators as part of the baseline condition. Therefore, the proposed Project would not result in a net increase in vehicle trips or stationary source emissions that would expose sensitive receptors to carbon monoxide or DPM. Impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. Therefore, the proposed Project would not result in a net increase in traffic volumes that could create, or substantially contribute to, an exceedance of State and federal ambient air quality standards for carbon monoxide. As such, the proposed Project would not expose sensitive receptors to substantial pollutant concentrations related to carbon monoxide hotspots, and impacts would be less than significant.

The potential backup generator installed in would be a stationary source of TAC emissions during operation. The generator would typically operate for approximately 30 minutes per month for routine testing and maintenance and would therefore produce negligible emissions of TACs. Therefore, given the limited operations of the proposed backup generator and low levels of operational emissions, impacts related to TAC emissions from stationary sources would be less than significant.

Conservation

Implementation of water conservation measures would not result in direct or indirect emissions of carbon monoxide, TACs, or DPM. Impacts would be less than significant.

IMPACT AIR-3 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measures AIR-2 and AIR-3

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact GHG-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

IMPACT GHG-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction activities associated with the Pure Water Antelope Valley project would be evaluated at a later time when project-specific details are proposed. Construction would involve grading and facility construction; installation of pipelines would involve trenching. Proposed

Project-specific construction details for these facilities would be developed and evaluated in subsequent CEQA compliance documentation. Therefore, GHG emissions modeling for the Pure Water Antelope Valley component of the proposed Project were not conducted for this analysis.

It is expected that construction would occur intermittently throughout the near-term implementation period. The amount of emissions generated would depend on its size, the area of disturbance, intensity of construction and the length of the construction schedule. The Pure Water Antelope Valley project would be subject to environmental review and would include a determination of whether GHG emissions would exceed AVAQMD's applicable significance thresholds. Although construction emissions were not modeled for this analysis, it is anticipated that GHG emissions would not exceed AVAQMD's screening threshold of 100,000 $MTCO_2e$/year. Impacts would be less than significant without the need for mitigation measures to reduce GHG emissions from construction. Therefore, the impact would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Construction activities would result in temporary GHG emissions related to fuel consumption for heavy-duty diesel and gasoline-powered equipment, portable auxiliary equipment, material delivery trucks, and worker commuter trips. PWD would replace five wells associated with the proposed Project over a period of approximately 10 years, between 2025 and 2035. Construction activity per well (including well drilling and construction and well equipping) would last approximately six months, as explained in **Section 2.5.7.4** of the Project Description. **Table 3.2-8** presents the estimated emissions during construction from a single replacement well. As shown, construction-related emissions would not exceed AVAQMD annual thresholds, even if PWD were to undertake all five groundwater well replacement construction efforts at once. Construction of the groundwater well rehabilitation and/or replacement on its own would not result in GHG emissions that would have an impact on the environment. Impacts would be less than significant.

Table 3.2-7: Greenhouse Gas Emissions from Construction – Each Well

Construction Phase	$MTCO_2e$/year
Site preparation and mobilization	36
Site grading	7
Well drilling (test, then production)	152
Construction and equipping of test well, then production well	243
Site restoration and paving	14
Architectural coating and striping	2
Demolition of existing well and building	14
Total	**438**
Construction Phase Threshold	*100,000*
Significant?	**No**

Local Supplies

Palmdale Ditch Conversion Project

Construction of the proposed Project would generate temporary GHG emissions primarily as a result of usage of construction equipment on site, vehicles transporting construction workers to and from the Project area, and haul trips. Depending on schedule constraints, construction may occur simultaneously at multiple locations along the alignment at any given time; therefore, presents estimated daily GHG emissions for a single active construction site as well as two simultaneously active construction sites. As shown in **Table 3.2-9**, the proposed Project would generate approximately 44,616 pounds of CO_2e per day if two construction sites are active simultaneously, which would be below the AVAQMD threshold of 548,000 pounds per day. Therefore, the impact would be less than significant.

Table 3.2-8: Greenhouse Gas Emissions from Construction

Year	CO_2e (lbs/day)
One Active Construction Site	22,308
Two Active Construction Sites	44,616
Construction Phase Threshold	*548,000*
Significant?	**No**

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Once constructed, operation of the Pure Water Antelope Valley project would increase energy usage, resulting in increased GHG emissions associated with energy production. The Pure Water Antelope Valley would involve a net increase in PWD's electricity usage to operate. It is estimated that the proposed 5mgd AWPF plant would require approximately 4.2 gigawatt-hours per year of power (Stantec 2023), although PWD intends to seek opportunities to find clean energy options, such as solar, to offset the Pure Water Antelope Valley project's electrical needs. Assuming the Pure Water Antelope Valley project becomes operational in the year 2030 and Southern California Edison has achieved its forecasted 2030 carbon intensity factors for electricity, the Pure Water Antelope Valley project would be responsible for an estimated 500 $MTCO_2e$ per year, or 3,024 pounds CO_2e per year in indirect GHG emissions from electricity use (see calculation sheets in **Appendix B**).

Another source of GHG emissions generated from operation of the Pure Water Antelope Valley project would be from vehicle trips for worker operations and maintenance purposes. Existing and future staff associated with PWD facilities would accommodate the Pure Water Antelope Valley project and would not present a substantial increase in workers at the site. Although vehicle-related operation emissions were not modeled for this analysis, it is anticipated that GHG emissions resulting from vehicle trips would not result in substantial GHG emissions.

Operation of additional pipelines and the brine pond would not involve substantial additional energy usage to transmit water in the Project area; these activities are not expected to result in substantial GHG emissions. Therefore, it is reasonable to assume that implementation of the proposed Project would not generate, either directly or indirectly, substantial GHG emissions that exceed AVAQMD's screening threshold of 100,000 $MTCO_2e$/year and impacts would be less than significant.

Groundwater

Once existing groundwater wells are replaced or rehabilitated, there would be no change in operations compared to pre-replacement conditions. The replacement wells would be equipped with new machinery, which would presumably be more efficient than the existing wells and would not result in a net increase in maintenance needs. Existing wells would already have emergency generators as part of the baseline condition. Therefore, the proposed Project would not result in a net increase in vehicle trips or stationary source GHG emissions. Impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in operational and maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. In addition, the increase in electricity that may occur due to operation of the new future turnout would be minor because the new future turnout would operate infrequently. In addition, routine testing and maintenance of the backup generator that may be installed in support of the new future turnout would generate approximately 6 pounds of CO_2e per day, which would not exceed the AVAQMD daily threshold of 548,000 pounds per day, and 0.3 ton of CO_2e per year, which would not exceed the AVAQMD annual threshold 100,000 tons per year (**Appendix B**). Therefore, the proposed Project would result in a nominal increase in operational GHG emissions. Because emissions would not exceed the AVAQMD thresholds, the proposed Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant.

Conservation

The treatment and distribution of water requires energy, which leads to indirect GHG emissions. The implementation of water conservation measures would, in turn, result in energy and GHG conservation. Therefore, conservation measures would not result in an environmental impact due to GHG emissions during operation.

IMPACT GHG-1 FINDINGS

Significance before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact GHG-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

IMPACT GHG-2 ANALYSIS

All components (Imported Supplies, Recycled Water, Groundwater, Local Supplies, Conservation)

The 2022 Scoping Plan includes Priority GHG Reduction Strategies related to transportation electrification, VMT reduction, and building decarbonization (CARB 2022b). Because the proposed Project involves public water infrastructure that does not involve buildings and would not result in a net change in PWD's operational GHG emissions related to vehicle trips as compared to existing conditions, the Priority GHG Reduction Strategies within the 2022 Scoping Plan are inapplicable to the proposed Project. Accordingly, the proposed Project would not conflict with the 2022 Scoping Plan. For similar reasons, the proposed Project would not conflict with Senate Bill 32 and AB 1279 emissions targets. Therefore, the proposed Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and no impact would occur.

IMPACT GHG-2 FINDINGS

Significance before Mitigation: No impact

Mitigation Measures: None Required

3.2.3.5 Mitigation Measures

MITIGATION MEASURE AIR-1: BASIC CONSTRUCTION FUGITIVE DUST EMISSIONS CONTROL PRACTICES

The following Basic Construction Emissions Control Practices for controlling fugitive dust from a construction site shall be implemented during construction.

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).

- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- PWD shall ensure construction contractor(s) implement measure to comply with AVAQMD Rule 403, and enforced by AVAQMD staff, including a Dust Control Plan.

MITIGATION MEASURE AIR-2: CONSTRUCTION DIESEL EXHAUST EMISSION CONTROL

The following practices, which describe exhaust emission control from diesel powered fleets, shall be implemented at the construction site. California regulations limit idling from both on-road and off-road diesel-powered equipment. The California Air Resources Board (CARB) enforces idling limitations and compliance with diesel fleet regulations.

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1].
- Construction activities shall minimize use of diesel-powered generators and rely on the electricity infrastructure where appropriate power requirements are available without the need to construct additional infrastructure.
- Construction trucks shall be routed along haul routes that minimize travel adjacent to sensitive receptor areas where feasible.

MITIGATION MEASURE AIR-3: TIER 4 ENGINES

To minimize emissions of NO_X from construction activities, PWD shall ensure the construction contractor(s) uses off-road equipment that meets the U.S EPA certified Tier 4 final engines or engines that are certified to meet or exceed the emission ratings for U.S EPA Tier 4 final or interim engines such that average daily NO_X emissions are lower than AVAQMD Mass Emissions Thresholds of 137 pounds per day.

3.2.3.6 Cumulative Impact Analysis

The geographic scope of the cumulative impacts on air quality and GHG is the MDAB. The AVAQMD approach to developing the project-level thresholds of significance (summarized **Section 3.2.3.1**) accounts for the cumulative nature of air pollution and GHG in the basin. The project-level thresholds are set so that individual project emissions will not be large enough to jeopardize attainment of the ambient air quality standards or have a cumulatively considerable impact on GHG emissions. If the project-level thresholds are surpassed, the proposed Project would have a cumulatively considerable impact, when combined with past, present, and future development projects. Therefore, to determine whether the proposed Project's individual emissions would result in a cumulatively considerable adverse contribution to the MDAB's

existing air quality conditions, the proposed Project was evaluated for its consistency with the project-level thresholds. The proposed Project would not result in emissions of air pollutants or GHG that exceed the project level thresholds, with adoption of Mitigation Measures. Therefore, its impact would not be cumulatively considerable. With adherence to **Mitigation Measures AIR-1**, **AIR-2**, and **AIR-3** to control emissions, the proposed Project's impacts would be less than significant, and thus not contribute to a considerable cumulative impact on air quality.

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3.3 BIOLOGICAL RESOURCES

This section describes the environmental and regulatory setting for biological resources in the Project area, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts to biological resources that could result from implementation of the proposed Strategic Water Resources Plan Update (Project).

3.3.1 ENVIRONMENTAL SETTING

The following sections describe the environmental setting for biological resources within the Project area, which is located almost entirely within the City of Palmdale (City), but also includes portions of land within unincorporated Los Angeles County (County). The Project area includes the Palmdale Water District (PWD) service area plus areas adjacent to the service area where proposed facilities are located. The environmental setting was compiled based on a literature and database review. The sources of information that are referenced in this section include the following:

- Aerial photographs of the Project area and surrounding vicinity (Google Earth 2024);
- United States Geological Survey (USGS) topographic maps;
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2024a);
- California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2024);
- United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) (USFWS 2024a);
- USGS Gap Analysis Program (GAP) Land Cover Data Set (USGS 2019);
- USFWS Critical Habitat mapper (USFWS 2024b);
- USFWS National Wetlands Inventory data (USFWS 2024c);
- U.S. Department of Agriculture (USDA)-Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA-NRCS 2024); and
- Los Angeles County Significant Ecological Area (SEA) Program (Los Angeles County 2009).

The Project area is located in the Antelope Valley, which comprises the western tip of the Mojave Desert, opening up to the Victor Valley to the east and the Great Basin to the northeast. The Antelope Valley is north of the San Gabriel Mountains and southeast of the Tehachapi Mountains and the Diablo Range of the Coast Ranges. The San Andreas Rift Zone occurs along the southern boundary of the Antelope Valley, and it is the tectonic movement between the

Pacific and North American plates in this zone that has produced the topographical differences found in the region (ESA 2018a).

The Mojave Desert is known as the "High Desert" because most of the region is found between 2,000 and 4,000 feet. The climate of the Mojave Desert has extreme fluctuations of daily temperatures, strong seasonal winds, and clear skies. Temperatures have been as low as 8° Fahrenheit (F) in January and as high as 119° F in August. In late winter and early spring, the wind is a prominent feature, with dry winds blowing in the afternoon and evening. Winds in excess of 25 miles per hour (mph), with gusts of 75 mph or more are not uncommon. Although it is windy during all months, November, December, and January are the calmest. The humidity is below 40% most of the year; however, during most winter nights, and during and after summer rains the humidity can reach above 50%. The Mojave Desert lies in the rainshadow of the Coast Ranges and receives an average annual precipitation of 5 inches. Most of the rain falls between November and April. There is, however, a summer thunderstorm season from July to September with violent and heavy, highly localized, rainstorms possible (ESA 2018a).

The Antelope Valley supports a variety of vegetation communities due to the varied geography that occurs in the region. In the higher elevations of the valley along the lower, northern slopes of the San Gabriel Mountains northern mixed chaparral and Joshua tree woodland scrub occur. At lower elevations big sagebrush scrub intergrades with creosote bush scrub on the desert floor. On the desert floor, Rosamond Lake is a closed basin that receives water from the Antelope Valley watershed, which includes Big Rock and Littlerock Creeks from the San Gabriel Mountains, Amargosa Creek which collects runoff from the Sierra Pelona Mountain Range, and runoff from the southeastern slopes of the Tehachapi Mountains (ESA 2018a).

The Project area's southern boundary is located in the northern foothills of the San Gabriel Mountains and Sierra Pelona Ridge, which has low to moderately steep slopes and has sparse development. The San Andreas Rift Zone trends from the central portion of the western boundary to the southeast corner of the Project area. Portions of the Project area north of the San Andreas Rift Zone have relatively flat topography and predominantly developed for residential, retail, and industrial zones. The extreme east-northeastern portions of the proposed Project area also have sparse development and have ecological characteristics that are more similar to the Mojave Desert (ESA 2018a). Elevations range from 2,551 feet in the northern portion of the Project area to 3,844 feet in the southern portion of the Project area.

3.3.1.1 Methodology for Establishing Environmental Setting

BACKGROUND RESEARCH AND DESKTOP ANALYSIS

The literature review and database searches identified sensitive biological resources have been previously recorded within the region, which assisted in establishing a list of potential special-status species and sensitive habitats that could be affected by the implementation of the proposed Project. The CNDDB, CNPS and IPaC were queried for special-status resources with the potential to occur within the USGS *Palmdale* 7.5-minute topographic quadrangle map for which the Project area occurs, and the surrounding eight quadrangles: *Lancaster West, Lancaster East, Alpine Butte, Ritter Ridge, Littlerock, Acton, Pacifico Mountain,* and *Juniper Hills*, which are included in **Appendix C-5**. The CNDDB was also queried to identify sensitive natural communities that have been recorded in the vicinity of the Project area. Sensitive natural communities are designated as such by various resource agencies, such as the CDFW, or in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution and are considered threatened enough to warrant some level of protection. Sensitive natural communities include those that are identified in the CDFW California Natural Community List (CDFW 2023a).

Literature reviewed included ESA's 2018 PWD 2016 Water System Master Plan Program Draft Environmental Impact Report and associated Biological Resources Technical Report, which also included a programmatic analysis of the PWD service area. As described in the Biological Resources Technical Report prepared for that proposed Project, a biological resources reconnaissance survey was conducted by an ESA Senior Biologist on July 6, 2017, that focused on the near-term project components within the Project area. The reconnaissance survey was conducted on foot within accessible portions of each component and the surrounding vicinity. Additionally, a windshield survey was conducted through the remaining portions of the Project area to ground-truth the background research and desktop analysis (ESA 2018b).

The literature review also included the Palmdale Ditch Conversion Project Biological Resources Assessment (Rincon 2024a; **Appendix C-1**). Rincon's project-level assessment included the results of a biological resources database and literature review; reconnaissance survey (conducted November 13 through November 17 and December 11 through December 15, 2023); western Joshua tree (*Yucca brevifolia*) census survey (conducted November 13 to 17 and December 11 to 19, 2023); jurisdictional delineation survey (conducted between December 18, 2023 and January 2, 2024; and on May 2, 2024); and an analysis of potential impacts to regulated biological resources. The western Joshua tree census survey and jurisdictional delineation survey are discussed in greater detail below, and their respective reports are included as **Appendix C-4** and **Appendix C-7**.

SPECIAL-STATUS SPECIES HABITAT ASSESSMENT

"Special-status" species discussed in this report include plants and animals that are listed under CESA or FESA, species that are considered sufficiently rare or sensitive under CEQA, and species protected under other regulations. Special-status species include the following:

- Species listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under CESA or FESA;
- Species protected under the federal Bald and Golden Eagle Protection Act;
- Species that meet the definitions of rare or endangered under CEQA;
- Plants listed as rare under the California NPPA (California Fish and Game Code § 1900 et seq.);
- Plants considered by the CNPS to be rare, threatened, or endangered in California (California Rare Plant Rank [CRPR] 1,2 and 4);
- Species covered under an adopted Natural Community Conservation Plan/Habitat Conservation Plan;
- CDFW wildlife Species of Special Concern;
- Wildlife fully protected in California (California Fish and Game Code § 3511, 4700, and 5050); and/or,
- Avian species protected by the MBTA.

In addition, species designated as United States Forest Service (USFS) Sensitive (FSS) are considered special-status species, specifically for Palmdale Ditch Conversion Project activities that occur on lands administered by the Angeles National Forest (ANF).

A list of target special-status species and sensitive natural communities was developed based on the search results of the databases. Potentially-occurring special-status species were defined as having potential to occur within and/or immediately adjacent to the Project area based upon known range and habitat suitability. Available background information, including USGS topographic maps and current and historical aerial photographs, and available online databases were used in conjunction with Geographic Information System (GIS) data to characterize and map plant communities, and identify any USFWS-designated critical habitat or CDFW sensitive natural communities (ESA 2018a, ESA 2018b, USFWS 2024b, CDFW 2023a).

The status of special-status species with potential to occur within the Project area and/or the immediate vicinity was assessed following the database searches. and field survey. Following the assessment, each species was assigned to one of the categories listed below:

- Present: Species is known to occur within the Project area, based on observations during surveys or recent CNDDB or other records, and there is suitable habitat present within the Project area.
- High Potential: Species is known to historically occur within the Project area or to occur in the vicinity of the Project area (based on recent CNDDB or other records or based on professional expertise specific to the Project area or species) and there is suitable habitat

within the Project area. These species are generally common and/or widespread in the Project area and vicinity.

- Moderate Potential: Species is known to occur in the vicinity of the Project area (based on CNDDB or other records or based on professional expertise specific to the Project area or species), and there is suitable habitat within the Project area. These species are generally less common and/or widespread than species considered to have a "high" potential to occur.
- Low Potential: Species is known to occur in the vicinity of the Project area, but the habitat within the Project area is of poor or marginal quality and/or the Project area occurs outside the species known geographic or elevational range.
- Absent: There is no suitable habitat for the species within the Project area and/or the area is located outside the known range of the species.

FOCUSED SURVEYS FOR PALMDALE DITCH CONVERSION PROJECT

In support of the Palmdale Ditch Conversion Project, Rincon conducted a jurisdictional delineation, western Joshua tree census, and Crotch's bumble bee (*Bombus crotchii*) survey, as described below.

A field delineation was performed between December 18, 2023, and January 2, 2024, and on May 2, 2024, within the Palmdale Ditch Conversion Project Site and a 50-foot buffer (JD Survey Area). Each section of the JD Survey Area was surveyed on foot where access was granted. A majority of the JD Survey Area was accessible on foot, with the exception of fenced private property immediately north of the California Aqueduct. For this area, biologists utilized binoculars, aerial interpretation, and the results of the literature review to characterize and map potentially jurisdictional waters. The JD Survey Area was surveyed for potential wetlands and non-wetland aquatic resources including streams and ephemeral drainages that might exhibit an ordinary high water mark (OHWM) and that might constitute waters of the U.S. and/or State. General site characteristics and vegetation, soils, and hydrology present on-site were noted. Current federal and State policies, methods, and guidelines were used to identify and delineate potential jurisdictional waters and are described in the Jurisdictional Delineation Report prepared for the Palmdale Ditch Conversion Project (Rincon 2024b; **Appendix C-4**). For a more detailed description of the applicable jurisdictional waters regulations and for representative site photographs taken throughout the JD Survey Area, refer to **Appendix C-4**.

A western Joshua tree census was conducted from November 13 to 17, 2023, and December 11 to 19, 2023. The western Joshua tree Survey Area encompassed the entire Palmdale Ditch Conversion Project site and a 50-foot buffer. The census was conducted in accordance with CDFW's Western Joshua Tree Census Instructions (CDFW 2024a) and in compliance with California Fish and Game Code Section 1927.3, which requires a census of all western Joshua trees within the Survey Area. Accordingly, all western Joshua trees within the Survey Area were recorded using a Geode global positioning system (GPS) device capable of sub-meter accuracy. The western Joshua trees were recorded by uniformly walking the Survey Area and routinely

checking underneath shrubs and/or at the base of any burned trees, where present, to identify small western Joshua trees and seedlings. Any western Joshua trees classified as dead were done so based on criteria described in the CDFW census protocol (CDFW 2024d). Data collected for each individual western Joshua Tree included height class, health status (live or dead), maturity, phenophase (flowers/fruits), and a photograph. Additional census details are provided in the Western Joshua Tree Report prepared for the Palmdale Ditch Conversion Project (Rincon 2024c; **Appendix C-7**).

Crotch's bumble bee surveys were also conducted in May and June 2024 because potentially suitable nesting, foraging and overwintering habitat for this species was identified within the Palmdale Ditch Conversion Project site during field reconnaissance surveys conducted by Rincon in November and December 2023 (Rincon 2024a). The Crotch's bumble bee survey area (CBB Survey Area) encompassed the entire, approximately 309-acre Palmdale Ditch Conversion Project site. The surveys were conducted in accordance with the *CDFW Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* document issued June 6, 2023 (CDFW 2023b) and in accordance with the Crotch's Bumble Bee Photo-Only Survey Plan for the Palmdale Ditch Conversion Project, as approved by CDFW Region 5 (Rincon 2024d). Additional survey details are provided in the Crotch's Bumble Bee Survey Report for the Palmdale Ditch Conversion Project (Rincon 2024d; **Appendix C-6**).

3.2.1.2 Vegetation and Land Cover Types

PROJECT AREA

The following are the USGS Gap Analysis Program (GAP) Land Cover Data Set classifications (USGS 2019), as shown on **Figure 3.3-1**, found within the Project area that are sub-classified by the associated terrestrial natural communities (Holland 1986). It should be noted that the mapping is based off of 2011 imagery, so the aerial photographs used are somewhat dated and thus there are limitations to the data, which should be reviewed and field verified as necessary at the project-specific level. The description for the terrestrial natural communities and land covers is for the typical conditions associated with each type. Vegetation and land covers types within the Palmdale Ditch Conversion Project Site Biological Study Area (BSA) are displayed in. **Figures 3.3-2a** through **3.3-2k** and are discussed separately in the subsequent section.

Agricultural Vegetation

Agricultural Vegetation are areas that are currently being used for agriculture or have been fallow for several years. The fallow areas typically become dominated by ruderal species, such as non-native herbaceous species and grasses (primarily *Bromus* spp.). Activities, such as livestock grazing, mowing and disking, which disturb the soils and remove vegetation, are common in the areas and limit successional growth to native, shrub-based plant communities. Agricultural Vegetation is found primarily in the northern portion of the Project area.

Developed and Other Human Use

Developed and Other Human Use areas have been either built upon with impervious structures or groundcover (roads and parking lots) or have been converted to parks that are typically used for recreational activities. These areas support little to no native vegetation and are not expected to support special-status species. Developed and Other Human Use areas are found throughout the Project area.

Forest and Woodland

This community includes native as well as managed forests, and some plantation forests where human management is infrequent.

Joshua Tree Woodland

Joshua Tree Woodland is fairly open with Joshua tree typically as the only arborescent species (up to 40 feet tall), with numerous shrub species between three and 15 feet tall. Typically, little to no herbaceous, annual understory is present for most of the year. The dominant species display a diversity of life forms: sclerophyllous evergreen trees and shrubs (*Yucca* spp.), microphyllous (small plant leaf with one single, unbranched leaf vein), evergreen shrubs (*Juniperus* spp.), semi-deciduous shrubs (*Eriogonum* spp.), semi-succulents (*Lycium* spp.), and succulents (*Opuntia* spp.). The main growing season is spring, with growth limited by cold temperatures in the winter and limited rainfall in the summer and fall. Many species of annual herbs may germinate following sufficient rainfall in the late fall or winter and flower in mid-spring. Within the Project area, Joshua Tree Woodland occurs primarily in the south and southwest along the lower slopes of the San Gabriel Mountains and Sierra Pelona Range. This habitat is considered a sensitive natural community by the CDFW (CDFW 2023a).

Mojavean Juniper Woodland and Scrub

Mojavean juniper woodland and scrub is an extremely open woodland dominated by California juniper, with an understory that is composed of elements typically found in the Mojave Mixed Woody Scrub community (e.g., *Eriogonum* spp., *Ephedra* spp., and *Opuntia* spp.). The community typically occurs on gentle slopes or alluvium and intergrades with Joshua tree woodland or Mojave creosote bush scrub at lower elevations (ESA 2018a). Within the Project area, Mojavean juniper woodland and scrub occurs primarily along the slopes and hilltops in southwest. Although California juniper habitat is not considered a sensitive natural community by the CDFW, certain associations of California juniper woodland habitat are considered sensitive (CDFW 2023a).

Semi-desert Chaparral

The semi-desert chaparral community consists of shrubs between 5 and 10 feet in height and is somewhat more open than most chaparrals. Some of the dominant taxa include California juniper, California buckwheat (*Eriogonum fasciculatum*), and cacti (*Opuntia* spp.); these are not broad-leaved sclerophylls that are typically associated with chaparral communities. The

vegetation is dormant, or nearly so, in the winter due to lower temperatures and in the late summer due to low availability of water. Semi-desert chaparral is less fire-prone than other chaparrals because of the lower fuel loads. Within the Project area, semi-desert chaparral occurs in the south at higher elevations. This community often intergrades with Joshua tree woodland.

Open Water

Open water in the Project area is associated with Lake Palmdale,[1] Una Lake, and sump ponds located within the San Andreas Rift Zone, as well as the artificial California Aqueduct, which generally parallels the San Andreas Rift Zone. The terrestrial communities associated with this land cover include the following.

Transmontane Freshwater Marsh

Transmontane freshwater marshes develop in or adjacent to areas of slow-moving or still permanent freshwater. This community is dominated by cattail (*Typha* spp.), which often form a closed canopy, with bulrushes (*Schoenoplectus* spp.) and sedges (*Carex* spp.) in the understory. The growing season for this community is short due to low winter temperatures. This community often intergrades with transmontane alkali marsh. Within the Project area, transmontane freshwater marsh occurs in small patches along the San Andreas Rift Zone (ESA 2018a). Although cattail marsh habitat is not considered sensitive, certain associations of this habitat (e.g., dominated by bulrushes) are considered sensitive natural communities by the CDFW (CDFW 2023a).

Transmontane Alkali Marsh

Transmontane alkali marsh is similar to transmontane freshwater marsh, which it often intergrades with, but is usually dominated by more salt-tolerant hydrophytes. Plant species typically found in this community include cattail, sedges, saltgrass (*Distichlis spicata*), bulrushes, and boraxweed (*Nitrophila occidentalis*). Within the Project area, transmontane alkali marsh occurs in small patches along the San Andreas Rift Zone (ESA 2018a). Certain associations of this habitat (e.g., some salt grass flat associations) are considered sensitive natural communities by the CDFW (CDFW 2023a).

Semi-Desert

Succulents, small-leaved shrubs and trees, desert grasses and other xeromorphic growth forms (those with adaptation mechanisms against water loss) are dominant or characteristic in this type, which can include very open rocky or sandy desert types. Vegetation often has open and irregular horizontal canopy spacing, typically less than five meters tall. Mesomorphic trees have less than 10% cover, and xeromorphic growth forms, including succulent trees and shrubs (e.g., cacti, euphorbias), and small-leaved shrubs and trees, have the majority of cover compared to mesomorphic or cryomorphic (plants that have adaptations to survive cold temperatures and

[1] Lake Palmdale was historically known as Harold Reservoir.

resist frost damage) growth forms. The herb cover varies from open to absent, with various growth forms, including ephemerals and succulent forbs.

Desert Saltbush Scrub

Desert Saltbush Scrub is usually strongly dominated by one of several species of saltbush (*Atriplex* spp.), with other characteristic species including spiny hopsage (*Grayia spinosa*), cheesebush (*Hymenoclea salsola*), and boxthorn (*Lycium* spp.). This vegetation community is found in poorly drained alkaline and/or saline soils, widely distributed above and on the margins of dry desert lake beds in the Mojave, Great Basin, and Colorado deserts. Desert Saltbush Scrub usually is composed of fine scale mosaics of vegetation series and associations with different component species becoming dominant. It is dependent on small changes in topography and water table depth. Within the Project area, Desert Saltbush Scrub occurs primarily in the north and northeast in low-lying areas mixed in with Rabbitbrush Scrub and Mixed Woody Scrub (ESA 2018a). Certain associations of this habitat are considered sensitive natural communities by the CDFW (CDFW 2023a).

Mojave Creosote Bush Scrub

Mojave Creosote Bush Scrub is composed of medium-sized shrubs dominated by creosote (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) that are widely spaced with little vegetation in between. Many species of ephemeral herbs may flower in late March and April if the winter rains are sufficient. Other, less numerous, species of annuals appear following summer thundershowers. Growth is prevented by cold in winter and limited by drought in other seasons. Mojave Creosote Bush Scrub typically occurs on well-drained secondary soils with very low available water holding capacity on slopes, fans, and valleys rather than upland sites with thin residual soils or sites with high soil salinity. This community integrates at higher elevations with shadscale scrub or Joshua tree woodland, and at lower elevations, or more osmotic sites, with desert chenopod scrub. Within the Project area, Mojave Creosote Bush Scrub occurs primarily in the east in portions near Littlerock Wash (ESA 2018a). Certain associations of this habitat are considered sensitive natural communities by the CDFW (CDFW 2023a).

Mojave Wash Scrub

Mojave Wash Scrub community is composed of widely spaced shrubs, with scattered to locally dense tree canopy cover, on usually otherwise barren sandy soils at the bottoms of wide canyons along incised arroyos of upper bajadas and along braided washes of lower bajadas. Characteristic species include scalebroom (*Lepidospartum squamatum*), catclaw acacia (*Acacia greggii*), allscale, desert willow (*Chilopsis linearis*), brittlebush (*Encelia farinosa*), cheesebush (*Hymenoclea salsola*), creosote bush, and boxthorn. The usual aspect is widely scattered shrubs, including allscale and cheesebush, with mostly barren sandy soil between. Within the Project area, Mojave Wash Scrub occurs primarily in the east in portions within Littlerock Wash (ESA 2018a). Certain associations of this habitat are considered sensitive natural communities by the CDFW (CDFW 2023a).

Shrubland and Grassland

Shrubs and herbs with broadly mesomorphic (including scleromorphic) growth forms (including broad-leaved, needle-leaved, and sclerophyllous shrubs, some types of rosette shrubs, and herbaceous forbs and grasses) dominate this type. Vegetation structure is typically moderately open to closed canopy, with irregular horizontal canopy spacing and variable height, but typically less than five meters, and where mesomorphic trees have less than 10% cover and mesomorphic shrub and herb growth forms have the majority of cover compared to xeromorphic or cryomorphic growth forms.

Big Sagebrush Scrub

Big Sagebrush Scrub is mostly a treeless, soft-woody shrub-dominated community, composed of shrubs approximately 1.5 to 6.5 feet tall that is dominated by big sagebrush (*Artemisia tridentata*). The understory is characterized by patches of bare ground and scattered herbs. This community often is found in close proximity to woodlands and coniferous forests. This vegetation can occur in the understory of tree-dominated, high elevation communities of pinyon-juniper woodlands, montane mixed coniferous forest, and alpine forest. At lower elevations, Big Sagebrush Scrub occurs adjacent to saltbush scrub, blackbush scrub, Joshua tree woodland, and creosote bush scrub communities. This community is well-suited to a variety of soils and terrain ranging from rocky, well-drained slopes to fine-textured valley soils with high a water table. Within the Project area, Big Sagebrush Scrub occurs primarily in the southwest along the slopes and valleys. This community often intergrades with rabbitbrush scrub in areas that have been regularly disturbed (ESA 2018a). Certain associations of this habitat are considered sensitive natural communities by the CDFW (CDFW 2023a).

Mojave Mixed Woody Scrub

Mojave Mixed Woody Scrub is complex community that is open enough to be passable and usually characterized by Joshua tree, desert tea (*Ephedra* spp.), beavertail cactus (*Opuntia basilaris*), California buckwheat, and bladderpod (*Isomeris arborea*). This community typically occurs on very shallow, overly-drained, often rolling to steep soils that are usually derived from granitic parent materials. The sites where this community is located have extremely low water holding capacity, mild alkalinity, and are not very saline. On deeper soils with higher water holding capacity, or at cooler elevations, the community intergrades with Great Basin scrubs, Blackbush Scrub, or Pinyon Woodlands; at warmer elevations with Creosote Bush Scrub. Within the Project area, Mojave Mixed Woody Scrub occurs primarily in the southwest along the slopes and valleys (ESA 2018a). This habitat is considered a sensitive natural community by the CDFW (CDFW 2023a).

Rabbitbrush Scrub

Rabbitbrush Scrub is dominated by rubber rabbitbrush (*Ericameria nauseosus*), a three-foot-tall gray, woody shrub that has a yellowish inflorescence that blooms in late summer or fall. Elements from other communities, such as big sagebrush scrub and Mojave mixed woody scrub, are also found in rabbitbrush scrub. This community occurs in areas that have undergone

disturbances such as fire, grazing, and/or soil tilling. Within the Project area, Rabbitbrush Scrub throughout the region in areas that have undergone regular disturbances (agricultural practices, grubbing, grazing, etc.) (ESA 2018a).

PALMDALE DITCH CONVERSION PROJECT

Natural communities, semi-natural communities, and land cover types were documented for the Palmdale Ditch Conversion Project Site Biological Study Area (BSA), which includes the Palmdale Ditch Conversion Project Site and a 50-foot buffer. Descriptions are provided below and in the Palmdale Ditch Conversion Project Biological Resources Assessment (Rincon 2024a), which is included as **Appendix C-1**. Included in the description of each association is the Global and State conservation status ranking. Communities dominated by non-native species are considered semi-natural alliances and have no Global and State rankings (ranking denoted as GNA SNA).

NATURAL VEGETATION COMMUNITIES

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance)

Arroyo willow thickets (*Salix lasiolepis* Shrubland Alliance) commonly occur along stream banks and benches, slope seeps, and drainages between sea level and 7,120 feet (2,170 meters) above mean sea level (amsl) (Sawyer et al. 2009). This native vegetation community is characterized by arroyo willow (*Salix lasiolepis*) dominant in the shrub canopy (greater than 50 percent relative cover). In the Palmdale Ditch Conversion Project Site BSA, the alliance is represented by a single association, described below.

Arroyo Willow Thickets (Salix lasiolepis Shrubland Association)

In the BSA, this community covers less than 0.01 acre. The community occurs in a small cluster along the Palmdale Ditch (Ditch) near an underground culvert, east of Cheseboro Road in the southern extent of the BSA. This area is surrounded by rubber rabbitbrush scrub (*Ericameria nauseosa* Shrubland Alliance) and adjacent mulefat (*Baccharis salicifolia*) thickets. This vegetation community (ranked G4S4) is a CDFW sensitive natural community (CDFW 2023a).

Baltic and Mexican Rush Marshes (*Juncus balticus, mexicanus* Herbaceous Alliance)

This alliance is defined by the dominance of Baltic rush (*Juncus balticus*) or Mexican rush (*Juncus mexicanus*) in the herbaceous layer. It is typically found in seasonally saturated soils on flats, depressions, or gentle slopes including in stock ponds, minor depressions, wet meadows, and seeps near the coast or farther inland, between sea level and 5,249 feet (1,600 meters), where soils are clayey or silty alluvium. Emergent shrubs, including mulefat and California blackberry (*Rubus ursinus*), may be present at low cover.

Baltic Rush Marshes (Juncus balticus Herbaceous Association)

In the BSA, this association covers approximately 1.81 acres. The association was observed within small wetland seep areas, drainages adjacent to the Ditch, and in habitat occurring between the California Aqueduct and Sierra Highway. Baltic rush was dominant in the herbaceous layer, with clustered field sedge (*Carex praegracilis*), other emergent facultative vegetation, and willow (*Salix* spp.) trees at low cover. The association is surrounded by rubber rabbitbrush, big sagebrush scrub (*Artemisia tridentata* Shrubland Alliance), and California juniper woodland (*Juniperus californica* Woodland Alliance). This vegetation community is unranked and is not a CDFW sensitive natural community (CDFW 2023a).

Big Sagebrush Scrub (*Artemisia tridentata* Shrubland Alliance)

In addition to being present in the larger Project area, as described above under *Big Sagebrush Scrub*, three associations within the big sagebrush scrub alliance (*Artemisia tridentata* Shrubland Alliance) were documented in the Palmdale Ditch Conversion Project Site BSA and are described below.

Big Sagebrush Scrub (Artemisia tridentata Shrubland Association)

In the BSA, this is a common association covering approximately 50.79 acres. It is found along the edges of the Ditch throughout the BSA, but increasingly evident from Pearblossom Highway towards Littlerock Reservoir.

Big sagebrush was dominant in the shrub layer, with a diverse array of upland scrub species comprised of rubber rabbitbrush, California buckwheat (*Erioginum fasciculatum*), hairy yerba santa (*Eriodictyon trichocalyx*), brittle bush (*Encelia farinosa),* wild tarragon (*Artemisia dracunculus)*, Nevada ephedra (*Ephedra nevadensis*) and chaparral yucca (*Hesperoyucca whipplei*), with emergent California junipers (*Juniperus californica*) and western Joshua trees and understories of herbaceous species such as fiddlenecks (*Amsinckia* spp*.)* and nonnative annual grasses and forbs such as bromes (*Bromus* spp.) and mustards *(Brassica* spp.). Approximately 0.13 acre of disturbed big sagebrush scrub occurs within the BSA along the east edge of the southernmost extent of the Ditch.

Throughout the BSA, the big sagebrush scrub shrubland association is crossed by several unpaved off-highway vehicle (OHV) and dirt bike trails. This vegetation community is ranked G5S5 and is not a CDFW sensitive natural community (CDFW 2023a).

Big Sagebrush – California Buckwheat Scrub (Artemisia tridentata - Eriogonum fasciculatum Shrubland Association)

In the BSA, this association covers approximately 0.47 acres. It is located along the Ditch and surrounded by dense California juniper woodland between Mt. Emma Road and 47th Street East. Big sagebrush and California buckwheat are dominant in the shrub layer with emergent western Joshua trees and chapparal yucca. This vegetation community is unranked and is not a CDFW sensitive natural community (CDFW 2023a).

Big Sagebrush – Rubber Rabbitbrush Scrub (Artemisia tridentata – Ericameria nauseosa Shrubland Association)

In the BSA, this association covers approximately 33.74 acres. Big sagebrush and rubber rabbitbrush were co-dominant in the shrub layer with associative species including California buckwheat, saltbush (*Atriplex* spp.), and desert prince's plume (*Stanleya pinnata*). Emergent western Joshua trees and California junipers occurred throughout this association. This vegetation community is unranked and is not a CDFW sensitive natural community (CDFW 2023a).

Brittle Bush Scrub (*Encelia farinosa* Shrubland Alliance)

Brittle bush scrub (*Encelia farinosa* Shrubland Alliance) is typically found on alluvial fans, bajadas, colluvium, rocky hillsides, and slopes of small washes and rills. Soils are well drained, rocky, and may be covered by desert pavement. This alliance is generally found between 246 and 4,594 feet (74 to 1,400 meters) amsl. Brittle bush scrub is characterized by an open to intermittent shrub canopy and a seasonal herbaceous layer. Brittle bush (*Encelia farinosa*) has over one percent absolute cover and 30 percent relative cover in the shrub layer (Sawyer et al. 2009). In the BSA, the alliance is represented by a single association, described below.

Brittle Bush Scrub (Encelia farinosa Shrubland Association)

In the BSA, this association covers approximately 8.20 acres and was identified in seven locations, occurring primarily on north-facing foothill slopes in the southern extent of the BSA. Brittle bush was dominant in the shrub layer, with Nevada ephedra and California buckwheat present in the shrub layer at lower cover. Patches of Acton brittlebush (*Encelia actonii*) were also present. The dense herbaceous layer consisted of fiddlenecks, bromes, and mustards. This vegetation community is ranked G5S4 and is not a CDFW sensitive natural community (CDFW 2023a).

California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)

California buckwheat scrub (*Eriogonum fasciculatum* Shrubland Alliance) is characterized by dominant or codominant California buckwheat in cismontane stands. California buckwheat scrub is found in upland slopes; intermittently-flooded arroyos, channels and washes; and rarely-flooded low-gradient deposits. Elevations range from sea level to 3,937 feet (1,200 meters) amsl. Soils are typically coarse, well-drained, and moderately acidic to slightly saline. California buckwheat contributes to at least 50 percent relative cover in the shrub layer (Sawyer et al. 2009). This alliance is represented by two associations in the BSA, described below.

California Buckwheat Scrub (Eriogonum fasciculatum Shrubland Association)

In the BSA, this association covers approximately 27.70 acres. It is mainly found along the north-facing slopes of the foothills in the southern extent of the BSA from Littlerock Reservoir and Cheseboro Road to Mt. Emma Road but is distributed throughout the mosaic of upland shrubland communities and associations. California buckwheat scrub was dominant in the shrub

layer with Nevada ephedra, brittle bush, narrow leaf goldenbush (*Ericameria linearifolia*), and paperbag bush (*Scutellaria mexicana*, also known as bladder sage) with emergent Stansbury cliffrose (*Purshia mexicana*), California juniper, chollas (*Cholla* spp.), chapparal yucca, and western Joshua trees present at low cover. Non-native grasses and bromes were observed within the herbaceous cover. This community is ranked G5S5 and is not a CDFW sensitive natural community (CDFW 2023a).

California Buckwheat – Brittle Bush Scrub (Eriogonum fasciculatum – Encelia farinosa Shrubland Association)

In the BSA, this association covers approximately 11.95 acres. This community is found in dense stands occurring along the north-facing slopes of the foothills in the southern extent of the BSA as it transitions to a more California buckwheat-dominant community leading up to Mt. Emma Road. California buckwheat and brittle bush were codominant in the shrub layer, with common species such as Nevada ephedra, paperbag bush (also known as bladder sage), and snakeweed (*Gutierrezia sarothraei*), and emergent chapparal yucca, California juniper, and western Joshua trees. California aster (*Corethrogyne filaginifolia*), wild chia (*Salvia columbariae*), fiddlenecks, and cheatgrass (*Bromus tectorum)* were found within the herbaceous cover. This vegetation community is unranked and is not a CDFW sensitive natural community (CDFW 2023a).

California Juniper Woodland (*Juniperus californica* Woodland Alliance)

In addition to being present in the larger Project area, as described above under *Mojavean Juniper Woodland and Scrub*, two associations within the California juniper woodland alliance (*Juniperus californica* Woodland Alliance) were documented in the Palmdale Ditch Conversion Project Site BSA and are described below.

California Juniper Woodland/California Buckwheat – California Sage Scrub (Juniperus californica/Eriogonum fasciculatum – Artemisia californica Woodland Association)

In the BSA, this association is the most common, covering approximately 139.34 acres. It is located throughout the BSA, primarily from Mt. Emma Road to the community of Alpine. California juniper, California buckwheat, and big sagebrush were commonly found within the woodland community. Additional upland scrub communities such as rubber rabbitbrush scrub, big sagebrush scrub, and California buckwheat scrub as well as emergent western Joshua trees integrate within this community. A diverse suite of additional associated scrub and chaparral species occur within dense patches of woodland or along the Ditch: chapparal yucca, silver cholla (*Cylindropuntia echinocarpa*), buckwheats (including flat topped buckwheat [*Eriogonum deflexum*] and Wright's buckwheat [*Eriogonum wrightii*]), narrow leaf goldenbush, Stansbury's cliffrose (*Purshia mexicana*), paperbag bush (also known as bladder sage), Nevada ephedra, deerweed (*Acmispon glaber*), boxthorn (*Lycium* spp.), and beavertail cactus (*Opuntia basilaris)*. Emergent western Joshua trees occur throughout this association. Homogeneous patches of narrow leaf goldenbush, yucca spp., and California buckwheat were observed within the north-facing slopes of dense stands of California juniper woodland that occur from Pearblossom Highway to Sierra Highway. This community contained small patches of homogenous narrow leaf goldenbush, which was also a common understory shrub found within the community.

Washy areas with adjacent drainages within the association provide habitat and soil conditions for species such as panicled willowherb (*Epilobium brachycarpum*), California aster (*Symphyotrichum chilense*), and red triangle (*Centrostegia thurberi*), among many others. Bromes, mustards, and fiddlenecks are present within the variable herbaceous layer. Throughout the BSA, California juniper woodland is crossed by several unpaved OHV and dirt bike trails and has illegal dumping and trash piles near public access roads and where OHV roads intersect the association. This community is unranked and is not a CDFW sensitive natural community (CDFW 2023a).

Disturbed California Juniper Woodland/California Buckwheat – California Sage Scrub (Juniperus californica/Eriogonum fasciculatum – Artemisia californica Woodland Association)

In the BSA, this association covers approximately 1.77 acres. It is located in two isolated areas, one north of Barrel Springs Road near a residential area and one approximately 1,500 feet north of Mt. Emma Road and approximately 800 feet west of Cheseboro Road. Evidence of previous fires, trash dumping, and illegal settlements were evident and contributed to the disturbed nature of this community. This vegetation community is unranked and is not a CDFW sensitive natural community (CDFW 2023a).

California Sycamore Woodland (*Platanus racemosa* Woodland Alliance)

California sycamore woodland alliance is typically found in gullies, intermittent and low-elevation streams, springs, seeps, stream banks, and terraces adjacent to floodplains that are subject to high-intensity flooding and consist of rocky or cobbly alluvium with permanent moisture at depth. Elevations range between 2 and 7,874 feet (1 to 2,400 meters) amsl. California sycamores (*Platanus racemosa*) are dominant or codominant in the tree layer with greater than 30 percent relative cover with coast live oak (*Quercus agrifolia*), willows, or cottonwoods (*Populus* spp.) in a riparian woodland setting. The shrub layer is open to intermittent with the herbaceous layer sparse or grassy (Sawyer et al. 2009). This alliance is represented by a single association in the BSA, described below.

California Sycamore – Red Willow/Arroyo Willow – Mulefat Scrub (Platanus racemosa – Salix laevigata/Salix lasiolepis – Baccharis salicifolia Association)

In the BSA, this association covers approximately 6.10 acres. It is located in the southeastern portion of the BSA, west of Littlerock Reservoir and east of the southern terminus of the Ditch. Dense canopies of California sycamore, willows, mulefat thickets, and Fremont cottonwood (*Populus fremontii*) occur within the riparian corridor. Upland scrub communities dominated by rubber rabbitbrush, big sagebrush, and California buckwheat occur in the understory along the rocky and cobbly creek bed riparian woodland community. This vegetation community is ranked G3S3 and is a CDFW sensitive natural community (CDFW 2023a).

Cattail Marshes (*Typha* [*angustifolia, domingensis, latifolia*] Herbaceous Alliance)

This herbaceous alliance is found in semi-permanently flooded freshwater or brackish marshes with clayey or silty soils from sea level to 1,150 feet (350 meters) amsl. The community is

dominated by cattails (*Typha* spp.*),* with one or more cattail species having over 50 percent cover in the herbaceous layer (Sawyer et al. 2009). This community is represented by a single association, described below.

Cattail Marshes (Typha [latifolia, angustifolia] Herbaceous Association)

This association covers approximately 0.22 acre and occurs in dispersed areas throughout the BSA within the California sycamore woodland habitat along the eastern side of the southernmost extent of the Ditch and along the outfall of the Ditch along the banks of Lake Palmdale. The dominant species in this area was narrowleaf cattail (*Typha domingensis*). This vegetation community is unranked and is not a CDFW sensitive natural community (CDFW 2023a).

Creosote Bush Scrub (*Larrea tridentata* Shrubland Alliance)

In addition to being present in the larger Project area, as described above under *Mojavean Creosote Bush Scrub*, one association within the creosote bush scrub alliance (*Larrea tridentata* Shrubland Alliance) was documented in the Palmdale Ditch Conversion Project Site BSA and is described below.

Creosote Bush Scrub (Larrea tridentata Shrubland Association)

In the BSA, creosote bush scrub association covers approximately 2.51 acres. It is located north along Barrel Springs Road between 42nd Street East and 40th Street East. Disturbed creosote bush scrub was observed in a single location in the BSA and covers approximately 0.29 acre. This disturbed community is located north along Barrel Springs Road between disturbed and developed housing areas. Creosote bush scrub is ranked G5S5 and is not a CDFW sensitive natural community (CDFW 2023a).

Fiddleneck – Phacelia Fields (*Amsinckia* [*menziesii, tessellata*] – *Phacelia* spp. Herbaceous Alliance)

This alliance is found on upland slopes, broad valleys, ocean bluffs, grazed or recently burned hills, and fallow fields, between sea level and 4,921 feet (1,500 meters) amsl, where soils are well drained and loamy, and they are often subject to high levels of bioturbation. It is defined by the dominance or co-dominance of fiddleneck or phacelia species (*Phacelia* spp.) with other grassland or forb species and low emergent shrub cover. This alliance is represented by a single association in the BSA, described below.

Fiddleneck Fields (Amsinckia [menziesii, tessellata] Herbaceous Association)

In the BSA, this association covers approximately 0.25 acres within an open, previously disturbed or cleared parcel, located north of Edison Road. It is comprised of fiddleneck, California buckwheat, and an herbaceous cover of non-native grasses. This association is ranked G4S4 and is not a CDFW sensitive natural community (CDFW 2023a).

Fourwing Saltbush Scrub (*Atriplex canescens* Shrubland Alliance)

Fourwing saltbush scrub (*Atriplex canescens* Shrubland Alliance) is typically found on playas, old beaches and shores, lake deposits, dissected alluvial fans, rolling hills or channel beds at elevations between -246 and 4,921 feet (-75 to 1,500 meters) amsl. Soils are generally carbonate rich, alkaline, sandy, or sandy clay loams. Fourwing saltbush scrub is characterized by an open to intermittent shrub canopy and a variable herbaceous layer composed of seasonal herbs and non-native grasses. Fourwing saltbush (*Atriplex canescens*) has over two percent absolute cover and over 50 percent relative cover in the shrub layer (Sawyer et al 2009).

Fourwing Saltbush Scrub (Atriplex canescens Shrubland Association)

In the BSA, this association covers approximately 1.40 acres. It is located just south of Mt. Emma Road where the Ditch undergrounds. Fourwing saltbush is dominant in the shrub layer with big sagebrush, rubber rabbitbrush, with the invasive grass cheatgrass present in the herbaceous layer. Disturbed fourwing saltbush scrub covers approximately 0.81 acre; it occurs between residential development and appears to have been disturbed from development and maintenance associated with Barrel Springs Road. This community is adjacent to off-road activity and disturbances associated with OHV travel just south of Mt. Emma Road where the Ditch undergrounds. This association is ranked G5 and is not a CDFW sensitive natural community (CDFW 2023a).

Fremont Cottonwood Forest and Woodland (*Populus fremontii* Forest and Woodland Alliance)

This alliance can be found on floodplains, along low-gradient rivers, perennial or seasonally intermittent streams, springs, in canyons, alluvial fans, and in valleys with a dependable subsurface water supply that varies considerably during the year. It may be found between sea level and 7,974 feet (2,400 meters) amsl in elevation. The tree canopy is typically continuous to open, the shrub layer intermittent to open, and the herbaceous layer variable. This community is characterized by Fremont cottonwood with at least five percent absolute cover or at least 50 percent relative cover in the tree canopy. Fremont cottonwood may have as low as 30 percent relative cover in the tree canopy when other riparian trees such as willows, walnuts (*Juglans* spp.) or box elder (*Acer negundo*) are present. This alliance is represented by a single association in the BSA, described below.

Fremont Cottonwood Woodland (Populus fremontii Woodland Association)

In the BSA, this association covers approximately 7.87 acres. Dominated by Fremont cottonwood trees, this community consists of groves or clusters of large trees along or adjacent to the Ditch, with some occurring in small drainages or in larger, seasonally-flooded or ponded areas such as the community that occurs south of Barrel Springs Road, between 40th Street East and 42nd Street East, and at the Ditch outfall near Lake Palmdale. These communities are surrounded by upland scrub and shrub vegetation, including California juniper woodlands occurring along the Ditch. Individual trees, including both young and mature cottonwoods, occur along the Ditch.

Individual trees were not mapped as part of the reconnaissance survey. This association is ranked G2Q and is a CDFW sensitive natural community (CDFW 2023a).

Goodding's Willow – Red Willow Riparian Woodland and Forest (*Salix gooddingii – Salix laevigata* Woodland and Forest Alliance)

The Goodding's willow – red willow riparian woodland and forest community is typically found on terraces along large rivers, in canyons, or along the floodplains of streams, seeps, springs, ditches, lakes, or low-gradient depositions between sea level and 6,562 feet (2,000 meters) amsl in elevation. This alliance is characterized by an open to continuous tree canopy, a sparse to continuous shrub layer, and a variable herbaceous layer. Goodding's willow (*Salix gooddingii*) and/or red willow (*Salix laevigata*) are dominant in the tree canopy with over 50 percent relative cover in the tree canopy, or with over 30 percent relative cover when other willows are present. This alliance is represented by a single association in the BSA, described below.

Goodding's Willow – Red Willow Riparian Woodland (Salix gooddingii – Salix laevigata Woodland Association)

In the BSA, this association covers 1.61 acres. The community is found in four locations associated with adjacent small drainages and wetland meadows or seasonally-flooded areas within California juniper woodland and big sagebrush habitats. Goodding's willow and red willow are co-dominant in small thickets or large, canopied trees consisting of mostly mature Goodding's willow. A relatively small, isolated willow thicket occurs along a saturated drainage surrounded by dense California juniper woodland. This small stand was comprised of both red and Goodding's willows with sedges, rushes (*Juncus* spp.) and stinging nettle (*Urtica dioica*). These stands occur between Mt. Emma Road and 47th Street East, between Barrel Springs Road and the California Aqueduct, and between Pearblossom Highway and Sierra Highway. The stands were not immediately adjacent to the Ditch. This vegetation community is ranked GNR and is a CDFW sensitive natural community (CDFW 2023a).

Joshua Tree Woodland (*Yucca brevifolia* Woodland Alliance)

In addition to being present in the larger Project area, as described above under *Joshua Tree Woodland*, one association within the Joshua tree woodland alliance (*Yucca brevifolia* Woodland Alliance) was documented in the Palmdale Ditch Conversion Project Site BSA and is described below. Joshua tree woodlands are defined by the presence of western Joshua tree evenly distributed at cover greater than or equal to one percent. Western Joshua trees are less than one percent cover on average across the entire BSA; however, one area within the BSA has a western Joshua tree density that exceeds one percent cover. The boundaries of the Joshua tree woodland in the BSA were approximated based on the greater-than-one-percent cover that defines the vegetation community.

Western Joshua Tree/California Juniper/Nevada Ephedra Woodland (Yucca brevifolia/Juniperus californica/Ephedra nevadensis Woodland Association)

In the BSA, this association covers approximately 7.20 acres and is found in one location along the Ditch, near the intersection of 47th Street East and Barrel Springs Road. Western Joshua tree was dominant in the tree stratum with mixed California junipers and a shrubby understory of big sagebrush, Nevada ephedra, narrow leaf goldenbush, and a suite of other shrub species that included sugarbush (*Rhus ovata*), buckwheat spp., rubber rabbitbrush, Anderson's boxthorn (*Lycium andersonii*), silver cholla, creosote bush, and Dorr's sage (*Salvia dorrii*). Herbaceous covers included bromes, mustards, cheatgrass, fiddlenecks, and redstem filaree (*Erodium cicutarium*). A washy area and a small natural drainage were noted in the western portion of this community, south of the Ditch along 47th Street East. This vegetation community is ranked G3S3 and is a CDFW sensitive natural community (CDFW 2023a).

Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance)

Mulefat thickets (*Baccharis salicifolia* Shrubland Alliance) are characterized by a moderately open shrub layer, dominated by mulefat where it contributes at least 50 percent relative cover in the shrub layer, or at least 30 percent relative cover in the shrub layer with blue elderberry (*Sambucus mexicana*). Mulefat thickets are typically found in canyon bottoms, floodplains, irrigation ditches, lake margins, and stream channels within mixed alluvial soils between sea level to 4,101 feet (1,250 meters) amsl in elevation (Sawyer et al. 2009). This alliance is represented by a single association in the BSA, described below.

Mulefat Thickets (Baccharis salicifolia Shrubland Association)

In the BSA, this association covers approximately 0.23 acre and is found in four locations: two at the southern portion, north of Littlerock Reservoir, and two within a wetland area north of Mt. Emma Road and west of Cheseboro Road. Specifically, clusters of mulefat thickets were found within the California sycamore woodland habitat near Littlerock Reservoir, along an underground culvert off Cheseboro Road, and within off-shooting wetland drainages within California juniper woodland habitat north of Edison Road. This association is ranked G5S5 and is not a CDFW sensitive natural community (CDFW 2023a).

Nevada Joint-Fir – Anderson's boxthorn – Spiny Hop Sage Scrub (*Ephedra nevadensis – Lycium andersonii – Grayia spinosa* Shrubland Alliance)

Nevada ephedra may be found on dry, open slopes, on ridges, or on breaks with southern-exposed canyons, floodplains, and washes between 3,281 and 5,906 feet (1,000 to 1,800 meters) amsl in elevation. This alliance tends to prefer shallower alluvial soils that are well-drained, gravelly, or rocky. The alliance is characterized by shrubs less than six feet (two meters), open to intermittent canopy, and herbaceous layers open with seasonal annuals (Sawyer et. al. 2009). Nevada ephedra is dominant or co-dominant with greater than two percent absolute cover in the shrub layer. This alliance is represented by a single association in the BSA, described below.

Nevada Joint-Fir – Anderson's Box Thorn Scrub (Ephedra nevadensis – Lycium andersonii Shrubland Association)

In the BSA, this association occurs on a south-facing slope in the southeastern extent and covers approximately 0.44 acre. The association was dominated by Nevada ephedra, Anderson's boxthorn, buckwheat, and yuccas. Due to limited access in this area of the BSA, this vegetation community was observed from a distance with binoculars. Greater detail pertaining to the species composition or cover was not recorded. This association is unranked and is not a CDFW sensitive natural community (CDFW 2023a).

Rubber Rabbitbrush Scrub (*Ericameria nauseosa* Shrubland Alliance)

In addition to being present in the larger Project area, as described above under *Rabbitbrush Scrub*, one association within the rubber rabbitbrush scrub alliance was documented in the Palmdale Ditch Conversion Project Site BSA and is described below.

Rubber Rabbitbrush Scrub (Ericameria nauseosa Shrubland Association)

This association covers approximately 34.51 acres and is present throughout the BSA. Rubber rabbitbrush is dominant in the shrub layer with big sagebrush, California buckwheat, hairy yerba santa, brittle bush, wild tarragon, narrow leaf goldenbush, box thorn, and scattered emergent California juniper, Stansbury's cliffrose, and western Joshua trees. Fiddlenecks, cheatgrass, and bromes were present throughout the herbaceous understory. Disturbed rubber rabbitbrush occurs within the BSA and was observed near the outfall of the Ditch into Lake Palmdale. This vegetation community is ranked G5S5 and is not a CDFW sensitive natural community (CDFW 2023a).

Sandbar Willow Thickets (*Salix exigua* Shrubland Alliance)

Sandbar willow thickets are typically found on temporarily-flooded floodplains, deposits along rivers and streams, and at springs between sea level and 8,858 feet (2,700 meters) amsl in elevation. This community is characterized by an intermittent to continuous shrub layer and a variable herbaceous layer. Sandbar willow (*Salix exigua*) has at least 30 percent relative cover in the shrub layer. This alliance is represented by a single association in the BSA, described below.

Sandbar Willow/Mesic Graminoids Thickets (Salix exigua/Mesic graminoids Shrubland Association)

Within the BSA, this association covers approximately 0.12 acre. Scattered sprouts occur along the Ditch in wetland areas and near seeps. A small stand of sandbar willows occurs along the Ditch and is located just north of the California Aqueduct, partially within the Ditch and on California Department of Water Resources' (DWR) property. This association is unranked and is not a CDFW sensitive natural community (CDFW 2023a).

Tucker Oak Chaparral (*Quercus john-tuckeri* Shrubland Alliance)

This alliance is defined by the dominance of Tucker oak (*Quercus john-tuckeri*) in the shrub layer. It is found on upper slopes and ridge tops, between 984 and 4,921 feet (300 and 1,500 meters)

amsl where soils are well- to extensively-drained over bedrock or colluvium. This alliance is represented by a single association in the BSA, described below.

Tucker Oak Chaparral (Quercus john-tuckeri Shrubland Association)

In the BSA, this association covers approximately 0.26 acre. A small population of Tucker oaks occurs approximately 0.3 mile west of the Littlerock Reservoir access gate in unincorporated Los Angeles County, south of a private access gate and northwest of the Ditch at the edge of the BSA. The area is sloped and west-facing, and the cluster of oak trees was surrounded by California buckwheat scrub, rubber rabbitbrush scrub, and emergent western Joshua trees. This vegetation community is ranked G4S4 and is not a CDFW sensitive natural community (CDFW 2023a); however, individual trees that meet certain size and spacing thresholds may be regulated by the Los Angeles County Oak Tree Ordinance (Los Angeles County Code of Ordinances Section 22.174 et seq.) and/or the County's Oak Woodlands Conservation Management Plan (County of Los Angeles 2011) and Woodlands Conservation Management Plan Guide (County of Los Angeles 2014), as discussed in Section 3.3.3.4*, Impact BIO-5 Analysis*, below.

SEMI-NATURAL COMMUNITIES

Red Brome or Mediterranean Grass Grasslands (*Bromus rubens* Herbaceous Semi-Natural Alliance)

Red brome grassland (*Bromus rubens* Herbaceous Semi-Natural Alliance) may be found across various topography settings and soil textures, between sea level and 7,218 feet (2,200 meters) amsl in elevation. This herbaceous community contains open to continuous herbaceous cover with red brome (*Bromus rubens*) making up greater than 80 percent of the herbaceous layer, and emergent shrubs may be present at low cover (Sawyer et al. 2009). This alliance is represented by a single association in the BSA, described below.

Red Brome Grasslands (Bromus rubens Herbaceous Semi-Natural Association)

This association covers approximately 0.04 acre along a small portion of the Ditch in the southern extent of the BSA. It is ranked GNASNA due to the predominance of non-native species and is not a CDFW sensitive natural community (CDFW 2023a).

Tournefort's Mustard and Other Ruderal Desert Forb Patches (*Brassica tournefortii – Strigosella [Malcolmia] africana* Provisional Herbaceous Semi-Natural Alliance)

This provisional alliance is dominated by Tournefort's mustard (*Brassica tournefortii*), African mustard (*Strigosella* [*Malcolmia*] *africana*), and/or London rocket (*Sisymbrium irio*). It is typically found in alluvial fans, roadsides, sand dunes, lake shorelines, and washes and in disturbed areas, at elevations between sea level and 3,937 feet (1,200 meters) amsl, where soils are sandy to clay loam. This alliance is represented by a single association in the BSA, described below.

Tournefort's Mustard Patches (Brassica tournefortii Herbaceous Semi-Natural Association)

In the BSA, this association covers approximately 0.04 acre in a disturbed area within a large stand of big sagebrush scrub. Disturbances were likely human-caused (e.g., equipment, offroad activity, dumping). This vegetation community is ranked GNASNA and is not a CDFW sensitive natural community (CDFW 2023a).

OTHER LAND COVER

Developed/Disturbed

In addition to being present in the larger Project area, as described above under *Developed and Other Human Use*, developed and disturbed land covers were documented in the Palmdale Ditch Conversion Project Site BSA. Developed areas consist of paved and unpaved substrates including roadways, parking areas, buildings, canals, and cultivated ornamental vegetation. Disturbed areas are largely unvegetated, except for cultivated vegetation irrigated and maintained by people as well as weedy species.

Unpaved roads and parking areas are present at the north end of the BSA near Lake Palmdale and near the intersection of Barrel Springs Road and Pearblossom Highway. All disturbed areas along roadways, OHV trails, and areas surrounding the Ditch that had been previously disturbed were mapped. Additional developed/disturbed areas include railroad tracks in the Alpine Springs community, residential developments in the Alpine Springs community and along Barrel Springs Road, lawns, buildings, and the banks/edges of the California Aqueduct. In the BSA, developed/disturbed land cover totals approximately 52.46 acres.

Non-native Woodland

Non-native woodland within the BSA consists of a small area near an abandoned structure southeast of the Littlerock Reservoir access gate in the ANF and covers approximately 0.25 acre. It is comprised of non-native trees such as Arizona cypress (*Hesperocyparis arizonica*), Aleppo pines (*Pinus halepensis*), and tamarisk (*Tamarix* spp.) with a sparse shrubby understory of California buckwheat, fiddlenecks, rubber rabbitbrush, and hairy yerba santa. One old abandoned recreational structure and two concrete pits occur within this area. This vegetation community is not recognized as a community represented in *A Manual of California Vegetation, Second Edition* (Sawyer et. al 2009).

Open Water

In addition to being present in the larger Project area, as described above under *Open Water*, open water was documented in the Palmdale Ditch Conversion Project Site BSA. It occurs as part of Lake Palmdale where the Ditch outfalls into the lake, which contains patchy cattails along the banks and outfall, with denser cattail and riparian woodland vegetation extending beyond the BSA. Several small, ponded areas also occur just east of Barrel Springs Road and the bollard access gate near 42nd Street, associated with an isolated patch of Fremont cottonwood

woodland and surrounding California junipers and upland vegetation. This land cover includes approximately 2.99 acres in the BSA.

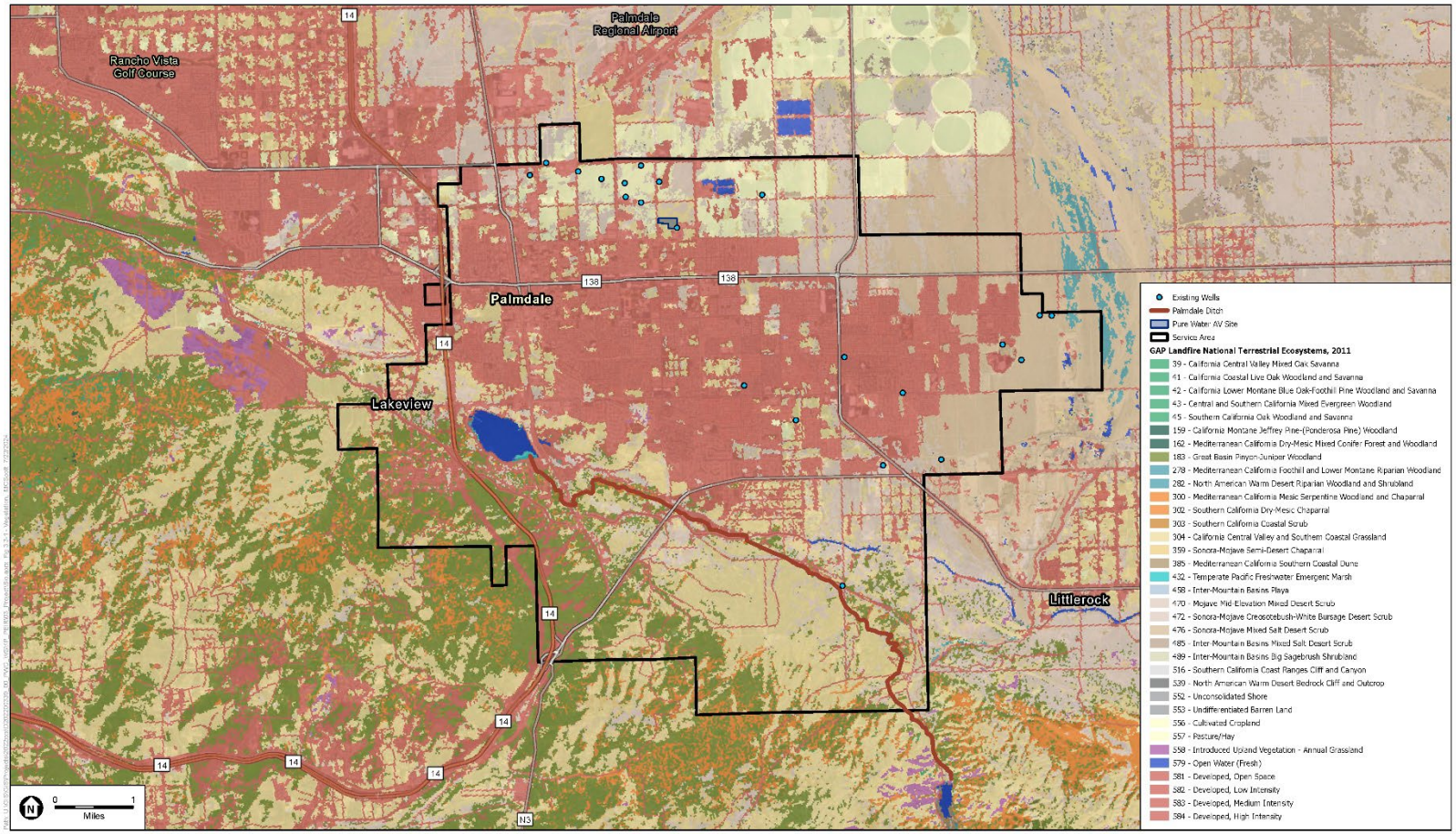
Palmdale Ditch

The Ditch runs down the middle of the BSA from Littlerock Reservoir to Lake Palmdale. The BSA crosses paved roads at Mt. Emma Road, Cheseboro Road, 47th Steet East, Barrel Springs Road, 40th Street East, Pearblossom Highway, and Sierra Highway and through the unincorporated community of Alpine Springs. In the BSA, the Ditch comprises approximately 5.10 acres.

Riverwash

Riverwash is present within the active channel of Littlerock Wash, adjacent to dense California sycamore woodland habitat along the southeastern portion of the BSA, totaling approximately 0.11 acre. This land cover type consists of sand and cobble that has accumulated in the channels and low terraces in the riverbed. Little to no vegetation is present. Riverwash is a naturally dynamic landform and may shift and change position depending on flood volumes and regularity.

Figure 3.3-1 Vegetation and Land Cover Overview



SOURCE: ESA, 2024; GAP LandFire, 2011

Palmdale Water District Strategic Water Resources Plan Update

Figure 3.3-1
Vegetation and Land Cover Overview

ESA

Figure Series 3.3-2 Vegetation and Land Cover in Palmdale Ditch Conversion Project Site BSA

Figure 3.3-2a

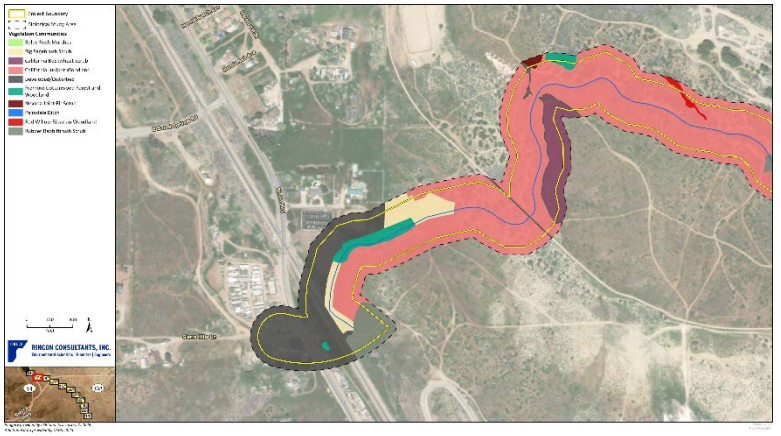


Figure 3.3-2b

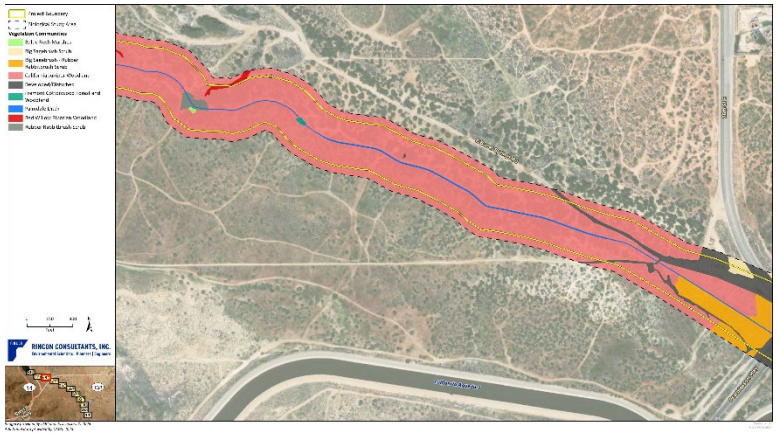


Figure 3.3-2c

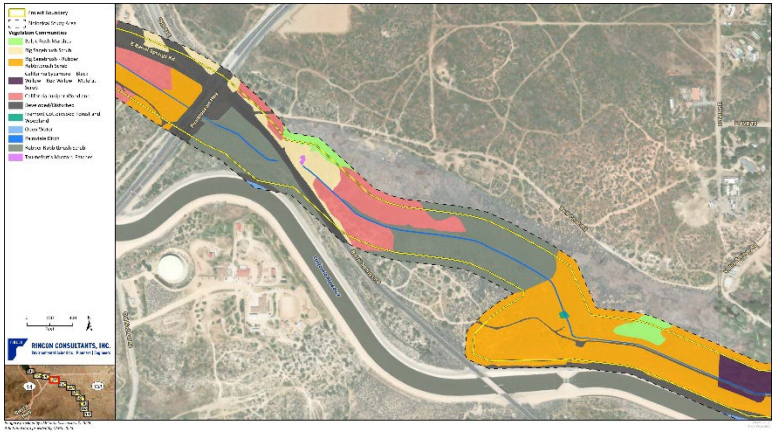


Figure 1.3-2d

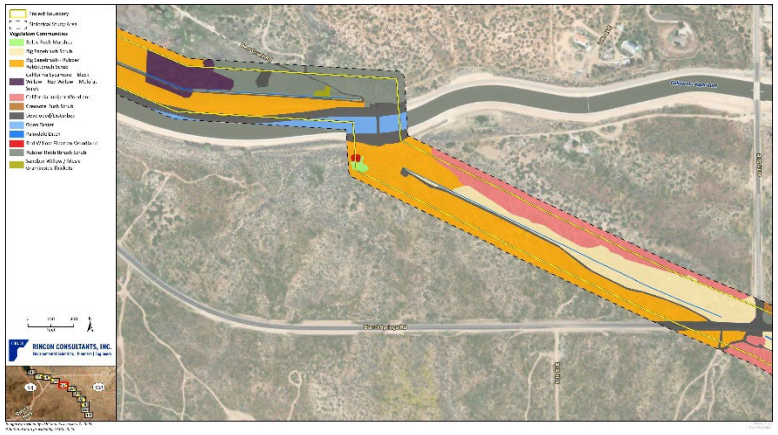


Figure 3.3-2e

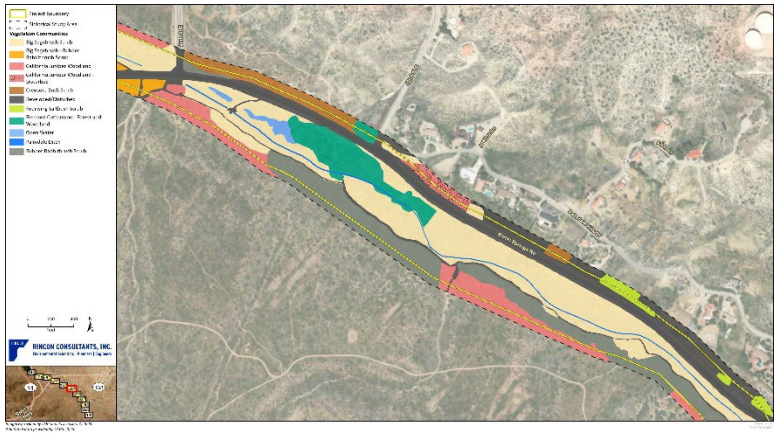


Figure 3.3-2f

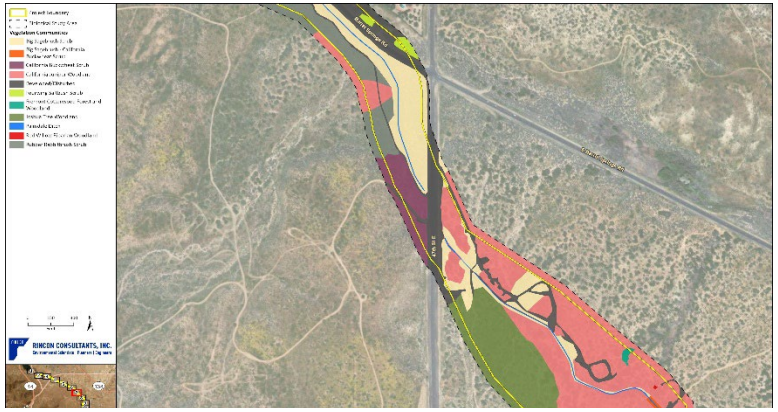


Figure 3.3-2g

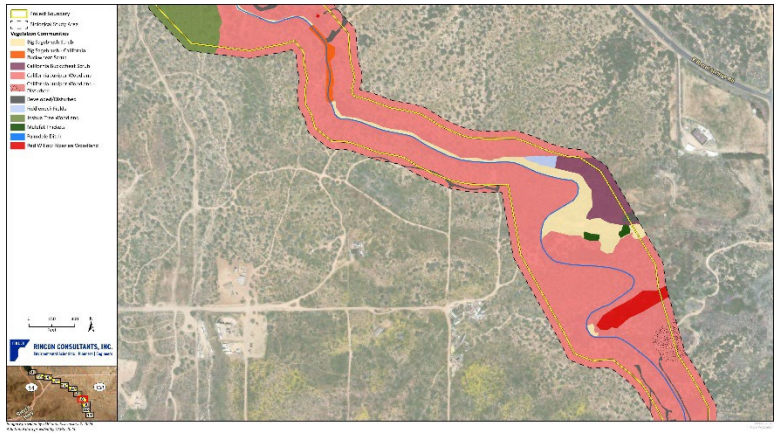


Figure 2.3-2h

Figure 3.3-2i

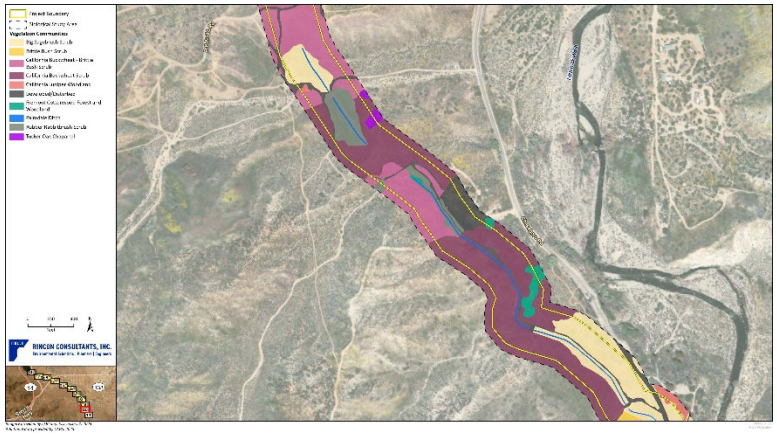


Figure 3.3-2j

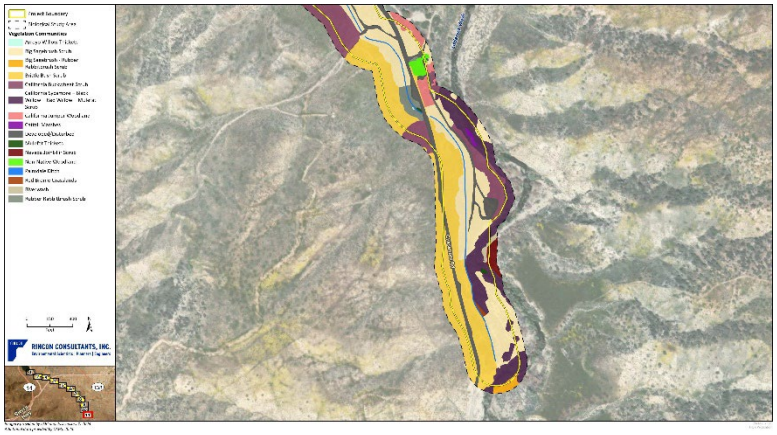


Figure 3.3-2k

3.3.1.3 Special-Status Plant and Wildlife Species

PROJECT AREA

SPECIAL-STATUS PLANTS

A list of special-status plant species that may occur in the Project area was created by reviewing the resources cited above. The CDFW CNDDB and CNPS Rare Plant Inventory were queried based on a search of the Lancaster West, Lancaster East, Alpine Butte, Ritter Ridge, Palmdale, Littlerock, Acton, Pacifico Mountain, and Juniper Hills quadrangles (CDFW 2024a, CNPS 2024). The results of these queries formed the basis for analysis of the potential for special-status plant species to occur in the Project area. A total of 31 special-status plant species have been recorded in the 9-quadrangle search area (see **Figure 3.3-3**) and a discussion of each special-status plant species with a potential to occur within the Project area is included in **Appendix C-2**.

Of the species that were listed in the CDFW CNDDB and CNPS Rare Plant Inventory search inventories, 13 were determined to have no potential to occur due to lack of suitable habitat and/or because the Project area is outside of the known elevation range for these species, and seven were determined to have only a low potential to occur within the Project area and are excluded from further discussion. The potential for special-status plant species to occur is based on habitats and vegetation communities for each of these species. Based on the habitats identified within the Project area, seven special-status plants have a moderate potential to occur within the Project area, including Palmer's mariposa-lily (*Calochortus palmeri* var. *palmeri*), alkali mariposa-lily (*Calochortus striatus*), Peirson's morning-glory (*Calystegia peirsonii*), Mojave paintbrush (*Castilleja plagiotoma*), sagebrush loeflingia (*Loeflingia squarrosa* var. *artemisiarum*), Robbins' nemacladus (*Nemacladus secundiflorus* var. *robbinsii*), and Greata's aster (*Symphyotrichum greatae*). Three special-status plants have a high potential to occur within the Project area, including Horn's milk-vetch (*Astragalus hornii* var. *hornii*), white pygmy-poppy (*Canbya candida*), and short-joint beavertail (*Opuntia basilaris* var. *brachyclada*). One species, western Joshua tree (*Yucca brevifolia*), is present within the Project area. A detailed discussion of each special-status plant species, their preferred habitat, and potential to occur is included in **Appendix C-2**.

It should be noted that western Joshua tree is currently protected in California under the Western Joshua Tree Conservation Act (Senate Bill 122), which was passed in July 2023. The western Joshua tree is also a candidate threatened species under CESA, and thus is afforded the same protections as if it were listed under CESA. Therefore, "take" (trim, remove, or otherwise kill) of a western Joshua tree (live or dead) without proper authorization from CDFW is prohibited.

SPECIAL-STATUS WILDLIFE

A review of the CDFW CNDDB and USFWS IPaC databases revealed that 44 special-status wildlife species were recorded within the USGS 9-quadrangle search and literature review (CDFW 2024a, USFWS 2024c) (see **Figure 3.3-3**). The potential for special-status wildlife species to occur is based on the vegetation communities, habitat quality, and habitat preferences for each of these species (CDFW 2024b). A discussion of each special-status wildlife species with a potential to occur within the Project area is included in **Appendix C-3**.

A total of five special-status wildlife species are not expected to occur within the Project area due to a lack of suitable habitat and/or because the Project area is located outside of the known range for the species. A total of six special-status wildlife species have a low potential to occur within the Project area (because the Project area provides only low-quality or very limited habitat for a particular species and/or because the Project area is outside of the known range for this species) and are excluded from further discussion. Based on the habitats identified within the Project area, four special-status species have a low to moderate potential to occur, including arroyo toad (*Anaxyrus californicus*), Bell's sparrow (*Artemisiospiza belli belli*), and Mohave ground squirrel (*Xerospermophilus mohavensis*). Ten special-status wildlife species have a moderate potential to occur within the Project area, including Soledad shoulderband (*Helminthoglypta fontiphila*), western pond turtle (*Actinemys pallida*), desert tortoise (*Gopherus agassizii*), two-striped gartersnake (*Thamnophis hammondii*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), Swainson's hawk (*Buteo swainsoni*), southwestern willow flycatcher (*Empidonax traillii extimus*), and San Diego desert woodrat (*Neotoma lepida intermedia*). Fourteen special-status wildlife species have a high potential to occur within the Project area, including Crotch's bumble bee, Northern California legless lizard (*Anniella pulchra*), California legless lizard (*Anniella* spp.), California glossy snake (*Arizona elegans occidentalis*), coast horned lizard (*Phrynosoma blainvillii*), tricolored blackbird (*Agelaius tricolor*), burrowing owl (*Athene cunicularia*), ferruginous hawk (*Buteo regalis*), prairie falcon (*Falco mexicanus*), loggerhead shrike (*Lanius ludovicianus*), Le Conte's thrasher (*Toxostoma lecontei*), least Bell's vireo (*Vireo bellii pusillus*), pallid bat (*Antrozous pallidus*), and Townsend's big-eared bat (*Corynorhinus townsendii*). Five special-status wildlife species were present within the Project area, including monarch butterfly (*Danaus plexippus plexippus pop. 1*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), northern harrier (*Circus hudsonius*), and merlin (*Falco columbarius*). A detailed discussion of each special-status wildlife species, their preferred habitat, and potential to occur is included in **Appendix C-3**.

Figure 3.3-3 CNDDB Record Locations in the Project Area and Vicinity

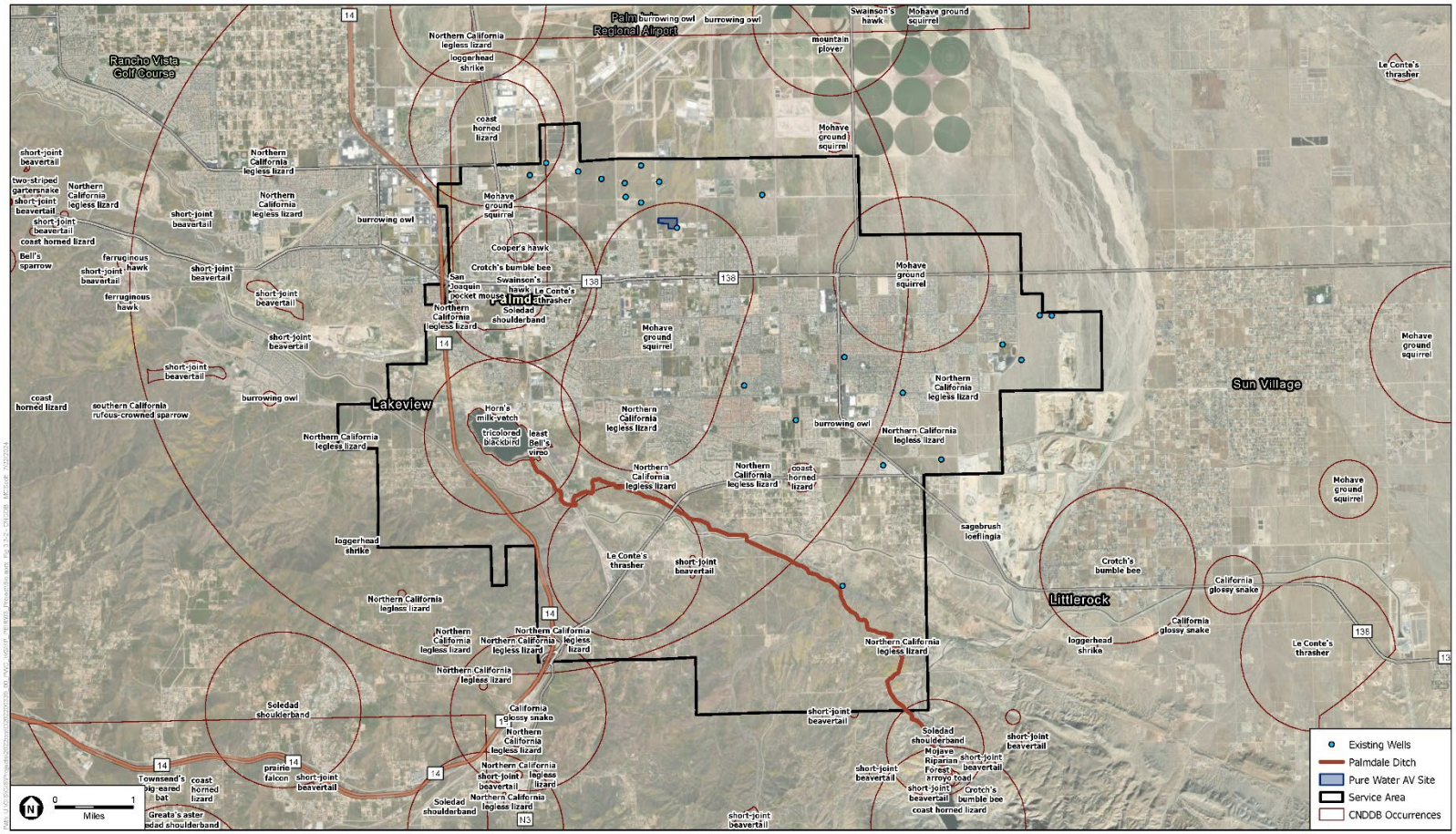


Figure 3.3-2
CNDDB Record Locations in the Project Area and Vicinity

PALMDALE DITCH CONVERSION PROJECT

Special-Status Plants

For the Palmdale Ditch Conversion Project, 29 special-status plant species were documented in the CNPS and CNDDB within the *Palmdale and Pacifico Mountain, California quadrangles* and surrounding USGS 7.5-minute quadrangles. Species considered FSS were also included and evaluated for their potential to occur in the BSA specifically on ANF lands. Of the 29 special-status plant species evaluated, four species have a moderate potential to occur in the BSA, including Palmer's mariposa-lily, alkali mariposa-lily, Mojave paintbrush, and Greata's aster. Three species have a high potential to occur in the BSA, including Horn's milk-vetch, white pygmy-poppy, and short-joint beavertail. A detailed discussion of each special-status plant species, their preferred habitat, and potential to occur in the Palmdale Ditch Conversion Project site is included in **Appendix C-1.**

A total of 3,463 western Joshua trees were identified and mapped within the western Joshua tree Survey Area during the western Joshua tree census; an additional six western Joshua trees were identified and mapped outside the Survey Area during the census, located in the ANF. Of those, 3,043 western Joshua trees are living; the remaining 426 western Joshua trees were classified as dead. Of the live western Joshua trees surveyed, 1,838 are Size Class A (less than one meter in height), 1,080 are Size Class B (greater than one meter, but less than five meters in height), and 125 are Size Class C (greater than five meters in height). In addition, 626 of the live western Joshua trees are mature, and the remaining 2,417 live western Joshua trees are immature. Only one western Joshua tree was observed in its fruiting phase, and no western Joshua trees were observed in a flowering phase (Rincon 2024c). The full results of the western Joshua tree census conducted for the Palmdale Ditch Conversion Project are provided in **Appendix C-7**.

Special-Status Wildlife

For the Palmdale Ditch Conversion Project, 39 special-status wildlife species were documented in the CNDDB within the *Palmdale and Pacifico Mountain, California quadrangles* and surrounding USGS 7.5-minute quadrangles. Species considered FSS were also included and evaluated for their potential to occur in the BSA specifically on ANF lands. Of the 39 special-status wildlife species evaluated, 17 species have a moderate potential to occur in the BSA, including Soledad shoulderband, western pond turtle, Northern California legless lizard, California legless lizard, coast horned lizard, two-striped gartersnake, tricolored blackbird, southern California rufous-crowned sparrow, golden eagle, Bell's sparrow, burrowing owl, ferruginous hawk, Swainson's hawk, southwestern willow flycatcher, prairie falcon, San Diego desert woodrat, and Mohave ground squirrel. Four species have a high potential to occur in the BSA, including loggerhead shrike, least Bell's vireo, pallid bat, and Townsend's big-eared bat. Six special-status wildlife species were present within the BSA, including monarch butterfly, Cooper's hawk, Crotch's bumble bee, sharp-shinned hawk, northern harrier, and merlin. A detailed discussion of each special-status wildlife species, their preferred habitat, and potential to occur in the Palmdale Ditch Conversion Project site is included in **Appendix C-1.**

Since the Palmdale Ditch Conversion Project Biological Resources Assessmentwas prepared, a total of 24 Crotch's bumble bees (12 workers and 12 males) were observed at three locations within the Palmdale Ditch Conversion Project site during focused surveys conducted in May and June 2024. A total of 58 floral species were in bloom during the surveys, with three floral species observed being visited by various bumble bee species: thick-leaved yerba santa (*Eriodictyon crassifolium*), desert prince's plume, and paperbag bush (also known as bladder sage). Crotch's bumble bees were only observed visiting thick-leaved yerba santa. Various bumble bee species were observed in five vegetation communities in the CBB Survey Area during the surveys: California buckwheat scrub, rubber rabbitbrush scrub, California juniper woodland, big sagebrush scrub, and Goodding's willow – red willow riparian woodland. Crotch's bumble bee were only observed in the big sagebrush scrub and California juniper woodland vegetation communities in three locations within the CBB Survey Area. Potential Crotch's bumble bee nesting substrates identified in the CBB Survey Area included small mammal burrows and tunnels, rock piles, brush piles, bunch grasses, leaf litter, areas of vegetation mulch, and layers of pine needle duff. Potential nesting substrates were surveyed within areas of foraging resources and within areas of California juniper woodland and along woodland edges. No bumble bees were observed at any potential nesting substrate locations; no queens exhibiting nest-searching behavior were observed; and bumble bee movement from a potential nesting substrate was not observed during the surveys. No potentially active Crotch's bumble bee nesting sites were observed during the surveys. Potential Crotch's bumble bee overwintering habitat assessed and documented within the CBB Survey Area included bare ground, leaf litter, pine needle duff layer, and bunch grasses. These types of overwintering habitat were observed throughout the CBB Survey Area. The surveys occurred during the Crotch's bumble bee Colony Active Period (April through August); thus, no bumble bee hibernacula were observed during the surveys (Rincon 2024d). The total potentially suitable Crotch's bumble bee habitat within the Palmdale Ditch Conversion Project site is approximately 309 acres. The full results of the Crotch's bumble bee surveys conducted for the Palmdale Ditch Conversion Project are provided in **Appendix C-6.**

3.3.1.4 Critical Habitat

Under the FESA, to the extent feasible, the USFWS is required to designate critical habitat for endangered and threatened species. Critical habitat is defined as areas of land, water, and air space containing the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated critical habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter that are essential to the survival and recovery of the species, whether the habitat is currently occupied by the species or not. Designated critical habitats require special management and protection of existing resources including water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types.

The Project area and the Palmdale Ditch Conversion Project Site BSA do not encompass any USFWS-designated critical habitat. The nearest critical habitat to the Project area and the Palmdale Ditch Conversion Project Site BSA is arroyo toad critical habitat located approximately

1 mile south of the Palmdale Ditch, in Littlerock Creek that flows into Littlerock Reservoir, as shown in **Figure 3.3-3** (USFWS 2024b).

3.3.1.5 Wildlife Movement Corridors

Habitat linkages are contiguous areas of open space that connect two larger habitat areas. Linkages allow for both diffusion and dispersal of a variety of species within the landscape. In addition, linkages can serve as primary habitat for some smaller species. Wildlife corridors are features that exist as topographical or structural pinch points that, among other purposes, are utilized by wildlife for travel between one geographical area to the next. While these resources may be utilized strictly for travel purposes, for example, a dry culvert under a roadway or bridge, they can contain natural vegetation and habitats that support foraging, roosting, and breeding activities as well. Very often, particularly in the case of riparian corridors, aquatic species depend entirely on these features to persist. Corridors provide for movement and dispersal, but do not necessarily include habitat capable of supporting all life history requirements of a species.

Wildlife movement corridors are critical for the long-term health of ecological systems for several reasons. Corridors provide connections that provide wildlife with access to water, food, and cover sources, spatially linking these three resources with wildlife in different areas. In addition, wildlife movement between habitat areas provides for genetic exchange between populations of wildlife in otherwise separated natural areas, thereby improving genetic variability within species which also enhances a species' ability to respond to changing environmental conditions. This is especially critical for small populations subject to loss of variability from genetic drift and effects of inbreeding. The nature of corridor use and wildlife movement patterns varies greatly among species.

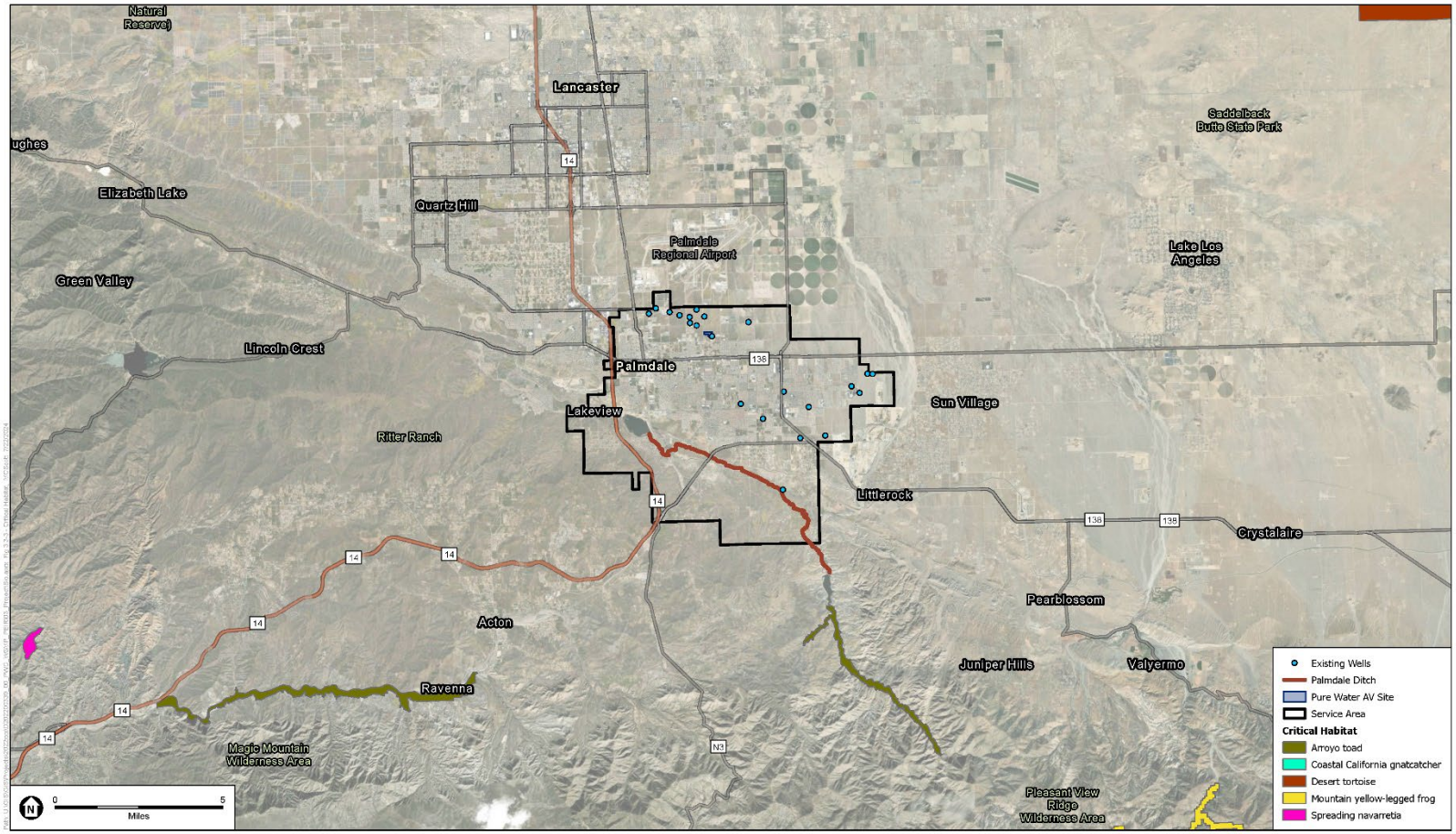
PROJECT AREA

On a regional level, the Project area does not support any mapped regional wildlife corridor or habitat linkage (South Coast Missing Linkages 2008, CDFW 2024c). However, the Project area supports habitat corridors primarily within the southern portion of the Project area, such as those described below for the Palmdale Ditch Conversion Project. The majority of the Project area is developed, and the remaining natural open space is fragmented by developments, which limits the area's use by wildlife for movement on a regional scale. The Project area provides live-in and movement habitat for a variety of wildlife species on a local scale. The Project area's contribution to a larger regional corridor encompasses that described below for the Palmdale Ditch Conversion Project.

PALMDALE DITCH CONVERSION PROJECT

At the regional/landscape-level scale, the Palmdale Ditch Conversion Project Site BSA is not located within mapped landscape habitat connectivity models, such as Essential Connectivity Areas in the *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California* (Spencer et al. 2010). However, the southern terminus of the BSA near Littlerock Reservoir is adjacent to, but outside of, a Natural Landscape Block mapped in the

Figure 3.3-4 Project Area in Relation to Nearest Critical Habitat



SOURCE: ESA, 2024

Palmdale Water District Strategic Water Resources Plan Update

Figure 3.3-3
Project Area in Relation to Nearest Critical Habitat

ESA

California Essential Habitat Connectivity Project (Spencer et al. 2010). Habitat corridors are present within the BSA, including riparian habitat in Littlerock Wash, as well as ridges and slopes in the foothills of the San Gabriel Mountains. The Ditch occurs along a transition between mountain and desert ecosystems within a largely undeveloped area lacking physical barriers to connectivity or artificial lighting that creates the potential for wildlife movement across the BSA. The BSA likely contributes to a larger regional corridor for wintering and local migratory species, especially at Lake Palmdale and along the foothills of the San Gabriel Mountains. Lake Palmdale is a migratory stopover and potential breeding location for numerous waterfowl and shorebirds (Rincon 2024a).

The Ditch itself may function as a source of water for local and migrating wildlife during times that water deliveries are occurring. From 1995 to 2006, water deliveries typically began in late winter or early spring and lasted through mid-spring (and sometimes into summer, depending on water availability in Littlerock Reservoir). During that time, it was common for deliveries to occur for at least five months of the year. However, the amount and regularity of water deliveries have generally fluctuated greatly, and the amount decreased on average since approximately 2008, likely as a result of multiple drought years and changing climatic patterns affecting precipitation timing and amounts in the Palmdale area. From 1995 to 2006, water deliveries occurred for approximately 122 days per year on average; from 2008 to 2023, water deliveries occurred for approximately 54 days per year on average. Similarly, from 1995 to 2006, the amount of water delivered was approximately 4,841 acre-feet compared to approximately 2,440 acre-feet on average from 2008 to 2023. During the period from 2008 to 2024, no water deliveries were made in the late winter or early spring months for seven different years, and water deliveries for 10 different years occurred for four months or less each year, and during four of those years, water deliveries occurred during only one or two months of the year. During these 10 years, water deliveries all occurred at different times of the year (some in spring, summer, or fall) (Yao 2024). In the absence of a reliable and predictable water supply in the Ditch over the years, wildlife likely rely on other readily available sources of water within and adjacent to the BSA, such as Littlerock Wash and other water features overlying the San Andreas Fault (i.e., sag ponds), Lake Palmdale, Lake Una, and the water features between the Ditch and Barrel Springs Road, among others.

3.3.1.6 Aquatic Resources

PROJECT AREA

The Project area supports numerous aquatic resources, including Lake Palmdale, Una Lake, Littlerock Wash, and Anaverde Creek. The USFWS National Wetlands Inventory is a nationwide database showing the distribution and type of U.S. wetlands to aid in conservation efforts. An aquatic resources delineation was not conducted as part of the proposed Project; however, riparian and wetland areas identified by the National Wetlands Inventory Mapper within the Project area are shown in **Figure 3.3-4**.

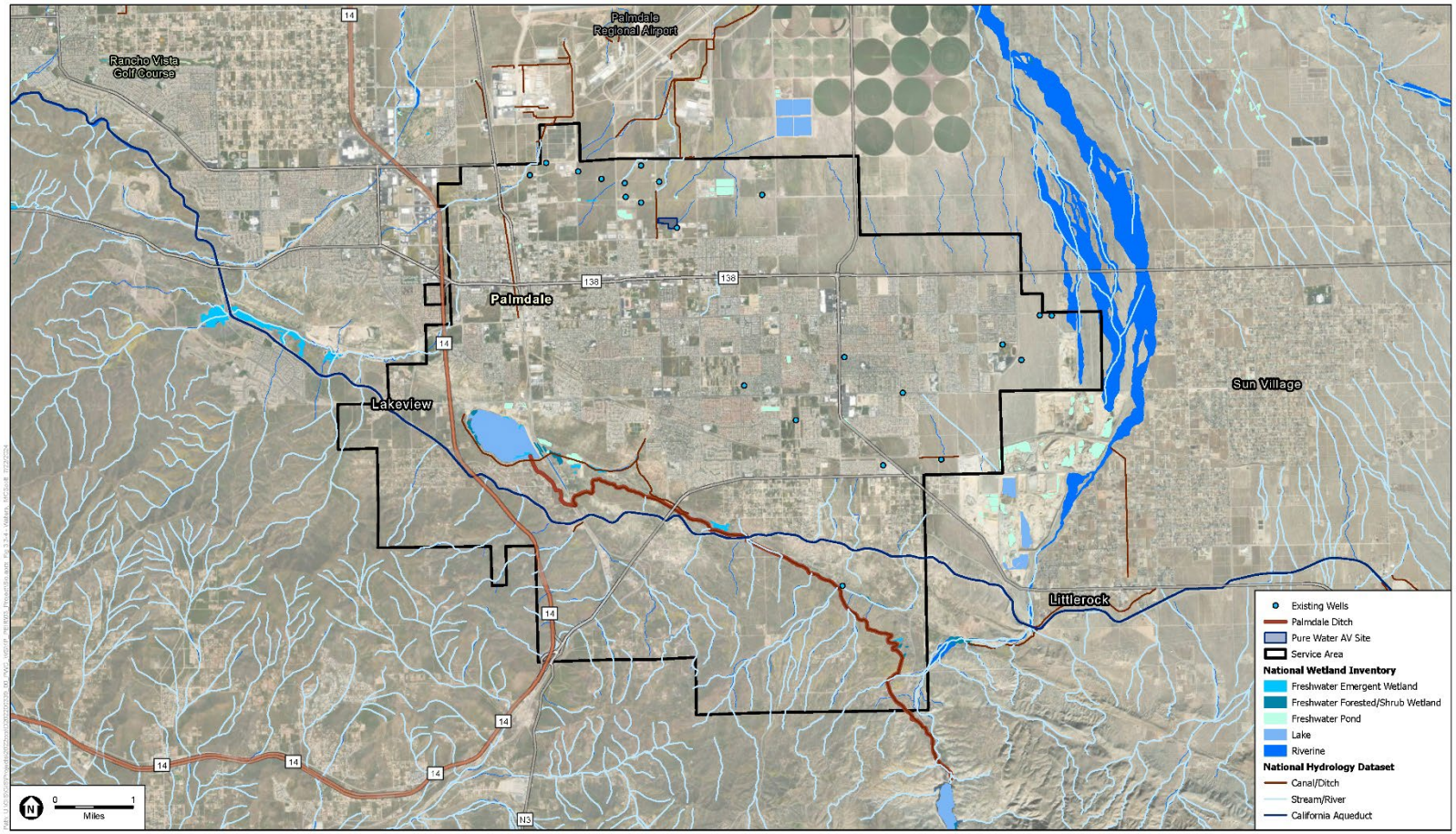
Aquatic resources within the Project area may be subject to U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW jurisdiction and regulatory

authority. The limits of potential USACE waters of the U.S. and RWQCB waters of the State are based on the presence of "ordinary high water mark" (OHWM) indicators, such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; and/or the presence of litter and debris. Wetlands, including seasonal wetlands, seeps, marshes, and similar areas, are defined by the USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE. Areas within CDFW jurisdiction typically refer to streambeds and associated wetland or riparian vegetation. The boundaries of the streams and associated vegetation are delineated based on a break in slope at the top of bank for aquatic features or to the outer edge of the overhanging riparian or wetland vegetation.

The Antelope Valley is an internally drained basin with no connection to navigable waters. The USACE has indicated that the isolated washes within the Antelope Valley watershed are not considered navigable waters of the U.S. Therefore, the USACE has disclaimed all wetlands and drainages within the basin, with the exception of Lake Palmdale. Lake Palmdale is a man-made reservoir originally constructed for water supply and storage, and currently also receives water inputs from the State Water Project. Though Lake Palmdale does not have a downstream surface connection with the lower Antelope Valley watershed (i.e. isolated), past approved jurisdictional determinations (SPL-2004-00063-AOA, SPL-2004-00073-KW, 2009-00634-PHT) have demonstrated a potential nexus to commerce (i.e. (a)(3)(i) water). Lake Palmdale has and currently does support navigation and substantial surface water related recreation with the potential for interstate commerce (ESA 2018a).

According to the DWR's Natural Communities Commonly Associated with Groundwater - Vegetation Dataset (DWR 2020), the Project area also supports groundwater dependent ecosystems (GDEs) (Figure 3.3-5). These GDEs are comprised of phreatophytic vegetation (i.e., deep-rooted plants that obtain a significant portion of their water needs from the phreatic zone [zone of saturation]).

Figure 3.3-5 Overview of Mapped Waters in the Project Area and Vicinity



SOURCE: ESA, 2024; National Hydrography Dataset, 2024; National Wetlands Inventory, 2024

Palmdale Water District Strategic Water Resources Plan Update

Figure 3.3-4
Overview of Mapped Waters in the Project Area and Vicinity

ESA

Figure 3.3-6 Overview of Groundwater Dependent Ecosystems in the Project Area and Vicinity

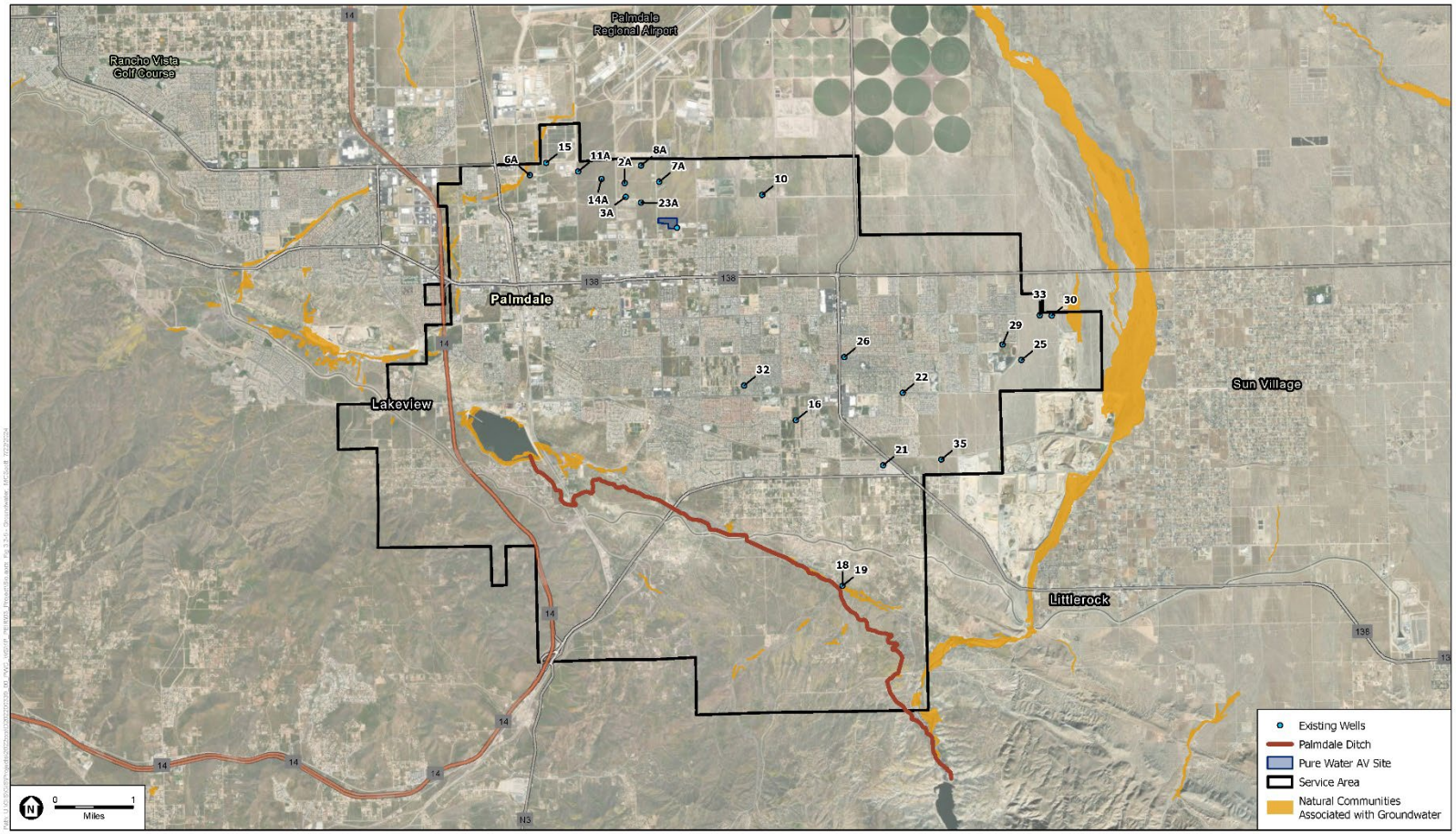


Figure 3.3-5
Natural Communities Commonly Associated with Groundwater

ESA

PALMDALE DITCH CONVERSION PROJECT

The following provides a summary of aquatic resources associated with the Palmdale Ditch Conversion Project. Detailed descriptions are provided in Palmdale Ditch Conversion Project Jurisdictional Delineation Report (Rincon 2024b), which is included as **Appendix C-4**.

OVERVIEW

A minimum of 41 potentially jurisdictional features occur in the Palmdale Ditch Conversion Project Site BSA, including the Ditch, Lake Palmdale, Littlerock Wash, the California Aqueduct, one unnamed pond, 20 unnamed drainages, and 16 wetlands. Two additional potentially jurisdictional wetlands may also be present, but due to access limitations, jurisdictional boundaries could not be confirmed. The delineated features included natural and manmade perennial, intermittent, and ephemeral streams; culverts; a pond; a lake; and isolated wetlands that may be subject to USACE, RWQCB, and/or CDFW jurisdictions (Rincon 2024b).

The Ditch extends approximately 7.2 miles within the Palmdale Ditch Conversion Project Site BSA, including both above-ground portions of the Ditch as well as culverted areas. The open, above-ground portions of the Ditch include both concrete-lined and earthen-bottomed areas. Approximately 35 percent of the Ditch is concrete-lined or culverted, while approximately 65 percent is earthen-bottomed. The Ditch is an intermittent system; the Ditch is generally dry for most of the year and contains water primarily during scheduled releases from Littlerock Reservoir. Releases typically occur in the spring and summer months (generally March to July) but may occur in the fall and winter months (i.e., October through February), depending on water availability in Littlerock Reservoir. The Ditch flows for an average of 90 days per year, following scheduled releases. More detailed information regarding water delivery quantities, duration, and timing since 1995 is provided in Section 3.3.1.5, *Wildlife Movement Corridors*.

USACE JURISDICTION

The Ditch is an intermittent Relatively Permanent Water (RPW) with direct surface connectivity to Lake Palmdale, a Traditional Navigable Water (TNW). Therefore, the Ditch and Lake Palmdale are likely non-wetland waters of the U.S. under jurisdiction of USACE pursuant to Section 404 of the Clean Water Act (CWA). Lake Palmdale also potentially contains wetland waters of the U.S. along the lake margins where emergent hydrophytic vegetation is present. The California Aqueduct is a perennial drainage feature with direct surface connectivity to Lake Perris, a TNW, and is also likely under jurisdiction of USACE as non-wetland waters of the U.S. The remainder of the aquatic resources in the Palmdale Ditch Conversion Project Site BSA are either ephemeral non-TNWs or are isolated (i.e., do not contain direct surface connectivity) from waters of the U.S. and are therefore not likely to be regulated by USACE. A minimum of approximately 8.26 acres of potential waters of the U.S. are present, including 7.60 acres of non-wetland waters of the U.S., 0.51 acre of culverted non-wetland waters of the U.S., and 0.15 acre of wetland waters of the U.S., and are likely to be regulated by USACE. Detailed acreages of jurisdiction by feature and figures illustrating their locations are included in the Jurisdictional Delineation Report (Rincon 2024b; **Appendix C-4**).

RWQCB JURISDICTION

Several ephemeral and intermittent drainages (including culverted waters), ditches/canals (including the Ditch, the California Aqueduct, and Unnamed Drainages 9 and 10), ponds/lakes (including Lake Palmdale and Unnamed Pond 1), and 16 isolated wetlands (Wetlands 1 to 16) are likely waters of the State under jurisdiction of the Lahontan RWQCB pursuant to Section 401 of the CWA and Porter-Cologne Water Quality Control Act. A minimum of approximately 15.15 acres of potential waters of the State, including 9.48 acres of non-wetland waters of the State, 0.54 acre of culverted non-wetland waters of the State, and 5.13 acres of wetland waters of the State are present and are likely to be regulated by the Lahontan RWQCB. Detailed acreages of jurisdiction by feature and figures illustrating their locations are provided in the Jurisdictional Delineation Report (Rincon 2024b; **Appendix C-4**).

Potential Wetlands 17 and 18 may be waters of the State as determined by field observations via binoculars from the limits of the right-of-way or via the literature review (i.e., aerial imagery, National Hydrography Dataset map, or National Wetlands Inventory map). However, these features could not be definitively defined as waters of the State due to limited access for evaluation.

CDFW JURISDICTION

Several ephemeral and intermittent drainages, ditches/canals (including the Ditch, the California Aqueduct, and Unnamed Drainages 9 and 10) are likely CDFW-jurisdictional streambeds pursuant to California Fish and Game Code Section 1600 et. seq. In addition, multiple ponds/lakes (including Lake Palmdale and Unnamed Pond 1) and one isolated wetland that contained a defined bed and bank (i.e., Wetland 5) are likely CDFW-jurisdictional lakes pursuant to California Fish and Game Code Section 1600 et seq. A minimum of approximately 25.98 acres of potential CDFW-jurisdictional areas are present, including 21.64 acres of CDFW-jurisdictional streambed and 4.34 acres of CDFW-jurisdictional lake. Detailed acreages of jurisdiction by feature and figures illustrating their locations are provided in the Jurisdictional Delineation Report (Rincon 2024b; **Appendix C-4**).

3.3.2 REGULATORY FRAMEWORK

This section describes local, State, and federal laws, policies and regulations that apply to the proposed Project.

3.3.2.1 Federal Policies and Regulations

The FESA, Clean Water Act Section 404, and Migratory Bird Treaty Act (MBTA) are the primary federal planning, treatment, and review mechanisms for biological resources that would be applicable to the proposed Project. In addition, a portion of the Palmdale Ditch Conversion Project is located on National Forest System lands administered by the ANF and within the San Gabriel Mountains National Monument; as such, laws, policies, and plans applicable to the ANF are relevant specifically for the Palmdale Ditch Conversion Project. Each is summarized below.

ENDANGERED SPECIES ACT

The USFWS and National Marine Fisheries Service (NMFS) are the designated federal agencies responsible for administering the FESA. The FESA defines species as "endangered" and "threatened" and provides regulatory protection for any species thus designated. FESA Section 9 prohibits the "take" of species listed by USFWS as threatened or endangered. As defined in the FESA, *taking* means "… to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in such conduct." Recognizing that take cannot always be avoided, FESA Section 10(a) includes provisions for takings that are incidental to, but not the purpose of, otherwise lawful activities.

FESA Section 7(a)(2) requires all federal agencies, including USFWS, to evaluate projects authorized, funded, or carried out by federal agencies with respect to any species proposed for listing or already listed as endangered or threatened and the species' critical habitat, if any is proposed or designated. Federal agencies must undertake programs for the conservation of endangered and threatened species and are prohibited from authorizing, funding, or carrying out any action that would jeopardize a listed species or destroy or modify its "critical habitat."

As defined in the FESA, "individuals, organizations, States, local governments, and other non-federal entities are affected by the designation of critical habitat only if their actions occur on federal lands, require a federal permit, license, or other authorization, or involve federal funding."

FESA Section 4(a)(3) and (b)(2) requires the designation of critical habitat to the maximum extent possible and prudent based on the best available scientific data and after considering the economic impacts of any designations. Critical habitat is defined in FESA Section 3(5)(A): (1) areas within the geographic range of a species that are occupied by individuals of that species and contain the primary constituent elements (PCEs) (physical and biological features) essential to the conservation of the species, thus warranting special management consideration or protection; and (2) areas outside of the geographic range of a species at the time of listing but that are considered essential to the conservation of the species.

MIGRATORY BIRD TREATY ACT

The MBTA is the domestic law that affirms and implements a commitment by the United States to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. Unless and except as permitted by regulations, the MBTA makes it unlawful at any time, by any means, or in any manner to intentionally pursue, hunt, take, capture, or kill migratory birds anywhere in the United States. The law also applies to the intentional disturbance and removal of nests occupied by migratory birds or their eggs during the breeding season.

BALD AND GOLDEN EAGLE ACT

The Bald and Golden Eagle Protection Act was originally enacted in 1940 as the Bald Eagle Protection Act to protect bald eagles and was later amended to include golden eagles. The Act

prohibits the taking, possession, or commerce of bald and golden eagles, parts, feathers, nests, or eggs with limited exceptions. Take is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb", and includes both direct taking of individuals and take due to disturbance. "Disturb" is defined as:

> *"to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to any eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."*

The definition of "disturb" is further defined by USFWS as follows:

> *"In addition to immediate impacts, this definition also covers impacts that result from human-caused alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagles return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering."*

Bald eagles may not be taken for any purpose unless a permit is issued prior to the taking. Activities which can be authorized by permit include scientific collection/research, exhibition, tribal religious, depredation, falconry, and the taking of inactive golden eagle nests, which interfere with resource development or recovery operations. Currently, USFWS has a permitting process proposed for other activities that would allow disturbance to bald eagles or take of an eagle nest where their location poses a risk to human or eagle safety.

CLEAN WATER ACT

CWA Section 404, which is administered by the USACE, regulates the discharge of dredged and fill material into "waters of the United States." USACE has established a series of nationwide permits that authorize certain activities in waters of the United States, provided that the proposed activity can demonstrate compliance with standard conditions. Projects that result in relatively minor impacts on waters of the United States can normally be conducted under one of the nationwide permits, if consistent with the standard permit conditions.

Pursuant to Section 401 of the CWA, the RWQCB certifies that any discharge into jurisdictional waters of the United States will comply with State water quality standards. The RWQCB, as delegated by United States Environmental Protection Agency (USEPA), has the principal authority to issue a CWA Section 401 water quality certification or waiver.

DESERT RENEWABLE ENERGY CONSERVATION PLAN

The Desert Renewable Energy Conservation Plan (DRECP) is a collaboration between the California Energy Commission (CEC), Bureau of Land Management (BLM), USFWS, and CDFW that is designed to streamline renewable energy development while conserving unique and valuable desert ecosystems and providing outdoor recreation opportunities (United States

Department of the Interior [USDoI], BLM 2016). Its boundaries include the Palmdale region. However, the Project is not subject to the DRECP because the Project does not propose to develop renewable energy and because the DRECP is implemented exclusively on BLM lands, which do not occur within the Project area.

BLM West Mojave Plan

The BLM West Mojave Plan (USDoI, BLM 2005) is a habitat conservation plan and federal land use plan amendment that presents a comprehensive strategy to conserve and protect natural communities and sensitive species such as the desert tortoise (*Gopherus agassizii*) and the Mohave ground squirrel. The BLM West Mojave Plan is a collaborative effort of cities, counties, and state and federal agencies having jurisdiction over lands within the region. Its boundaries include the Palmdale region. However, the Project is not subject to the BLM West Mojave Plan because the Project area does not include federal land.

Angeles National Forest Regulatory Framework

The following laws, regulations, and plans would be applicable to the portion of the Palmdale Ditch Conversion Project located within ANF.

National Forest Management Act

The National Forest Management Act (NFMA) of 1976 applies to National Forest System lands administered by the USFS. The NFMA states that "fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired nonnative vertebrate species in the planning area". For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to ensure its continued existence is well-distributed in the planning area. In order to ensure viable populations will be maintained, habitat must be provided to support at least a minimum number of reproductive individuals, and that habitat must be well-distributed so that those individuals can interact with others in the planning area (36 CFR 219.19).

The regulations also mandate that "all management prescriptions shall provide for adequate fish and wildlife habitat to maintain viable populations of existing native vertebrate species and provide that habitat for species chosen under 219.19 is maintained and improved to the degree consistent with multiple-use objectives established in the plan" (36 CFR 219.27[a][6]).

Diversity states in part: "Management prescriptions, where appropriate and to the extent practicable, shall preserve and enhance the diversity of plant and animal communities, including endemic and desirable naturalized plant and animal species" (36 CFR 219.27[g]).

USFS Manual

Direction for management of wildlife and botany resources on National Forest System lands is also included in the USFS Manual:

- Place top priority on conservation and recovery of endangered, threatened, and proposed species and their habitats through relevant National Forest System, state and private forestry, and research activities and programs.
- Establish through the Forest planning process objectives for habitat management and/or recovery of populations, in cooperation with states, USFWS, and other federal agencies.
- Through the Biological Assessment process, review actions and programs authorized, funded, or carried out by USFS to determine their potential for effect on threatened and endangered species and species proposed for listing.
- Avoid all adverse impacts on threatened and endangered species and their habitat except when it is possible to compensate adverse effects totally through alternatives identified in a biological opinion rendered by USFWS, when an exemption has been granted under the National Forest Management Act, or when USFWS biological opinion recognizes an incidental taking. Avoid adverse impacts on species proposed for listing during the conference period and while their federal status is being determined.
- Initiate consultation or conference with USFWS or NMFS when USFS determines that proposed activities may have an adverse effect on threatened, endangered, or proposed species or when USFS projects are for the specific benefit of a threatened or endangered species.
- Identify and prescribe measures to prevent adverse modification or destruction of critical habitat and other habitats essential for the conservation of endangered, threatened, and proposed species. Protect individual organisms or populations from harm or harassment as appropriate.

Angeles National Forest Land Management Plan and San Gabriel Mountains National Monument Management Plan

Management direction for federally threatened, endangered, proposed, candidate, and FSS plant and animal species on the ANF comes from the ANF Land Management Plan adopted by the Record of Decision signed on September 20, 2005 (USDA, USFS 2005). Strategic Goals, Program Strategies and Tactics, Standards, and Appendices A-J provide guidance on management of wildlife and botany resources. Specific direction related to protection of federally threatened, endangered, proposed, candidate, and FSS plant and animal species comes from Standards 11-44 (LMP- Design Criteria, Part 3, pages 6-10). Appendices in LMP-Part 3 that are of particular relevance include Appendix D (Adaptive Mitigation for Recreation Uses), Appendix E (Five-Step Project Screening Process for Riparian Conservation Areas), and Appendix H (Species Guidance Summary).

In addition, the ANF Land Management Plan divides USFS lands on the ANF into Land Use Zones, which identify appropriate management types of uses that are consistent with the desired conditions of each place within the ANF. The Palmdale Ditch Conversion Project Site BSA occurs within the Developed Area Interface zone, defined as an area adjacent to communities

and developed sites, including developed recreation facilities and infrastructure. This zone allows a variety of uses and is one of the least restrictive zones described in the ANF Land Management Plan.

The ANF Land Management Plan includes objectives and direction for managing resources on the ANF, including plant and wildlife species that are federally listed and/or FSS. The Plan outlines program strategies and tactics relevant to biological resources, including:

- **WL-1 – Threatened, Endangered, Proposed, Candidate, and Sensitive Species Management.** Requires USFS to manage habitat to move listed species toward recovery and de-listing and to prevent listing of proposed and sensitive species.
- **WL-2 - Management of Species of Concern.** Directs USFS to maintain and improve habitat for fish, wildlife, and plants, including those designated as game species, harvest species, and watch list species.
- **IS-1 – Invasive Species Prevention and Control.** Directs USFS management activities to prevent the introduction of new invaders, to conduct early treatment on new infestations, and contain and control established infestation of invasive species.
- **FH-1 – Vegetation Restoration.** Requires USFS to restore vegetation after events or activities that degrade or cause a loss of plant communities.

The San Gabriel Mountains National Monument was established on October 10, 2014, under the President's Antiquities Act authority, on National Forest System Lands administered by the ANF. The San Gabriel Mountains National Monument Management Plan (USDA, USFS 2018) contains the following desired conditions for biological resources:

- Habitat conditions are stable or improving over time as indicated by the 2016 Angeles Land Management Plan Monitoring Strategy.
- Habitats of special-status species (threatened and endangered and FSS) in the Monument are managed to preserve and protect these species.

3.3.2.2 State Policies and Regulations

In addition to CEQA, the primary State planning, treatment, and review mechanisms for biological resources that could be impacted by development are the CESA and California Fish and Game Code Sections 3503, 3503.5, and 3513. Each is summarized below.

CALIFORNIA ENDANGERED SPECIES ACT

CESA closely parallels the conditions of the FESA; however, it is administered by CDFW. CESA prohibits the take of plant and animal species that the California Fish and Game Commission has designated as either threatened or endangered in California. "Take" in the context of this regulation means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill a listed species (California Fish and Game Code section 86). This definition does

not prohibit indirect harm by way of habitat modification, except where such harm is the proximate cause of death of a listed species. The take prohibitions also apply to candidates for listing under CESA. However, section 2081 of the act allows the department to issue permits for the minor and incidental take of species by an individual or permitted activity listed under the act. Unlike FESA, species that are candidates for State listing are granted the same protections as listed species under CESA.

In accordance with the requirements of CESA, an agency reviewing a project within its jurisdiction must determine whether any State-listed endangered or threatened species could be present. The agency also must determine whether the project could have a potentially significant impact on such species. In addition, the department encourages informal consultation on any project that could affect a candidate species.

CALIFORNIA FISH AND GAME CODE § 1600 ET SEQ.

Under these sections of the California Fish and Game Code, the project operator is required to notify CDFW prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. The CDFW has not defined the term "stream" for the purposes of implementing its regulatory program under California Fish and Game Code § 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. However, four relevant sources of information offer insight as to the appropriate limits of CDFW jurisdiction as discussed below.

- **The plain language of Section 1602 of California Fish and Game Code** establishes the following general concepts:
    - References "river," "stream," and "lake"
    - References "natural flow"
    - References "bed," "bank," and "channel"

- **Applicable court decisions**, in particular *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987), which interpreted Section 1602's use of "stream" to be as defined in common law. The Court indicated that a "stream" is commonly understood to:
    - Have a source and a terminus
    - Have banks and a channel
    - Convey flow at least periodically, but need not flow continuously and may at times appear outwardly dry
    - Represent the depression between the banks worn by the regular and usual flow of the water
    - Include the area between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including intervening sand bars
    - Include the land that is covered by the water in its ordinary low stage
    - Include lands below the OHWM

- **CDFW regulations** defining "stream" for other purposes, including sport fishing (14 California Code of Regulations 1.72) and streambed alterations associated with cannabis production (14 California Code of Regulations 722(c)(21)), which indicate that a stream:
    - Flows at least periodically or intermittently
    - Flows through a bed or channel having banks
    - Supports fish or aquatic life
    - Can be dry for a period of time
    - Includes watercourses where surface or subsurface flow supports or has supported riparian vegetation

- **Guidance documents**, including A Field Guide to Lake and Streambed Alteration Agreements (California Department of Fish and Game 1994) and Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants (Brady and Vyverberg 2013), which suggest the following:
    - A stream may flow perennially or episodically
    - A stream is defined by the course in which water currently flows, or has flowed during the historic hydrologic course regime (approximately the last 200 years)
    - Width of a stream course can reasonably be identified by physical or biological indicators
    - A stream may have one or more channels (single thread vs. compound form)
    - Features such as braided channels, low-flow channels, active channels, banks associated with secondary channels, floodplains, islands, and stream-associated vegetation, are interconnected parts of the watercourse
    - Canals, aqueducts, irrigation ditches, and other means of water conveyance can be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife
    - Biologic components of a stream may include aquatic and riparian vegetation, all aquatic wildlife including fish, amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system
    - The lateral extent of a stream can be measured in different ways depending on the particular situation and the type of fish or wildlife resource at risk

The tenets listed above, among others, are applied to establish the boundaries of streambeds in various environments. The importance of each factor may be weighted based on site-specific considerations and the applicability of the indicators to the streambed at hand.

Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable measures necessary to protect the affected resource(s)in a Streambed Alteration Agreement (SAA), before the activities described in the notification can be implemented. Upon receiving a complete Notification of Lake/Streambed Alteration, CDFW has 60 days to present the applicant with a Draft SAA. Upon review of the Draft SAA by the applicant, any problematic terms are negotiated with CDFW, and a final SAA is executed.

California Fish and Game Code §§ 2080 and 2081

Section 2080 of the California Fish and Game Code states that "No person shall import into this State [California], export out of this State, or take, possess, purchase, or sell within this State, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2081 of the code, CDFW may authorize individuals or public agencies to import, export, take, or possess State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

California Fish and Game Code §§ 3503 and 3503.5

Under these sections of the California Fish and Game Code, the project operator is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey; the taking or possessing of any migratory nongame bird as designated in the MBTA; the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or nongame birds protected by the MBTA; or the taking of any nongame bird pursuant to California Fish and Game Code Section 3800 (ESA 2018a).

California Environmental Quality Act Guidelines, § 15380

Although threatened and endangered species are protected by specific federal and State statutes, *California Environmental Quality Act (CEQA) Guidelines* § 15380(b) provides that a species not listed on the federal or State list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the *CEQA Guidelines* for addressing impacts. Local planning documents such as general plans often identify these resources as well.

NATIVE PLANT PROTECTION ACT (CALIFORNIA FISH AND GAME CODE §§ 1900-1913)

California's Native Plant Protection Act (NPPA) requires all State agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that would otherwise be destroyed. The project operator is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants. However, this act does not apply to the clearing of land for agricultural purposes or to public agencies and does not apply to the proposed Project (ESA 2018a).

CLEAN WATER ACT § 401

California's authority for regulating activities in wetlands and waters in the Project area resides primarily with the State Water Resources Control Board (State Water Board). Under Section 401 of the CWA, the State Water Board, via the local RWQCB, must certify that proposed USACE permit actions receiving authorization under Section 404 of the CWA also meet State water quality standards. The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the State.

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The State Water Board and the RWQCBs also have jurisdiction over waters deemed 'isolated' or not subject to CWA Section 404 jurisdiction. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the State and prospective dischargers are required to obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and to comply with other requirements of Porter-Cologne Water Quality Control Act.

3.3.2.3 Local Policies and Regulations

LOS ANGELES COUNTY GENERAL PLAN CONSERVATION AND NATURAL RESOURCES ELEMENT

The General Plan, most recently updated in July 2022, provides an update to the County's 1980 General Plan. The Conservation and Natural Resources Element of the County General Plan guides long-term conservation of natural resources and preservation of available open space areas. The goals and policies listed below are particularly relevant to open space, conservation, and natural resources planning needs, concerns, and goals in the San Andreas Significant Ecological Area (SEA) and Antelope Valley SEA.

Goal C/NR 1: Open space areas that meet the diverse needs of Los Angeles County

Policy C/NR 1.2: Open space preservation and conservation of natural areas. Protect and conserve natural resources, natural areas, and available open spaces.

Policy C/NR 1.4: Open space preservation and conservation of natural areas. Create, support, and protect an established network of dedicated open space areas that provide regional connectivity, between the southwestern extent of the Tehachapi Mountains to the Santa Monica Mountains, and from the southwestern extent of the Mojave Desert to Puente Hills and Chino Hills.

Policy C/NR 1.6: Open space preservation and conservation of natural areas. Prioritize open space acquisitions for available lands that contain unique ecological features, streams, watersheds, habitat types and/or offer linkages that enhance wildlife movements and genetic diversity.

Goal C/NR 3: Permanent, sustainable preservation of genetically and physically diverse biological resources and ecological systems including: habitat linkages, forests, coastal zone, riparian habitats, streambeds, wetlands, woodlands, alpine habitat, chaparral, shrublands, and SEAs.

Policy C/NR 3.1: Protection of Biological Resources. Conserve and enhance the ecological function of diverse natural habitats and biological resources.

Policy C/NR 3.2: Protection of Biological Resources. Create and administer innovative County programs incentivizing the permanent dedication of SEAs and other important biological resources as open space areas.

Policy C/NR 3.3: Protection of Biological Resources. Restore upland communities and significant riparian resources, such as degraded streams, rivers, and wetlands to maintain ecological function—acknowledging the importance of incrementally restoring ecosystem values when complete restoration is not feasible.

Policy C/NR 3.4: Protection of Biological Resources. Conserve and sustainably manage forests and woodlands.

Policy C/NR 3.7: Protection of Biological Resources. Participate in inter-jurisdictional collaborative strategies that protect biological resources.

Policy C/NR 3.8: Site Sensitive Design. Discourage development in areas with identified significant biological resources, such as SEAs.

Policy C/NR 3.9: Site Sensitive Design. Consider the following in the design of a project that is located within an SEA, to the greatest extent feasible:

- Preservation of biologically valuable habitats, species, wildlife corridors and linkages;
- Protection of sensitive resources on the site within open space;
- Protection of water sources from hydromodification in order to maintain the ecological function of riparian habitats;

- Placement of the development in the least biologically sensitive areas on the site (prioritize the preservation or avoidance of the most sensitive biological resources onsite);
- Design required open spaces to retain contiguous undisturbed open space that preserves the most sensitive biological resources onsite and/or serves to maintain regional connectivity;
- Maintenance of watershed connectivity by capturing, treating, retaining, and/or infiltrating storm water flows on site; and
- Consideration of the continuity of onsite open space with adjacent open space in project design.

Policy C/NR 3.10: Site Sensitive Design. Require environmentally superior mitigation for unavoidable impacts on biologically sensitive areas, and permanently preserve mitigation sites.

Policy C/NR 3.11: Site Sensitive Design. Discourage development in riparian habitats, streambeds, wetlands, and other native woodlands in order to maintain and support their preservation in a natural state, unaltered by grading, fill, or diversion activities.

Goal C/NR 4: Conserved and sustainably managed woodlands.

Policy C/NR 4.1: Woodland Preservation. Preserve and restore oak woodlands and other native woodlands that are conserved in perpetuity with a goal of no net loss of existing woodlands.

LOS ANGELES COUNTY SIGNIFICANT ECOLOGICAL AREA PROGRAM

The County's Significant Ecological Area (SEA) Program was established to conserve genetic and physical diversity within the County by designating biological resource areas capable of sustaining themselves into the future, and ultimately bettering the quality of life for those who live there. The program serves as an important resource identification tool to indicate where important biological resources occur (LA County Planning 2022). SEAs identify areas that the County deems important for biological resources and the balance between the natural world and development; however, these areas are not preserves.

SEA areas are designated by the General Plan, and are administered through the SEA Ordinance (part of the Los Angeles County Planning and Zoning Code [Los Angeles County Code of Ordinances Section 22.102 et seq.]), which establishes the development standards, and review processes to permit development within SEA areas while balancing the interests of conserving the County's biodiversity with private property rights. An update to the SEA program was approved by the Board of Supervisors in December 2019 and adopted in January 2020. The SEA boundary map, goals, and policies were updated in the General Plan in 2022.

Los Angeles County Oak Trees and Oak Woodland Management

Per the Los Angeles County Oak Tree Ordinance, which is part of the Los Angeles County Planning and Zoning Code (County Code of Ordinances Section 22.174 et seq.), an oak tree permit must be obtained prior to damaging or removing any tree of the oak genus (*Quercus* spp.) that is:

- Eight inches or more in diameter (25 inches in circumference), as measured 4.5 feet above mean natural grade,
- Oaks with multiple trunks, where the combined diameter of any two trunks is 12 inches (38 inches in circumference) or more, or
- Provided as a replacement tree (pursuant to Los Angeles County Code Section 22.174.020).

Additionally, the Los Angeles County Oak Woodlands Conservation Management Plan was prepared by the County pursuant to the California Oak Woodlands Conservation Act (Assembly Bill 242) and adopted by the County Board of Supervisors on August 23, 2011 (County of Los Angeles 2024). The Plan's objectives are to prioritize the preservation of oak woodlands, promote conservation by integrating oak woodlands into the development process in a sustainable manner, and effectively mitigate the loss of oak woodlands. The accompanying Oak Woodlands Conservation Management Plan Guide (Los Angeles County 2014), which implements portions of the Woodland Plan and focuses on potential impacts to oak woodlands from proposed developments, defines oak woodlands as:

- An oak stand, including its understory, which consists of two or more oak trees (all native trees of the genus Quercus) of at least five inches in diameter (of the largest trunk) measured at 4.5' above mean natural grade, with greater than 10 percent canopy cover or that may have historically supported greater than 10 percent canopy cover as early as January 1, 2005 (effective date of California Public Resources Code Section 21083.4).

City of Palmdale General Plan Update

The City is in the process of updating its General Plan which will serve as a blueprint for the City's vision in the future. The General Plan update includes a Conservation Element that outlines the goals and policies related to conservation of natural and cultural resources in Palmdale. Goals and policies specifically related to biological resources include the following:

Goal CON-1: Protect Significant Ecological Areas in and around the City, including, but not limited to, sensitive flora and fauna habitat areas.

CON-1.1: Endangered species protection. Ensure local compliance with the California Endangered Species Act and the federal Endangered Species Act (ESA).

CON-1.2: Joshua and Juniper trees. Continue enforcing the City's Native Vegetation Ordinance to protect western Joshua trees and Juniper trees.

CON-1.3: West Mojave Plan. Comply with the required implementation of the West Mojave Plan for protection of desert tortoise and Mojave ground squirrel.

CON-1.4: Significant ecological areas. Identify and preserve to the greatest extent feasible significant ecological areas (SEA's). Areas to consider for open space preservation include but are not limited to Tejon Park, Barrel Springs Southern Trailhead and the Una Lake area.

CON-1.5: Preserve ecological resource areas. Preserve natural drainage concourses and riparian areas where ecological resources exist in significant concentrations.

CON-1.6: Increase conservation areas. Coordinate with State agencies to help achieve the goals of 30x30: to protect 30 percent of California's land by 2030 by identifying optimal sites for land conservation.

CON-1.7: Wetland and floodplain areas. Solicit and utilize all available sources of local, regional, State, and federal funds to acquire significant wetland areas and floodplains to minimize disturbance and prevent damage from erosion, turbidity, siltation, loss of wildlife and vegetation, or the destruction of the natural habitat.

CITY OF PALMDALE'S NATIVE DESERT VEGETATION PRESERVATION ORDINANCE

City of Palmdale's "Joshua Tree and Native Desert Vegetation" ordinance (Chapter 14.04) was established to protect and preserve desert vegetation, particularly Joshua trees (*Yucca brevifolia*) and California juniper (*Juniperus californica*), but also species protected under the California Desert Native Plants Act (Food and Agricultural Code section 80001, et seq.). This regulation outlines avoidance, minimization, and mitigation of impacts to desert vegetation.

3.3.3 IMPACT ANALYSIS

3.3.3.1 Methodology for Analysis

This section evaluates whether implementation of the proposed Project through construction and/or operation would result in significant impacts related to biological resources. To evaluate the Project's potential effects to biological resources the changes to existing conditions established in **Section 3.3.1 Environmental Setting** resulting from implementation of the proposed Project were considered against the thresholds of significance described in **Section 3.3.3.2 Thresholds of Significance.**

Specifically, special-status species with at least a moderate to high potential to occur are considered subject to potentially significant project-related impacts. Those impacts are analyzed under **Section 3.3.3.4, Impacts and Mitigation Measures.**

Bird species are differentiated on the basis of their occurrence in the Project area as nesters, foragers, winter residents and/or transients.

3.3.3.2 Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, as updated in December 2018, an impact to biological resources would be considered significant if the proposed Project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.

3.3.3.3 Criteria Requiring No Further Evaluation

All criteria require evaluation.

3.3.3.4 Impacts and Mitigation Measures

Impact BIO-1	**Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.**

IMPACT BIO-1 ANALYSIS

As discussed above in **Section 3.3.1 Environmental Setting**, a total of 24 special-status plant and 38 wildlife species have been recorded (see **Figure 3.3-3**) in the 9-quadrangle Project search area. Of these, it was determined that only five special-status plant species (see **Appendix C-2**) and 23 wildlife species (see **Appendix C-3**) have a low-to-moderate to high potential to occur or are known to occur within the Project area and are evaluated. Project components that are sited in undeveloped lands that support suitable habitat for these species could result in negative effects to special-status plants and wildlife.

SPECIAL-STATUS PLANTS

A focused survey for rare plants was not conducted with the exception of the western Joshua Tree census conducted for the Palmdale Ditch Conversion Project (**Appendix C-7**). However, 10 CNPS-ranked special-status plant species (Palmer's mariposa-lily [CRPR 1B.2], alkali mariposa-lily [CRPR 1B.2], Peirson's morning-glory [CRPR 4.2], Mojave paintbrush [CRPR 4.3], sagebrush loeflingia [CRPR 2B.2], Robbins' nemacladus [CRPR 1B.2], Greata's aster [CRPR 1B.3], Horn's milk-vetch [CRPR 1B.2], white pygmy-poppy [CRPR 4.2], and short-joint beavertail [CRPR 1B.2]) were determined to have a moderate or high potential to occur within the Project area. One species, western Joshua tree (State Candidate Threatened), is present within the Project area. Proposed Project components that are sited in undeveloped lands that support suitable habitat may support one or more of these species. If present and impacts cannot be avoided, then impacts to special-status plant species would be potentially significant. Detailed analysis by the proposed Project facility is provided below.

SPECIAL-STATUS WILDLIFE

Focused surveys for special-status wildlife species were not conducted, with the exception of the focused Crotch's bumble bee surveys conducted for the Palmdale Ditch Conversion Project (**Appendix C-6**). However, 33 special-status wildlife species were determined to have a low-to-moderate, moderate, or high potential to occur or were observed within the Project area.

- Three special-status invertebrates, Crotch's bumble bee (State Candidate Endangered), monarch butterfly (Federal Candidate), and Soledad shoulderband have potential to occur in natural communities throughout the Project area. Crotch's bumble bee was observed during the focused surveys conducted for the Palmdale Ditch Conversion Project. Monarch butterfly was observed migrating during the general reconnaissance survey conducted for the Palmdale Ditch Conversion Project.

- One special-status amphibian, arroyo toad (Federal Endangered, SSC), has potential to occur near washes or intermittent streams adjacent to the southeasternmost portion of the Project area, primarily above Littlerock Reservoir.

- Seven special-status reptiles, western pond turtle (Federally Proposed Threatened, SSC), Northern California legless lizard (SSC), California legless lizard (SSC), California glossy snake (SSC), coast horned lizard (SSC), two-striped gartersnake (SSC), and desert tortoise (Federal Threatened, State Threatened), have potential to occur in natural communities throughout the Project area. Desert tortoise does not have any records within the CNDDB queried area. The nearest CNDDB record, from 1990, for the species is located 7.1 miles to the northeast of the Project area near Lake Los Angeles. However, there is an occurrence documented in the citizen science website iNaturalist from April 2020.

- Seventeen special-status birds have potential to occur in natural communities throughout the Project area: southern California rufous-crowned sparrow (State Watch List), Bell's sparrow (State Watch List), bald eagle (State Endangered, State Fully

Protected), golden eagle (State Fully Protected, State Watch List), Swainson's hawk (State Threatened), northern harrier (SSC), merlin (State Watch List), southwestern willow flycatcher (Federal Endangered, State Endangered), Cooper's hawk (State Watch List), sharp-shinned hawk (State Watch List), tricolored blackbird (State Threatened, SSC), burrowing owl (SSC), ferruginous hawk (State Watch List), prairie falcon (State Watch List), loggerhead shrike (SSC), Le Conte's thrasher (SSC), and least Bell's vireo (Federal Endangered, State Endangered, SSC). Although there is moderate or high potential for bald eagle, golden eagle, ferruginous hawk, merlin, and prairie falcon to forage within the Project area, these species are not expected to nest due to lack of suitable nesting habitat within the Project area. Swainson's hawk also have moderate or high potential to forage in the Project area and historically nested in western Joshua trees in the Antelope Valley, which are present in the Project area; however, they are presently only known to nest near agricultural areas in the region and have not been documented nesting in proximity to the Project area (Bloom et al. 2023). Burrowing owl has been previously documented within the Project area, and tricolored blackbird and least Bell's vireo have been found in association with Lake Palmdale, Una Lake, and/or Littlerock Wash. There are no known or documented breeding sites within the Project area for southwestern willow flycatcher, but migrating individuals could use suitable habitat within the Project area. Cooper's hawk, sharp-shinned hawk, northern harrier, and merlin were observed during the general reconnaissance survey conducted for the Palmdale Ditch Conversion Project.

- Five special-status mammals have potential to occur in natural communities throughout the Project area: pallid bat (SSC), Townsend's big-eared bat (SSC), San Diego desert woodrat (SSC), and Mohave ground squirrel (State Threatened). Mohave ground squirrel has a low to moderate potential to occur in desert scrub, alkali scrub, and Joshua tree woodland habitats throughout the Project area. Although Mohave ground squirrel is believed to be extirpated from the Project area and the southwestern Antelope Valley (Leitner 2015), there are occurrences documented in iNaturalist (two from May 2020 and one from April 2022), with the nearest occurrence from 2020 that was 12.0 miles to the northeast of the Project area.

Project components that are sited in undeveloped lands that support suitable habitat may support one or more of these species. If special-status wildlife species are present and Project impacts cannot be avoided, then impacts to special-status wildlife species would be potentially significant. Detailed analysis by Project facility is provided below.

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Special-Status Plants

Construction of the Pure Water Antelope Valley project could result in impacts to special-status plants, if present. Project components that are sited in undeveloped lands that support suitable habitat may support one or more of these species. Construction activities including grading, vegetation clearing and grubbing, earth moving, and vehicle and equipment use may result in the direct crushing or burial of individual plants and may alter or degrade existing suitable habitat for these species. In addition, construction-related traffic and earth moving activities may generate dust that adheres to leaves and inhibits photosynthesis and grading activities could disturb soils that could contain seeds, bulbs, nutrients, and mycorrhizae that special-status plants utilize for survival. Furthermore, incidental introduction of nonnative weed species from construction activities could result in loss of suitable habitat for native special-status species. Any impacts to special-status species would be considered potentially significant. Implementation of **Mitigation Measures BIO-1, BIO-2,** and **BIO-3**, would require a habitat assessment to determine habitat suitability, and if suitable habitat is present, conducting a focused special-status plant survey within the appropriate season (e.g., to capture the blooming period) and/or western Joshua tree census survey prior to construction, siting of proposed Project components to either avoid impacts to special-status plant species or, if such impacts cannot be avoided, provide replacement mitigation (e.g., on-site or off-site restoration, translocation, and/or seed collection) as appropriate. With implementation of these mitigation measures, impacts to special-status plant species would be reduced to a less than significant level for the Pure Water Antelope Valley project.

Special-Status Wildlife

Special-Status Invertebrates: Crotch's bumble bee has potential to occur in grassland and scrub habitats within the Pure Water Antelope Valley Project area. Direct impacts may occur as a result of direct mortality of individuals, loss or degradation of habitat (short- or long-term), and introduction or increase in noise during the Colony Active Period. Indirect impacts may occur from adjacent nighttime lighting that may introduce predation, habitat fragmentation/edge effects, introduction of non-natives/predators, and increased human disturbance. If Crotch's bumble bee is present and impacts from implementation of the Pure Water Antelope Valley project cannot be avoided, then impacts would be potentially significant. Implementation of **Mitigation Measures BIO-1 BIO-5**, and **BIO-13** through **BIO-16** would require a habitat assessment to determine habitat suitability, and if suitable habitat is present, focused surveys for the species prior to construction to determine presence/absence, siting of proposed Project components to either avoid impacts to special-status wildlife species or, if such impacts cannot be avoided, require implementation of avoidance, minimization, and/or mitigation measures as

appropriate. With implementation of these mitigation measures, impacts to special-status invertebrate species would be less than significant for the Pure Water Antelope Valley project.

Special-Status Amphibians: Arroyo toad is not expected to occur within the Pure Water Antelope Valley Project area due to lack of suitable habitat.

Special-Status Reptiles: Northern California legless lizard, California legless lizard, California glossy snake, coast horned lizard, and desert tortoise have potential to occur in desert scrub and sandy wash habitats throughout the Pure Water Antelope Valley project area. Construction activities have the potential to cause direct injury or mortality to this species. Construction could also disturb or destroy habitat and resources (e.g., for sheltering, foraging) for these species. In addition, increased noise, artificial light, increased human presence, and/or introduction of nonnative weed species during construction activities could temporarily or permanently degrade and result in a loss of suitable habitat. If special-status reptiles are present and impacts from implementation of the Pure Water Antelope Valley project cannot be avoided, then impacts would be potentially significant. Implementation of **Mitigation Measures BIO-1, BIO-4,** and **BIO-12** through **BIO-16** would require a habitat assessment to determine habitat suitability, focused surveys for special-status wildlife species prior to construction to determine presence/absence, siting of project components to either avoid impacts to special-status wildlife species or, if such impacts cannot be avoided, require implementation of avoidance, minimization, and/or mitigation measures as appropriate. With implementation of these mitigation measures, impacts to special-status reptile species would be less than significant for the Pure Water Antelope Valley project.

Special-Status Birds: Merlin, burrowing owl, ferruginous hawk, prairie falcon, loggerhead shrike, and Le Conte's thrasher have potential to occur in desert scrub habitats within the Pure Water Antelope Valley project area. Although merlin, ferruginous hawk, and prairie falcon may forage within the Pure Water Antelope Valley project area, these species are not expected to nest due to lack of suitable nesting habitat. Construction activities have the potential to cause direct injury or mortality to these species. Construction could also disturb or destroy habitat and resources (e.g., for sheltering, foraging) for these species. In addition, increased noise, artificial light, increased human presence, and/or introduction of nonnative weed species during construction activities could temporarily or permanently degrade and result in a loss of suitable habitat. If these special-status birds are present and impacts from implementation of the Pure Water Antelope Valley project cannot be avoided, then impacts would be potentially significant. Implementation of **Mitigation Measures BIO-1, BIO-6, BIO-7,** and **BIO-13** through **BIO-17** would require a habitat assessment to determine habitat suitability, focused surveys for special-status wildlife species prior to construction to determine presence/absence, siting of proposed Project components to either avoid impacts to special-status wildlife species or, if such impacts cannot be avoided, require implementation of avoidance, minimization, and/or mitigation measures as appropriate. With implementation of these mitigation measures, impacts to the above-mentioned special-status bird species would be less than significant for the Pure Water Antelope Valley project.

Special-Status Mammals: San Diego desert woodrat and Mohave ground squirrel have potential to occur in desert scrub habitat within the Pure Water Antelope Valley Project area. Construction activities have the potential to cause direct injury or mortality to these species. Construction could also disturb or destroy habitat and resources (e.g., for sheltering, foraging) for these species. In addition, increased noise, artificial light, increased human presence, and/or introduction of nonnative weed species during construction activities could temporarily or permanently degrade and result in a loss of suitable habitat. If San Diego desert woodrat and/or Mohave ground squirrel are present and impacts from implementation of the Pure Water Antelope Valley project cannot be avoided, then impacts would be potentially significant. Implementation of **Mitigation Measures BIO-1, BIO-9, BIO-11,** and **BIO-13** through **BIO-16** would require a habitat assessment to determine habitat suitability, and if suitable habitat is present, conducting focused surveys for special-status wildlife species prior to construction to determine presence/absence, siting of proposed Project components to either avoid impacts to special-status wildlife species or, if such impacts cannot be avoided, require implementation of avoidance, minimization, and/or mitigation measures as appropriate. With implementation of these mitigation measures, impacts to special-status mammal species would be less than significant for the Pure Water Antelope Valley project.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Existing wells are located in disturbed areas immediately adjacent to dirt and/or paved access roads. If construction work is contained entirely to the existing well sites, impacts would be less than significant, and no mitigation would be required. While it is anticipated that the majority of construction will remain within the wellhead footprint, it is possible that wells may be relocated and/or some activity, including access and staging, could be located outside of previously disturbed areas. The analysis below details the impact analysis should proposed Project activities extend outside of existing well sites.

Special-Status Plants

If Proposed Project activities are located on land that is previously undisturbed or undeveloped, proposed Project components may be sited in areas that support suitable habitat and may support one or more special-status plant species. Construction activities including grading, vegetation clearing and grubbing, earth moving, and vehicle and equipment use may result in the direct crushing or burial of individual plants and may alter or degrade existing suitable habitat for these species. In addition, construction-related traffic and earth moving activities may generate dust that adheres to leaves and inhibits photosynthesis and grading activities could disturb soils that could contain seeds, bulbs, nutrients, and mycorrhizae that special-status plants utilize for survival. Furthermore, incidental introduction of nonnative weed species from construction activities could result in loss of suitable habitat for native special-status species. Any impacts to special-status species would be considered potentially significant. Implementation of **Mitigation Measures BIO-1, BIO-2,** and **BIO-3** would require conducting a habitat assessment to determine habitat suitability, and if suitable habitat is present, conducting

a focused special-status plant survey within the appropriate season (e.g., to capture the blooming period) and/or western Joshua tree census survey prior to construction, siting of proposed Project components to either avoid impacts to special-status plant species or, if such impacts cannot be avoided, provide replacement mitigation (e.g., on-site or off-site restoration, translocation, and/or seed collection) as appropriate. With implementation of these mitigation measures, impacts to special-status plant species would be reduced to a less than significant level for the activities associated with rehabilitation and/or replacement of existing wells.

Special-Status Wildlife

If construction impacts occur in undeveloped land surrounding the existing disturbed areas (e.g., staging areas are needed beyond the existing disturbed areas that may encroach into undeveloped land), proposed Project components that are sited in undeveloped lands that support suitable habitat may support one or more of special-status wildlife species.

Special-Status Invertebrates: Crotch's bumble bee has potential to occur in grassland and scrub habitats within the well areas. Direct impacts may occur as a result of direct mortality of individuals, loss or degradation of habitat (short- or long-term), and introduction or increase in noise during the Colony Active Period. Indirect impacts may occur from adjacent nighttime lighting that may introduce predation, habitat fragmentation/edge effects, introduction of non-natives/predators, and increased human disturbance. If Crotch's bumble bee is present and impacts from rehabilitation and/or replacement of existing wells cannot be avoided, then impacts would be potentially significant. Implementation of **Mitigation Measures BIO-1**, **BIO-5**, and **BIO-13** through **BIO-16** would require a habitat assessment to determine habitat suitability, and if suitable habitat is present, focused surveys for special-status wildlife species prior to construction to determine presence/absence, siting of proposed Project components to either avoid impacts to special-status wildlife species or, if such impacts cannot be avoided, implement avoidance, minimization, and/or mitigation measures as appropriate. With implementation of these mitigation measures, impacts to special-status invertebrate species would be less than significant for activities associated with rehabilitation and/or replacement of existing wells.

Special-Status Amphibians: Arroyo toad is not expected to occur within the well areas due to lack of suitable habitat.

Special-Status Reptiles: Northern California legless lizard, California legless lizard, California glossy snake, coast horned lizard, and desert tortoise have potential to occur in desert scrub and sandy wash habitats throughout the well areas. Construction activities have the potential to cause direct injury or mortality to this species. Construction could also disturb or destroy habitat and resources (e.g., for sheltering, foraging) for these species. In addition, increased noise, artificial light, increased human presence, and/or introduction of nonnative weed species during construction activities could temporarily or permanently degrade and result in a loss of suitable habitat. If special-status reptiles are present and impacts from rehabilitation and/or replacement of existing wells cannot be avoided, then impacts would be potentially significant. Implementation of **Mitigation Measures BIO-1, BIO-4,** and **BIO-12** through **BIO-16** would require a habitat assessment to determine habitat suitability, and if suitable habitat is present,

focused surveys for special-status wildlife species prior to construction to determine presence/absence, siting of proposed Project components to either avoid impacts to special-status wildlife species or, if such impacts cannot be avoided, implementation of avoidance, minimization, and/or mitigation measures. With implementation of these mitigation measures, impacts to special-status reptile species would be less than significant for activities associated with rehabilitation and/or replacement of existing wells.

Special-Status Birds: Merlin, burrowing owl, ferruginous hawk, prairie falcon, loggerhead shrike, and Le Conte's thrasher have potential to occur in desert scrub habitats adjacent to the well areas. Although merlin, ferruginous hawk, and prairie falcon may forage adjacent to the well areas, these species are not expected to nest due to lack of suitable nesting habitat. Construction activities have the potential to cause direct injury or mortality to these species. Construction could also disturb or destroy habitat and resources (e.g., for sheltering, foraging) for these species. In addition, increased noise, artificial light, increased human presence, and/or introduction of nonnative weed species during construction activities could temporarily or permanently degrade and result in a loss of suitable habitat. If these special-status birds are present and impacts from rehabilitation and/or replacement of existing wells cannot be avoided, then impacts would be potentially significant. Implementation of **Mitigation Measures BIO-1, BIO-6, BIO-7,** and **BIO-13** through **BIO-17** would require a habitat assessment to determine habitat suitability, and if suitable habitat is present, focused surveys for special-status wildlife species prior to construction to determine presence/absence, siting of proposed Project components to either avoid impacts to special-status wildlife species or, if such impacts cannot be avoided, provide mitigation as appropriate. With implementation of these mitigation measures, impacts to the above-mentioned special-status bird species would be less than significant for activities associated with rehabilitation and/or replacement of existing wells.

Special-Status Mammals: San Diego desert woodrat and Mohave ground squirrel have potential to occur in desert scrub habitat within the well areas. Construction activities have the potential to cause direct injury or mortality to these species. Construction could also disturb or destroy habitat and resources (e.g., for sheltering, foraging) for these species. In addition, increased noise, artificial light, increased human presence, and/or introduction of nonnative weed species during construction activities could temporarily or permanently degrade and result in a loss of suitable habitat. If San Diego desert woodrat and/or Mohave ground squirrel are present and impacts from rehabilitation and/or replacement of existing wells cannot be avoided, then impacts would be potentially significant. Implementation of **Mitigation Measures BIO-1, BIO-9, BIO-11,** and **BIO-13** through **BIO-16** would require a habitat assessment to determine habitat suitability, and if suitable habitat is present, focused surveys for special-status wildlife species prior to construction to determine presence/absence, siting of proposed Project components to either avoid impacts to special-status wildlife species or, if such impacts cannot be avoided, provide mitigation as appropriate. With implementation of these mitigation measures, impacts to special-status mammal species would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The proposed Project includes the Palmdale Ditch Conversion Project, and its associated impacts are described below.

Special-Status Plants

Eight special-status plant species are known to occur or have moderate to high potential to occur in the Palmdale Ditch Conversion Project Site BSA. Western Joshua tree (State Candidate Endangered, Western Joshua Tree Conservation Act) is present in the BSA. Horn's milk-vetch (CRPR 1B.1), Palmer's mariposa-lily (FSS, CRPR 1B.2), alkali mariposa-lily (FSS, CRPR 1B.2), white pygmy-poppy (FSS, CRPR 4.2), Mojave paintbrush (FSS, CRPR 4.3), short-joint beavertail cactus (FSS, CRPR 1B.2), and Greata's aster (CRPR 1B.3) were not observed during the field reconnaissance surveys but have a moderate to high potential to occur (Rincon 2024a). As detailed further in Section 3.3.1.3, *Special-Status Plants and Wildlife Species*, 3,463 western Joshua trees were identified and mapped within the Palmdale Ditch Conversion Project Site BSA. Of those, 3,043 western Joshua trees are living; the remaining 426 western Joshua trees were classified as dead. Of the live western Joshua trees surveyed, 1,838 are Size Class A (less than one meter in height), 1,080 are Size Class B (greater than one meter, but less than five meters in height), and 125 are Size Class C (greater than five meters in height) (Rincon 2024c).

Ground disturbance from construction of the Palmdale Ditch Conversion Project could result in damage to or removal of special-status plants if present in the disturbance footprint. Direct impacts could occur through injury or mortality to individuals by heavy equipment during construction. Indirect impacts could result from habitat modifications, such as by the introduction of invasive plants disseminated from construction equipment, contamination of soils, or habitat degradation due to accidental fuel spills during construction. Given the proposed construction methods and potential temporary impacts related to construction activities (including site disturbances, staging areas, and equipment/vehicle access), western Joshua trees and individuals of other special-status plant species, if present, could be removed, damaged, or disturbed by construction of the Palmdale Ditch Conversion Project (Rincon 2024a).

Direct and indirect impacts to western Joshua tree could occur if individuals are removed to accommodate pipeline installation or staging/access or damaged by collision with construction equipment. Direct and indirect impacts could also occur if ground disturbing activities are conducted within 50 feet (15 meters) of an individual such that roots are severed by earth-moving machinery. Indirect impacts may occur if ground disturbing activities result in compacted soils that decrease the potential for western Joshua tree recruitment or infiltration of precipitation. Soil recontouring could also result in surface water diversion, depriving individuals of necessary water for growth. The Western Joshua Tree Conservation Act prohibits export, take, possession, purchase, or sale of any western Joshua tree in California unless authorized by CDFW. Potential impacts to western Joshua tree would require an Incidental Take Permit from CDFW (Rincon 2024a).

Based on current design for the Palmdale Ditch Conversion Project, up to approximately 450 western Joshua trees would potentially be removed and construction activities would occur within 50 feet of up to approximately 1,200 trees that would be protected in place via fencing (i.e., no direct impacts). In addition, direct and indirect impacts to other special-status plant species, as described above, could occur if individuals are present within the Palmdale Ditch Conversion Project Site BSA. Therefore, the Palmdale Ditch Conversion Project would potentially result in substantial adverse effects, either directly or through habitat modifications, on special-status plant species, and impacts would be significant. Implementation of **Mitigation Measures BIO-2, BIO-3, BIO-13** through **BIO-15**, and **BIO-18** would be required to reduce proposed impacts from implementation of the Palmdale Ditch Conversion Project to a less than significant level. These measures involve implementation of Best Management Practices (BMPs), delineation of work limits, a construction worker environmental awareness program (WEAP) training, focused special-status plant surveys, avoidance measures, a special-status plant species mitigation and monitoring plan including compensatory mitigation (if applicable), avoidance/minimization/compensatory measures for western Joshua tree, and invasive plant species control. Impacts would be less than significant with mitigation incorporated.

Special-Status Wildlife

Crotch's Bumble Bee: As detailed further in Section 3.3.1.3, *Special-Status Plants and Wildlife Species*, Crotch's bumble bee (State Candidate Endangered) was observed during focused Crotch's bumble bee surveys conducted for the Palmdale Ditch Conversion Project in May and June 2024. A total of 24 Crotch's bumble bees were observed (12 workers and 12 males) visiting thick-leaved yerba santa in big sagebrush scrub and California juniper woodland vegetation communities in three locations within the Palmdale Ditch Conversion Project Site BSA. Potential Crotch's bumble bee nesting substrates were identified in the CBB Survey Area, but no bumble bees were observed at any potential nesting substrate locations; no queens exhibiting nest-searching behavior were observed; and bumble bee movement from a potential nesting substrate was not observed during the surveys. In addition, no potentially active Crotch's bumble bee nesting sites were observed during the surveys. Potential Crotch's bumble bee overwintering habitat was documented throughout the survey area, but no bumble bee hibernacula were observed during the surveys because the surveys occurred during the Crotch's bumble bee Colony Active Period (Rincon 2024d).

Construction of the Palmdale Ditch Conversion Project has the potential to directly impact (through injury and mortality from initial ground disturbance and vegetation removal) and indirectly impact (through construction noise, dust, and other human disturbances) this species (Rincon 2024a). Based on current design for the Palmdale Ditch Conversion Project, up to approximately 80 acres of suitable floral resources for Crotch's bumblebee would be disturbed during construction activities. If, at the commencement of construction of the Palmdale Ditch Conversion Project, Crotch's bumble bee is still considered a CESA candidate species or has been listed as threatened or endangered under CESA, construction of the Palmdale Ditch Conversion Project would potentially result in substantial adverse effects, either directly or through habitat modifications, to Crotch's bumble bee, and impacts would be potentially significant.

Implementation of **Mitigation Measure BIO-5**, which involves pre-construction surveys, avoidance buffers, and compensatory mitigation, would be required to reduce the proposed Project impacts to a less than significant level. If Crotch's bumble bee is still considered a CESA candidate species or has been listed as threatened or endangered under CESA at the commencement of construction for the Palmdale Ditch Conversion Project, PWD would be required to obtain an Incidental Take Permit from CDFW for potential impacts to the species, if present. Impacts would be less than significant with mitigation incorporated.

Monarch Butterfly - California Overwintering Population: Monarch butterfly (Federal Candidate Species, FSS) may pass through the Palmdale Ditch Conversion Project Site BSA during migration; individuals were observed foraging in rubber rabbitbrush in the BSA near Littlerock Reservoir during field reconnaissance surveys in November and December 2023. However, the BSA is over 40 miles from the California coast and any known monarch butterfly overwintering sites. The Palmdale Ditch Conversion Project Site BSA does not contain wind-protected tree groves with suitable roost trees (e.g., eucalyptus, Monterey pine, and cypress) to support overwintering of the species; therefore, no impacts to monarch butterfly overwintering roost habitat would occur (Rincon 2024a).

Potential direct impacts (injury or mortality) to monarch butterflies during initial vegetation removal for the Palmdale Ditch Conversion Project, including potential crushing of individuals that may be foraging in the BSA, are not anticipated to occur given the mobility of the species to move out of harm's way (Rincon 2024a). Therefore, no impacts to migrating monarch butterflies would occur.

Implementation of the Palmdale Ditch Conversion Project could result in loss of habitat to support foraging and migrating monarch butterflies during construction; however, such loss would be less than significant given extensive areas of natural habitat surrounding the Palmdale Ditch Conversion Project Site BSA that are suitable and sufficient to sustain migrating individuals and the limited nature of permanent impacts associated with small footprints of appurtenant structures (Rincon 2024a). Therefore, impacts of construction of the Palmdale Ditch Conversion Project related to foraging habitat loss would be less than significant. Overall, construction of the Palmdale Ditch Conversion Project would not potentially result in adverse effects, either directly or through habitat modifications, to monarch butterfly, and impacts would be less than significant.

Soledad Shoulderband: Soledad shoulderband (G1/S1 CDFW Special Animal) has moderate potential to occur in the BSA in riparian habitat associated with Littlerock Wash, where it has been previously documented in the CNDDB as recently as 2016 (Rincon 2024a).

The Palmdale Ditch Conversion Project has been designed to avoid construction work within Littlerock Wash riparian areas, which provides suitable habitat for this species. As a result, direct impacts to the species or its habitat from ground disturbance or vegetation removal (resulting in injury or mortality) would not occur. Indirect impacts to the species (if present) and its suitable habitat in Littlerock Wash from noise, vibration, dust, or lighting (resulting in alterations to normal behavior) has potential to occur (Rincon 2024a). Therefore, construction of the Palmdale

Ditch Conversion Project would potentially result in substantial adverse indirect effects to Soledad shoulderband, and impacts would be potentially significant. Implementation of **Mitigation Measures BIO-13**, **BIO-14**, and **BIO-19** would be required to reduce these impacts to less than significant levels through implementation of BMPs, work limit delineation, and avoidance of materials/spoils stockpiling and spills near jurisdictional resources and riparian habitat. Impacts would be less than significant with mitigation incorporated.

Special-Status Reptiles: Southwestern pond turtle (Federally Proposed Threatened, FSS, SSC), coast horned lizard, Northern California legless lizard (SCC), California legless lizard (SSC), and two-striped garter snake (FSS, SSC) have moderate potential to occur in the Palmdale Ditch Conversion Project BSA. Construction activities have potential to directly impact (through injury and mortality) and indirectly impact (through construction noise, dust, and other human disturbances) these species if and where they are present within the BSA (Rincon 2024a). Therefore, construction of the Palmdale Ditch Conversion Project would potentially result in substantial adverse effects, either directly or indirectly, to special-status reptiles, and impacts would be potentially significant. Implementation of **Mitigation Measures BIO-12** through **BIO-16** would be required to reduce these impacts to less than significant levels through implementation of BMPs, work limit delineation, a WEAP, pre-activity surveys for special-status wildlife, and biological construction monitoring. Impacts would be less than significant with mitigation incorporated.

Construction of the Palmdale Ditch Conversion Project could also result in permanent loss of habitat that support special-status reptile populations; however, such loss would be less than significant given extensive areas of natural habitat surrounding the Palmdale Ditch Conversion Project Site BSA that are suitable and sufficient to support robust populations of these species and the limited nature of permanent impacts associated with small footprints of appurtenant structures (Rincon 2024a). Therefore, impacts of construction of the Palmdale Ditch Conversion Project related to habitat loss would be less than significant.

If southwestern pond turtle has been listed as threatened or endangered under the federal ESA at the time Project construction commences, PWD would be required to obtain an incidental take authorization from USFWS to address potential impacts to the species, if present on or adjacent to the Palmdale Ditch Conversion Project Site BSA (Rincon 2024a).

Tricolored Blackbird, Least Bell's Vireo, and Southwestern Willow Flycatcher: Tricolored blackbird (State Threatened, SSC) has moderate potential to occur adjacent to the Palmdale Ditch Conversion Project Site BSA in wetland habitat with tules and cattails associated with Lake Palmdale, where it has been previously documented in the CNDDB as recently as 2011. In addition, in the riparian habitat associated with Littlerock Wash in the BSA, southwestern willow flycatcher (Federally Endangered, State Endangered) has moderate potential to occur, and least Bell's vireo (Federally Endangered, State Endangered) has high potential to occur. Southwestern willow flycatcher has not been documented within five miles of the BSA in the CNDDB; however, least Bell's vireo was documented as recently as 2012 below the Littlerock Dam as part of surveys conducted for the Littlerock Sediment Removal Project (Rincon 2024a).

The Palmdale Ditch Conversion Project has been designed to avoid construction work within or near suitable habitat for these species near Lake Palmdale and Littlerock Wash during their respective nesting seasons – near Lake Palmdale during the tricolored blackbird nesting season from mid-March to June and near Littlerock Wash during the southwestern willow flycatcher nesting season from mid-April to August and least Bell's vireo nesting season from mid-March to August. No-work buffers of at least 500 feet would be employed around suitable nesting habitat for these species during their nesting seasons, as determined by a qualified biologist. Removal of suitable nesting habitat for these species during construction would also be avoided. As a result, direct impacts from vegetation removal or trimming (resulting in injury or mortality) or indirect impacts from noise, vibration, dust, or lighting (resulting in altered nesting behavior or abandonment of nests) would not occur. The Palmdale Ditch Conversion Project would also avoid removal of suitable habitat for these species. Therefore, the Palmdale Ditch Conversion Project would not result in substantial adverse effects, either directly or through habitat modifications, to tricolored blackbird, southwestern willow flycatcher, and least Bell's vireo, and impacts would be less than significant.

Burrowing Owl: Burrowing owls (SSC) are a ground-dwelling species that rely on small mammals and large insects for prey. If owls are present, construction activities for the Palmdale Ditch Conversion Project have the potential to directly impact (through injury or mortality) and indirectly impact (through noise, dust, and other human disturbances that may impact the species' normal behavior) burrowing owl. The Palmdale Ditch Conversion Project would also potentially result in the loss of foraging habitat during the breeding season if a nesting pair were present in or within 500 feet of the Palmdale Ditch Conversion Project Site BSA (Rincon 2024a). Therefore, construction of the Palmdale Ditch Conversion Project would potentially result in substantial adverse effects, either directly or through habitat modifications, to burrowing owl, and impacts would be significant. Implementation of **Mitigation Measures BIO-6** and **BIO-7**, which include focused breeding season burrowing owl surveys and compensatory mitigation for foraging habitat loss, would be required. Finally, if the species is considered a CESA candidate species or has been listed as threatened or endangered under CESA at the time proposed Project construction commences, PWD would be required to obtain an Incidental Take Permit from CDFW for potential impacts to the species, if present, on the Palmdale Ditch Conversion Project Site and/or within a 500-foot buffer (Rincon 2024a). Impacts would be less than significant with mitigation incorporated.

Swainson's Hawk: Swainson's hawk (State Threatened) is known to historically nest and forage in Joshua tree woodlands, native desert scrub with a suitable prey base, and riparian forests in the Antelope Valley, all of which exist in the Palmdale Ditch Conversion Project Site BSA (i.e., suitable cottonwood trees, juniper woodlands, and western Joshua trees). However, present-day Swainson's hawk nests in the Antelope Valley have been documented primarily adjacent to agricultural areas that support high abundance of prey species (e.g., small mammals). Potential impacts to suitable (though not necessarily preferred) foraging habitat for Swainson's hawk within the Palmdale Ditch Conversion Project Site BSA would occur during construction during the nesting season. Removal of foraging habitat during construction of the Palmdale Ditch Conversion Project would be significant if it represents a large proportion of the foraging habitat

necessary to support Swainson's hawk in the region, especially if the removal is permanent. The Palmdale Ditch Conversion Project Site BSA occurs within and constitutes a small portion of the largely undeveloped landscape in the foothills of the San Gabriel Mountains. Construction would be confined to the Palmdale Ditch Conversion Project Site BSA, only a fraction of which would require temporary vegetation removal to allow for construction access and installation of the underground pipeline. The majority of the vegetation removal would be temporary and permanent impacts would be limited to small footprints of appurtenant structures (Rincon 2024a). Therefore, impacts of the Palmdale Ditch Conversion Project on foraging habitat and reproductive capacity of Swainson's hawk through temporary loss of foraging habitat within the BSA would be less than significant.

Construction of the Palmdale Ditch Conversion Project could result in direct impacts (ground disturbance and removal of vegetation that contain active nests) or indirect impacts (construction noise, lighting, and fugitive dust) to nesting Swainson's hawk, if present on or within 0.25 mile of work areas associated with the Palmdale Ditch Conversion Project Site. These impacts could lead to individual mortality or harassment that might reduce nesting success (Rincon 2024a). Therefore, construction of the Palmdale Ditch Conversion Project would potentially result in substantial adverse effects to Swainson's hawk, either directly or indirectly, and impacts would be potentially significant. Implementation of **Mitigation Measure BIO-8**, which involves Swainson's hawk nesting surveys during the breeding season prior to the start of construction and establishment of protective buffers if nests are located within 0.5 mile of the Project area, would be required to reduce potential impacts to the species and to facilitate proposed Project compliance with the MBTA, California Fish and Game Code, and CESA. Impacts would be less than significant with mitigation incorporated. Finally, if Swainson's hawk is still a State threatened species at the time the proposed Project construction commences, PWD would be required to obtain an Incidental Take Permit from CDFW if pairs are confirmed nesting within 0.5-mile of the Palmdale Ditch Conversion Project Site BSA that could potentially be impacted by proposed activities (Rincon 2024a).

Mohave Ground Squirrel: Mohave ground squirrel (State Threatened) has moderate potential to occur within the northwestern portion of the Palmdale Ditch Conversion Project Site BSA east of Sierra Highway Highwaywhere spiny hopsage and winterfat plants were observed within an open, low vegetated area between stands of California junipers. This area is within the species' historical range, and California ground squirrels and burrow complexes were observed in this area during the field reconnaissance surveys. If Mohave ground squirrel is present in the Palmdale Ditch Conversion Project BSA, construction activities have the potential to directly impact (through ground disturbance) and indirectly impact (through construction noise, lighting, and fugitive dust) individuals. These impacts could lead to individual mortality or harassment that might reduce reproductive success (Rincon 2024a). Therefore, construction of the Palmdale Ditch Conversion Project would potentially result in substantial adverse effects, either directly or through habitat modifications, to Mohave ground squirrel, and impacts would be potentially significant. The CDFW requires a live-trapping protocol survey for Mohave ground squirrel for projects that propose impacts to habitat with potential to support the species and are within or adjacent to the species' known range. Accordingly, implementation of **Mitigation Measure**

BIO-9, which includes a protocol live-trapping survey and implementation of avoidance and minimization measures, if necessary, would be required to reduce potential impacts to the species and facilitate proposed Project compliance with CESA. Impacts would be less than significant with mitigation incorporated. Finally, if Mohave ground squirrel still a state threatened species at the time proposed Project construction commences, PWD would be required to obtain an Incidental Take Permit from CDFW if the species is confirmed present on or within 50 feet of the Project area that could potentially be impacted by proposed Project activities (Rincon 2024a).

Special-Status Bats: Pallid bat (FSS, SSC) has potential to roost in rock crevices, mature trees, and other manmade structures in the Palmdale Ditch Conversion Project Site BSA. Construction activities could potentially impact roosting bats, including special-status bat species such as pallid bat, if roosting habitat is impacted during vegetation removal within the Palmdale Ditch Conversion Project Site BSA (Rincon 2024a). Therefore, construction of the Palmdale Ditch Conversion Project would potentially result in substantial adverse effects, either directly or through habitat modifications, to roosting special-status bat species, and impacts would be potentially significant. Implementation of **Mitigation Measure BIO-10**, which involves a roosting bat habitat assessment and avoidance and minimization measures, if necessary, would be required to reduce impacts to roosting bats to less than significant levels. Impacts would be less than significant with mitigation incorporated.

Although Townsend's big-eared bat has high potential to forage in the Palmdale Ditch Conversion Project Site BSA, it is unlikely to roost in the BSA given the lack of suitable roosting habitat (such as cave entrances, buildings, or mines). Construction activities could potentially impact foraging habitat for special-status bats. However, impacts would be temporary, and permanent impacts would be limited to small footprints of appurtenant structures (rincon 2024a). Therefore, impacts from construction of the Palmdale Ditch Conversion Project on foraging habitat of special-status bats through temporary loss of foraging habitat within the BSA would be less than significant.

San Diego Desert Woodrat: Numerous woodrat stick nests or "middens" were observed throughout the Palmdale Ditch Conversion Project Site BSA, although the presence of any special-status woodrat subspecies was not confirmed during the field reconnaissance surveys. If present in the Palmdale Ditch Conservation Project work areas, proposed activities have the potential to impact San Diego desert woodrat (SSC) during ground disturbance and vegetation/soil removal through direct removal of individuals or middens, resulting in injury or mortality. Construction activities also have the potential to indirectly impact San Diego desert woodrat, if present in the Palmdale Ditch Conversion Project Site work areas, through construction noise, dust, and lighting that could alter normal behaviors and influence reproductive success. Therefore, construction of the Palmdale Ditch Conversion Project would potentially result in substantial adverse effects, either directly or through habitat modifications, to San Diego desert woodrat, and impacts would be potentially significant. Implementation of **Mitigation Measure BIO-11**, which includes pre-construction surveys for active woodrat middens and avoidance and minimization measures, if necessary, would be required. Impacts would be less than significant with mitigation incorporated.

Conservation

Conservation measures would not result in ground-disturbing impacts. Therefore, there would be no impact and no mitigation is required.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would treat wastewater for indirect potable reuse and would involve a minimal increase in PWD staff to operate the site. Maintenance activities would include periodic removal of accumulated sediment and debris, replacement of non-operational machinery, and inspection and maintenance of all structures. These maintenance activities would occur within the Pure Water Antelope Valley Site and are not expected to result in impacts to special-status plants or wildlife species. Therefore, the impact would be less than significant, and no mitigation is required.

Groundwater

Existing Well Rehabilitation and/or Replacement

Following construction of the existing well rehabilitation and/or replacement, operation of the wells would resume. Operation of the rehabilitated or replacement wells would not require increased maintenance or staffing, and operational activities would be the same as occurs under existing conditions. Therefore, operation of the existing well rehabilitation and replacement would not result in effects to sensitive species and there would be no impact. Thus, no mitigation is required.

Local Supplies

Palmdale Ditch Conversion Project

Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. Maintenance would involve inspection of the pipeline approximately every five years, which would consist of accessing the pipeline at various manhole structures, cleaning the pipeline as needed using a jetter truck and vacuum truck to remove debris, and using inspection equipment to take video footage of the pipeline interior. Vegetation maintenance and trash removal activities along the Ditch would no longer be conducted because the pipeline would be located underground and would not be subject to obstruction by vegetation overgrowth and trash dumping. Therefore, operation of the Palmdale Ditch Conversion Project would not result in substantial adverse effects to special-status species, and impacts would be less than significant. Thus, no mitigation is required.

Conservation

Implementation of conservation measures does not require operation and maintenance activities. Therefore, there would be no impact and no mitigation is required.

IMPACT BIO-1 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measures BIO-1 through BIO-18, BIO-20 and BIO-21.

Significance Determination: Less than Significant with Mitigation.

Impact BIO-2 The proposed project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.

IMPACT BIO-2 ANALYSIS

There are numerous aquatic features within the Project area that could support riparian habitat (see **Figure 3.3-4**). The following vegetation communities in the Project area, or some associations of these communities, are considered sensitive natural communities by CDFW:

- Joshua tree woodland;
- Mojavean juniper woodland and scrub (e.g., some associations of California juniper woodland);
- Transmontane freshwater marsh (e.g., some associations dominated by bulrushes);
- Transmontane alkali marsh (e.g., some salt grass flat associations);
- Desert saltbush scrub (e.g., some associations of desert saltbush scrub);
- Mojave creosote bush scrub (e.g., some associations of Mojave creosote bush scrub);
- Mojave wash scrub (e.g., some associations of Mojave wash scrub);
- Big sagebrush scrub (e.g., some associations of big sagebrush scrub); and
- Mojave mixed woody scrub.

Additionally, the GDEs shown on **Figure 3.3-5** are comprised of phreatophytic vegetation (i.e., deep-rooted plants that obtain a significant portion of their water needs from the phreatic zone [zone of saturation]) and could be affected by the proposed Project. Detailed analysis of potential impacts to these vegetation communities by proposed Project facility is provided below.

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Because the Pure Water Antelope Valley project would be located within vacant land, it is possible that the construction could impact riparian habitat and jurisdictional aquatic features that are regulated by the CDFW as well as sensitive natural communities. Impacts from construction to riparian habitat, jurisdictional aquatic features, and/or sensitive natural communities would be potentially significant. Implementation of **Mitigation Measure BIO-20** would require an aquatic resources delineation be conducted, and siting of proposed Project facilities, injection wells, pipelines, and brine ponds to either avoid impacts to jurisdictional aquatic features and associated riparian habitat or, if such impacts cannot be avoided, require PWD to obtain the appropriate regulatory approvals and provide compensatory mitigation as appropriate. With implementation of this mitigation measure, impacts to jurisdictional aquatic features and riparian habitat would be less than significant.

Implementation of **Mitigation Measure BIO-19** would require either avoidance of CDFW sensitive natural communities such Joshua trees and/or California junipers or implementation of compensatory mitigation if avoidance is not feasible. With implementation of these mitigation measures, impacts to sensitive natural communities would be less than significant.

The Pure Water Antelope Valley project is not located in proximity to any mapped GDEs, with the nearest GDE located 1.8 miles to the northwest (**Figure 3.3-5**). Furthermore, as detailed in **Chapter 2 Project Description** and **Section 3.8, Hydrology, Groundwater, and Water Quality** of this EIR, all construction dewatering activities would comply with the Lahontan Regional Water Quality Control Board Limited Threat Discharges Permit, including groundwater discharge associated with well drilling and testing, and drilling of recycled water injection wells would result in negligible amount of groundwater withdrawal, but it is not expected to significantly interfere with groundwater recharge or affect sustainable groundwater management. Thus, impacts to GDEs would be less than significant.

Groundwater

Existing Well Rehabilitation and/or Replacement

If construction work is contained entirely to the existing well sites, impacts to riparian habitat, jurisdictional aquatic features, or sensitive natural communities would be less than significant and no mitigation would be required.

While it is anticipated that the majority of construction will remain within the wellhead footprint, it is anticipated that well replacements would include undisturbed sites and the possibility that some activity associated with well rehab, including access and staging, could be located outside of previously disturbed areas. The analysis below details the impact analysis should proposed Project activities extend outside of existing well sites.

If construction encroaches on undeveloped land with riparian habitat or regulated aquatic jurisdictional features or other sensitive communities impacts to riparian habitat, jurisdictional aquatic features that are regulated by the CDFW, and/or sensitive natural communities could be potentially significant. Implementation of **Mitigation Measure BIO-20** would require an aquatic resources delineation be conducted, and avoiding impacts to jurisdictional aquatic features and associated riparian habitat or, if such impacts cannot be avoided, obtain the appropriate regulatory approvals and provide compensatory mitigation as appropriate. With implementation of this mitigation measure, impacts to jurisdictional aquatic features and riparian habitat would be less than significant. Implementation of **Mitigation Measure BIO-19** would require either avoidance of CDFW sensitive natural communities or compensatory mitigation. With implementation of this mitigation measure, impacts to sensitive natural communities would be less than significant.

While the majority of the 22 existing wells are not located in proximity to any mapped GDEs, there are 10 existing well locations in proximity (i.e., 1 mile or less) to mapped GDEs, including Wells 6A, 11A, 14A and 15 in the northwestern portion of the Project area, Wells 18 and 19 in the southern portion of the Project area, and Wells 25, 29, 30, and 33 in the eastern portion of the Project area (**Figure 3.3-5**). Wells 6A, 11A, 14A, and 15 are approximately 118 feet, 0.5-mile, 0.8 mile, and 235 feet east of the nearest GDE, respectively. Wells 18 and 19 are approximately 50 feet northeast of the nearest GDE. Wells 25, 29, 30, and 33 are approximately 0.80-mile, 0.90 mile, 0.24 mile, and 0.40 mile west of the nearest GDE, respectively. Construction associated with rehabilitation of existing wells would not decrease groundwater supplies or interfere substantially with groundwater recharge such that the proposed Project would impede sustainable groundwater management of the basin because well sites would be located outside of GDE areas and construction would not substantially interact with groundwater beyond the drilling of replacement wells. Initial well drilling to gather groundwater samples would result in negligible amount of groundwater withdrawal and would not interfere with groundwater recharge or impede sustainable groundwater management. Thus, impacts to GDEs would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Five vegetation communities documented in the Palmdale Ditch Conversion Project BSA are classified as sensitive by CDFW: Arroyo Willow Thickets Shrubland Association, California Sycamore-Red Willow/Arroyo Willow-Mulefat Association, Fremont Cottonwood Woodland Association, Goodding's Willow-Red Willow Riparian Woodland Association, and Western Joshua Tree/California Juniper/Nevada Ephedra Woodland Association. Riparian habitat in the Palmdale Ditch Conversion Project BSA occurs in small, isolated areas along the Ditch and other drainages or wetlands, as well as in Littlerock Wash. In addition, small portions of the BSA overlap the Littlerock Wash Riparian Conservation Area (RCA) (including the 98-foot buffer on either side of the wash), as defined in the USFS 2005 ANF Land Management Plan (Rincon 2024a).

Construction of the Palmdale Ditch Conversion Project would be confined to proposed work areas, only a fraction of which would require temporary vegetation removal, potentially in sensitive vegetation communities and riparian habitat, to allow for construction access and installation of the underground pipeline. No impacts would occur to Littlerock Wash, or the riparian habitat vegetation associated with the wash; however, construction activities may temporarily disturb upland vegetation communities and habitats within the wash's RCA buffer. Most of the vegetation removal would be temporary. Permanent impacts would be limited to the Ditch itself as well as small footprints of appurtenant structures, some of which may be within sensitive vegetation communities or riparian habitat vegetation, but none of which are proposed within the Littlerock Wash RCA (Rincon 2024a). Therefore, construction of Palmdale Ditch Conversion Project would potentially have a substantial adverse effect on riparian habitat vegetation or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS, and impacts would be significant. Implementation of **Mitigation Measures BIO-19** and **BIO-20**, which include avoidance and minimization of potential impacts to sensitive natural communities and riparian habitat vegetation to the extent feasible as well as compensatory mitigation for impact areas at a minimum ratio of 1:1, would be required to reduce proposed Project impacts to sensitive natural communities, riparian habitat vegetation, and Littlerock Wash RCA to less than significant levels. In the ANF, PWD would also be required to comply with the USFS requirements regarding RCAs. With implementation of these mitigation measures, impacts to sensitive natural communities and riparian habitat vegetation would be less than significant.

Conservation

Conservation measures would not result in ground-disturbing impacts. Therefore, there would be no impact and no mitigation is required.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation and maintenance activities of the Pure Water Antelope Valley project would occur within the Pure Water Antelope Valley project area and would not result in impacts to riparian habitat, aquatic resources, or loss or conversion of sensitive natural communities as designated by CDFW. Therefore, the impact would be less than significant, and no mitigation is required.

The Pure Water Antelope Valley project is not located in proximity to any mapped GDEs, with the nearest GDE located 1.8 miles to the northwest (**Figure 3.3-5**). Furthermore, the Pure Water Antelope Valley involves groundwater injection, which would have a net benefit on the groundwater levels in the basin as a whole and thereby could also result in a net positive to GDEs. Additionally, as detailed in **Chapter 2** and **Section 3.8, Hydrology, Groundwater, and Water Quality** of this EIR, because the proposed Project would involve artificially recharging the Antelope Valley Groundwater Basin, the proposed Project is not anticipated to substantially decrease groundwater supplies or interfere substantially with groundwater recharge nor impede

the sustainable groundwater management of the Antelope Valley Groundwater Basin. Thus, impacts to GDEs would be less than significant.

Groundwater

Existing Well Rehabilitation and/or Replacement

Following construction of the existing well rehabilitation and/or replacement, operation of the wells would resume. Operation of the rehabilitated or replacement wells would not require increased maintenance or staffing, and operational activities would be the same as occurs under existing conditions. Therefore, there would be no impact to riparian habitat, aquatic resources, or sensitive vegetation communities as a result of the operation of the rehabilitated and/or replaced wells. Thus, no mitigation is required.

While the majority of the 22 existing wells are not located in proximity to any mapped GDEs, there are 10 existing well locations in proximity (i.e., 1 mile or less) to mapped GDEs, including Wells 6A, 11A, 14A and 15 in the northwestern portion of the Project area, Wells 18 and 19 in the southern portion of the Project area, and Wells 25, 29, 30, and 33 in the eastern portion of the Project area (**Figure 3.3-5**). Wells 6A, 11A, 14A, and 15 are approximately 118 feet, 0.5-mile, 0.8 mile, and 235 feet east of the nearest GDE, respectively. Wells 18 and 19 are approximately 50 feet northeast of the nearest GDE. Wells 25, 29, 30, and 33 are approximately 0.80-mile, 0.90-mile, 0.24 mile, and 0.40 mile west of the nearest GDE, respectively. While well rehabilitation and replacement may relocate or restore existing well pumping, there is not expected to be a net increase in groundwater extraction as a result of the proposed Project. Because the proposed Project would rehabilitate and/or replace existing wells, with implementation of the proposed Project, groundwater levels would be similar or better than the existing condition. However, there could be localized effects from greater groundwater pumping if done in the well locations in proximity to GDEs. Thus, impacts to GDEs would be potentially significant. Implementation of **Mitigation Measure BIO-21** would require GDE monitoring to determine impacts and adaptive management and/or mitigation if impacts occur. With implementation of this mitigation measure, impacts to GDEs would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. Maintenance would involve inspection of the pipeline approximately every five years, which would consist of accessing the pipeline at various manhole structures, cleaning the pipeline as needed using a jetter truck and vacuum truck to remove debris, and using inspection equipment to take video footage of the pipeline interior. Vegetation maintenance and trash removal activities along the Ditch would no longer be conducted because the pipeline would be located underground and would not be subject to obstruction by vegetation overgrowth and trash dumping. Therefore,

operation of the Palmdale Ditch Conversion Project would not result in substantial adverse effects to sensitive natural communities, riparian habitat, and the Littlerock Wash RCA, and impacts would be less than significant. Thus, no mitigation is required.

Conservation

Implementation of conservation measures does not require operation and maintenance activities. Therefore, there would be no impacts and no mitigation is required.

IMPACT BIO-2 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measures BIO-19 through BIO-21.

Significance Determination: Less than Significant with Mitigation.

Impact BIO-3	**The proposed project could have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.**

IMPACT BIO-3 ANALYSIS

As mentioned in **Section 3.3.1.5**, the Antelope Valley is an internally drained basin with no connection to navigable waters. The USACE has indicated that the isolated washes within the Antelope Valley watershed are not considered navigable waters of the U.S. Therefore, the USACE has disclaimed all wetlands and drainages within the basin based upon the *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, 531 U.S. 159 (2001) (''*SWANCC*'') decision, with the exception of Lake Palmdale. Lake Palmdale is a man-made lake originally constructed for water supply and storage, and currently also receives water inputs from the State Water Project. Though Lake Palmdale does not have a downstream surface connection with the lower Antelope Valley watershed (i.e. isolated), past approved jurisdictional determinations have demonstrated a potential nexus to commerce (i.e. (a)(3)(i) water). Lake Palmdale has and currently does support navigation and substantial surface water related recreation with the potential for interstate commerce.

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley project would not affect Lake Palmdale. No impacts to federally protected wetlands are expected due to the implementation of the proposed Project. Because the Pure Water Antelope Valley project would be located within undeveloped land, it is possible that the construction could impact jurisdictional waters of the State, which may include State-protected wetlands. Impacts to jurisdictional waters of the State and State-protected wetlands

would be potentially significant. Implementation of **Mitigation Measures BIO-19** and **BIO-20** would require an aquatic resources delineation be conducted, and siting of proposed Project facilities, injection wells, pipelines, and brine ponds to either avoid impacts to jurisdictional waters of the State and State-protected wetlands or, if such impacts cannot be avoided, obtain the appropriate regulatory approvals and provide compensatory mitigation as appropriate. With implementation of these mitigation measures, impacts to jurisdictional waters of the State and State-protected wetlands would be less than significant.

Groundwater

Existing Well Rehabilitation and/or Replacement

The rehabilitation and/or replacement of wells would not affect Lake Palmdale. No impacts to federally protected wetlands are expected due to the implementation of the proposed Project and no mitigation is required. If construction work is contained entirely to the existing well sites, impacts to jurisdictional waters of the State or State-protected wetlands would be less than significant and no mitigation would be required. However, the replacement of wells and some activities associated with well rehabilitation, including access and staging, could be located outside of previously disturbed areas.

If construction impacts undeveloped land with jurisdictional waters present, impacts to jurisdictional waters of the State, which may include State-protected wetlands, would be potentially significant. Implementation of **Mitigation Measures BIO-19** and **BIO-20** would require an aquatic resources delineation be conducted and avoiding impacts to jurisdictional waters of the State and State-protected wetlands or, if such impacts cannot be avoided, obtain the appropriate regulatory approvals and provide compensatory mitigation as appropriate. With implementation of these mitigation measures, impacts to jurisdictional waters of the State and State-protected wetlands would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Project implementation would result in temporary and permanent impacts of up to approximately 5.61 acres and 38,387 linear feet of waters of the U.S. and State and up to approximately 10.95 acres and 38,490 linear feet of CDFW-jurisdictional streambeds if they cannot be avoided as part of proposed Project design or during proposed Project construction activities. This includes permanent impacts of up to approximately 5.0 acres and 32,750 linear feet of waters of the U.S. and State and up to approximately 9.5 acres and 33,000 linear feet of CDFW jurisdictional streambeds as a result of converting the Ditch to an underground pipeline. If avoidance of jurisdictional waters and wetlands is not feasible, the proposed Project would have substantial temporary and permanent adverse effects on State or federally protected wetlands through direct removal, filling, hydrological interruption, or other means, and impacts would be significant.

Implementation of **Mitigation Measures BIO-19** and **BIO-20**, which include measures for avoiding impacts to jurisdictional waters, where feasible, and compensatory mitigation for unavoidable impacts, would be required to reduce impacts to jurisdictional waters to less than significant levels.

In addition, a minor amount of groundwater dewatering during construction may be necessary in two locations where the groundwater table is near the planned depth of excavations. Disposal of the water to surface water bodies (including Littlerock Wash) other than the Ditch would not be allowed. Dewatering activities would be required to comply with applicable NPDES permit or Waste Discharge Requirements for the selected method(s) of disposal, including any water quality standards that may require pre-treatment prior to storage. Therefore, no impact to jurisdictional waters and wetlands from potential groundwater dewatering would occur.

Prior to ground disturbing activities that could impact jurisdictional waters or wetlands, PWD should consult with the appropriate regulatory agencies (Lahontan RWQCB, CDFW, and/or USACE) anticipated to assert jurisdiction over the features. The proposed Project is anticipated to require a Lake and Streambed Alteration Agreement from CDFW, a Water Quality Certification under CWA Section 401 from the Lahontan RWQCB, and a permit under CWA Section 404 from USACE. Based on such consultation, any required permits should be obtained prior to disturbance of jurisdictional resources.

Conservation

Conservation measures would not result in ground-disturbing impacts. Therefore, there would be no impact and no mitigation is required.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Maintenance activities would occur within the Pure Water Antelope Valley project area and would not affect State or federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means. Therefore, the impact would be less than significant, and no mitigation is required.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operation of the rehabilitated or replacement wells would not require increased maintenance or staffing, and operational activities would be the same as occurs under existing conditions. Therefore, there would be no impact to State or federally protected wetlands as a result of the operation of the rehabilitated and/or replaced wells. Thus, no mitigation is required.

Local Supplies

Palmdale Ditch Conversion Project

Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. Maintenance would involve inspection of the pipeline approximately every five years, which would consist of accessing the pipeline at various manhole structures, cleaning the pipeline as needed using a jetter truck and vacuum truck to remove debris, and using inspection equipment to take video footage of the pipeline interior. Vegetation maintenance and trash removal activities along the Ditch would no longer be conducted because the pipeline would be located underground and would not be subject to obstruction by vegetation overgrowth and trash dumping. Therefore, operation of the Ditch would not result in effects to jurisdictional waters, and impacts would be less than significant. Thus, no mitigation is required.

Conservation

Implementation of conservation measures does not require operation and maintenance activities. Therefore, there would be no impacts and no mitigation is required.

IMPACT BIO-3 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measures BIO-19 and BIO-20.

Significance Determination: Less than Significant with Mitigation.

Impact BIO-4	**The proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.**

IMPACT BIO-4 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley project would not be located in the vicinity of any habitat corridors and therefore would not disrupt regional movement. While construction of this facility, injection wells, pipelines, and brine ponds could disrupt local movement and displace wildlife within the proposed Project's footprint, there are extensive undeveloped areas in the immediate vicinity that will continue to provide live-in habitat. Therefore, this proposed Project component

would not impede regional or local wildlife movement through the area. Thus, impacts would be less than significant, and no mitigation is required.

The Pure Water Antelope Valley project is located in an area that includes desert scrub. Vegetation may provide suitable nesting habitat for birds protected under the MBTA and California Fish and Game Code Section 3500. Potential impacts to nesting birds may occur during the general avian nesting season (i.e., from February 1 to August 31 for songbirds, and January 15 to August 31 for raptors) during construction. Impacts may include direct mortality to individuals from crushing or loss of habitat (i.e., vegetation removal). Indirect impacts to active nests may occur due to disturbance from human activities, construction noise, and vibration. Therefore, impacts to nesting birds would be potentially significant. Implementation of **Mitigation Measures BIO-1** and **BIO-17**, which require a habitat assessment, and if suitable habitat is present, requires that pre-construction nesting bird surveys be conducted prior to construction and protection of any active nests found, would reduce impacts to nesting birds to a less than significant level.

Groundwater

Existing Well Rehabilitation and/or Replacement

The existing groundwater wells are located in disturbed areas, which are not located in the vicinity of any habitat corridors and therefore would not disrupt regional movement. Proposed Project construction would be located within existing well sites or immediately adjacent, and therefore could not disrupt local movement and displace wildlife within the proposed Project's footprint. While locations of replacement wells are undetermined, the footprint would be small, similar to existing wells. Construction activities would be limited in duration and would not disrupt regional movement of species. Additionally, there are extensive undeveloped areas in the immediate vicinity that will continue to provide live-in habitat, and this proposed Project component would not impede local wildlife movement through the area. Thus, impacts would be less than significant, and no mitigation is required.

The existing wells are located adjacent to a variety of habitat areas that include desert scrub and areas vegetated with trees and shrubs which is characteristic of the entire Antelope Valley is assumed to be similar for sites selected for replacement wells. These vegetation types may provide suitable nesting habitat for birds protected under the MBTA and California Fish and Game Code Section 3500. Potential impacts to nesting birds may occur during the general avian nesting season (i.e., from February 1 to August 31 for songbirds, and January 15 to August 31 for raptors) during construction. Impacts may include direct mortality to individuals from crushing or loss of habitat (i.e., vegetation removal). Indirect impacts to active nests may occur due to disturbance from human activities, construction noise, and vibration. Therefore, impacts to nesting birds would be potentially significant. Implementation of **Mitigation Measures BIO-1** and **BIO-17**, which requires a habitat assessment, and if suitable habitat is present, requires that pre-construction nesting bird surveys be conducted prior to construction and protection of any active nests found, would reduce impacts to nesting birds to a less-than-significant level.

Local Supplies

Palmdale Ditch Conversion Project

While the Palmdale Ditch Conversion Project Site BSA likely contributes to supporting wildlife movement across the undeveloped extent of the northern San Gabriel Mountain foothills between mountain and desert ecosystems, including riparian and wetland habitats at Littlerock Wash and Lake Palmdale, construction activities would be temporary, short-term, and would primarily occur during the daytime. Construction activities would result in a temporary decrease in the function of the BSA to support wildlife movement. However, construction would likely not occur along the entire extent of the Ditch all at once, even though simultaneous construction along multiple segments may occur. Wildlife can, and would likely, traverse around the work areas during construction (Rincon 2024a). Therefore, construction of the Palmdale Ditch Conversion Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites, and impacts would be less than significant.

The nests of most native birds and raptors are protected under federal and state laws. It is likely birds use the Palmdale Ditch Conversion Project Site BSA for nesting (generally from early February through late August), given the mix of native and non-native vegetation as well as the number of bird species and individuals observed during the field reconnaissance surveys.

The Palmdale Ditch Conversion Project has potential to result in direct and indirect impacts to nesting birds, including SSC and CDFW Watch List species such as Cooper's hawk, southern California rufous-crowned sparrow, northern harrier, and loggerhead shrike, as well as other species protected under the MBTA and CFGC Section 3503, if they are nesting within the BSA and/or immediate vicinity during construction activities. Direct impacts from construction activities may include ground disturbance and removal of vegetation, which could potentially contain birds' nests. Indirect impacts may include construction noise, lighting, and fugitive dust that could lead to individual mortality or harassment that might reduce nesting success. Therefore, the Project would potentially have substantial adverse effects, either directly or through habitat modifications, on nesting birds, including SSC and CDFW Watch List species, and impacts would be potentially significant. Implementation of **Mitigation Measure BIO-17**, which includes a pre-construction nesting bird survey and protective buffers if nesting birds are located, would be required to reduce potential Project impacts to special status nesting birds and other species protected under the MBTA and CFGC Section 3503 and to facilitate compliance with the MBTA and CFGC. Impacts would be less than significant with mitigation incorporated.

Removal of foraging habitat during construction of the Palmdale Ditch Conversion Project would be significant if it represents a large proportion of the foraging habitat necessary to support migrating or overwintering birds or raptors in the region (including special status species such as sharp-shinned hawk, golden eagle, Bell's sparrow, ferruginous hawk, merlin, and prairie falcon), especially if the removal is permanent. The Palmdale Ditch Conversion Project

Site BSA occurs within and constitutes a small portion of the largely undeveloped landscape in the northern foothills of the San Gabriel Mountains. Project construction would be confined to designated work areas, and only a fraction of the BSA would require vegetation removal to allow for construction access and installation of the underground pipeline. The majority of vegetation removal would be temporary; permanent impacts would be limited to small footprints of appurtenant structures. Therefore, potential impacts of construction of the Palmdale Ditch Conversion Project on foraging habitat of migratory birds and raptors and reproductive capacity of raptors through temporary loss of foraging habitat within the BSA would be less than significant.

Conservation

Conservation measures would not result in ground-disturbing impacts. Therefore, there would be no impact and no mitigation is required.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation and maintenance activities would occur within the Pure Water Antelope Valley Site and would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. Therefore, the impact would be less than significant, and no mitigation is required.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operation of the rehabilitated or replacement wells would not require increased maintenance or staffing, and operational activities would be the same as occurs under existing conditions. Therefore, there would be no impact to wildlife movement as a result of the operation of the rehabilitated and/or replaced wells. Thus, no mitigation is required.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion Project would not increase activities that could impact wildlife movement beyond existing conditions. The Palmdale Ditch Conversion Project would be located primarily belowground, with the exception of small footprints of appurtenant structures, which would not interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites (Rincon 2024a). Moreover, removal of the open-channel segments of the Ditch would not eliminate the only source of water available to wildlife

moving through the region. As detailed further in Section 3.3.1.5, *Wildlife Movement*, water deliveries via the Ditch have fluctuated greatly since 2008 with deliveries being less predictable in quantity (acre-feet), duration (number of days), and timing (days and/or months during the year). Other water sources available in the general vicinity of the Palmdale Ditch Conversion Project BSA (e.g., Littlerock Wash, other water features overlying the San Andreas Fault (i.e., sag ponds), Lake Palmdale, Lake Una, and water features between the Ditch and Barrel Springs Road) have likely played an important role in supporting local and migrating wildlife in the absence of a reliable and predictable water supply in the Ditch over the years. As a result, removal of the Ditch as a water source for wildlife would not interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites (Rincon 2024a). Therefore, impacts during operation of the Palmdale Ditch Conversion Project would be less than significant.

Conservation

Implementation of conservation measures does not require operation and maintenance activities. Therefore, there would be no impact and no mitigation is required.

IMPACT BIO-4 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measures BIO-1 and BIO-17.

Significance Determination: Less than Significant with Mitigation.

Impact BIO-5 The proposed project could conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

IMPACT BIO-5 ANALYSIS

CONSTRUCTION AND OPERATION

All Project Components

Los Angeles County Oak Trees and Oak Woodland Management

California Government Code Section 53091 exempts PWD from compliance with local zoning and building ordinances for projects involving the construction of facilities for the production, generation, storage, treatment, or transmission of water and wastewater. This exemption applies to the infrastructure included in the proposed Project, which constitute facilities for the storage, treatment, and transmission of water and wastewater. Therefore, PWD is exempt from compliance with the Los Angeles County Oak Tree Ordinance, which is part of the Los Angeles County Planning and Zoning Code (Los Angeles County Code of Ordinances Section 22.174 et seq.).

For any proposed Project components that could result in impacts to oak trees, impacts would be potentially significant. Implementation of **Mitigation Measures BIO-13** through **BIO-16, BIO-18,** and **BIO-19**, which require implementation of BMPs, work limit delineation, a WEAP, invasive plant species control, biological construction monitoring, and habitat revegetation, restoration, and monitoring, would ensure the proposed Project would not conflict with the ordinance. Thus, the proposed Project is with the goals of the Los Angeles Oak Tree Ordinance, Woodland Management Plan, or Woodland Guide, and the impact would be less than significant with mitigation incorporated.

Additionally, Tucker oak trees are present on approximately 0.26 acre of the Palmdale Ditch Conversion Project BSA and may meet the size and spacing thresholds to be classified as protected oak trees or protected oak woodlands as defined in the Los Angeles County Oak Tree Ordinance (Los Angeles County Code of Ordinances Section 22.174 et seq.), the Woodland Management Plan (Los Angeles County Department of Regional Planning 2011), and the Woodland Guide (Los Angeles County Department of Regional Planning 2014). The trees may be impacted by Palmdale Ditch Conversion Project activities, including ground disturbance and vegetation removal as part of construction equipment/vehicle access and installation of the underground pipeline (Rincon 2024a). Therefore, construction of the Palmdale Ditch Conversion Project would potentially conflict with the Los Angeles County Oak Tree Ordinance, the Woodland Management Plan, and the Woodland Guide, and impacts would be significant. Implementation of **Mitigation Measures BIO-13** through **BIO-16, BIO-18,** and **BIO-19**, which require implementation of BMPs, work limit delineation, a WEAP, invasive plant species control, biological construction monitoring, and habitat revegetation, restoration, and monitoring, would be required to achieve consistency with the goals of the Los Angeles Oak Tree Ordinance, Woodland Management Plan, or Woodland Guide, and the impact would be less than significant with mitigation incorporated.

City of Palmdale Native Desert Vegetation Ordinance

The City's Native Desert Vegetation Ordinance (Palmdale Municipal Code Chapter 14.04) protects and preserves desert vegetation, particularly western Joshua trees and California juniper, but also species protected under the California Desert Native Plants Act. This regulation outlines avoidance, minimization, and mitigation of impacts to both species.

For any proposed Project components that could result in impacts to Joshua tree, California juniper, or native desert vegetation, impacts would be potentially significant. In particular, western Joshua trees and California juniper trees are present throughout the Palmdale Ditch Conversion Project BSA within City limits. Trees may be impacted by proposed Project activities including ground disturbance and vegetation removal for Project components, including but not limited to construction equipment/vehicle access and installation of the underground pipeline for the Palmdale Ditch Conversion Project. Implementation of **Mitigation Measures BIO-2, BIO-3, BIO-13** through **BIO-16, BIO-18,** and **BIO-19**, which require avoidance of special-status plants and western Joshua Tree where feasible, compensatory mitigation, implementation of BMPs, work limit delineation, a WEAP, invasive plant species control, biological construction monitoring, and habitat revegetation, restoration, and monitoring), would ensure the proposed

Project would be consistent with the goals of the City's Native Desert Vegetation Ordinance. Thus, the proposed Project would not conflict with any local policies or ordinances protecting biological resources and the impact would be less than significant with mitigation incorporated.

IMPACT BIO-5 FINDINGS

Significance before Mitigation: Potentially Significant.

Mitigation Measures: Mitigation Measures BIO-2, BIO-3, BIO-13 through BIO-16, BIO-18, and BIO-19.

Significance Determination: Less than Significant with Mitigation.

Impact BIO-6 The proposed project could conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.

IMPACT BIO-6 ANALYSIS

The Project area contains portions of the Antelope Valley SEA and the San Andreas SEA (**Figure 3.3-7**). However, California Government Code Section 53091 exempts PWD from compliance with local zoning and building ordinances for projects involving the construction of facilities for the production, generation, storage, treatment, or transmission of water and wastewater. This exemption applies to the infrastructure included in the proposed Project, which constitute facilities for the storage, treatment, and transmission of water and wastewater. Therefore, PWD is exempt from compliance with the Los Angeles County SEA Ordinance, which is part of the Los Angeles County Planning and Zoning Code (Los Angeles County Code of Ordinances Section 22.102 et seq.).

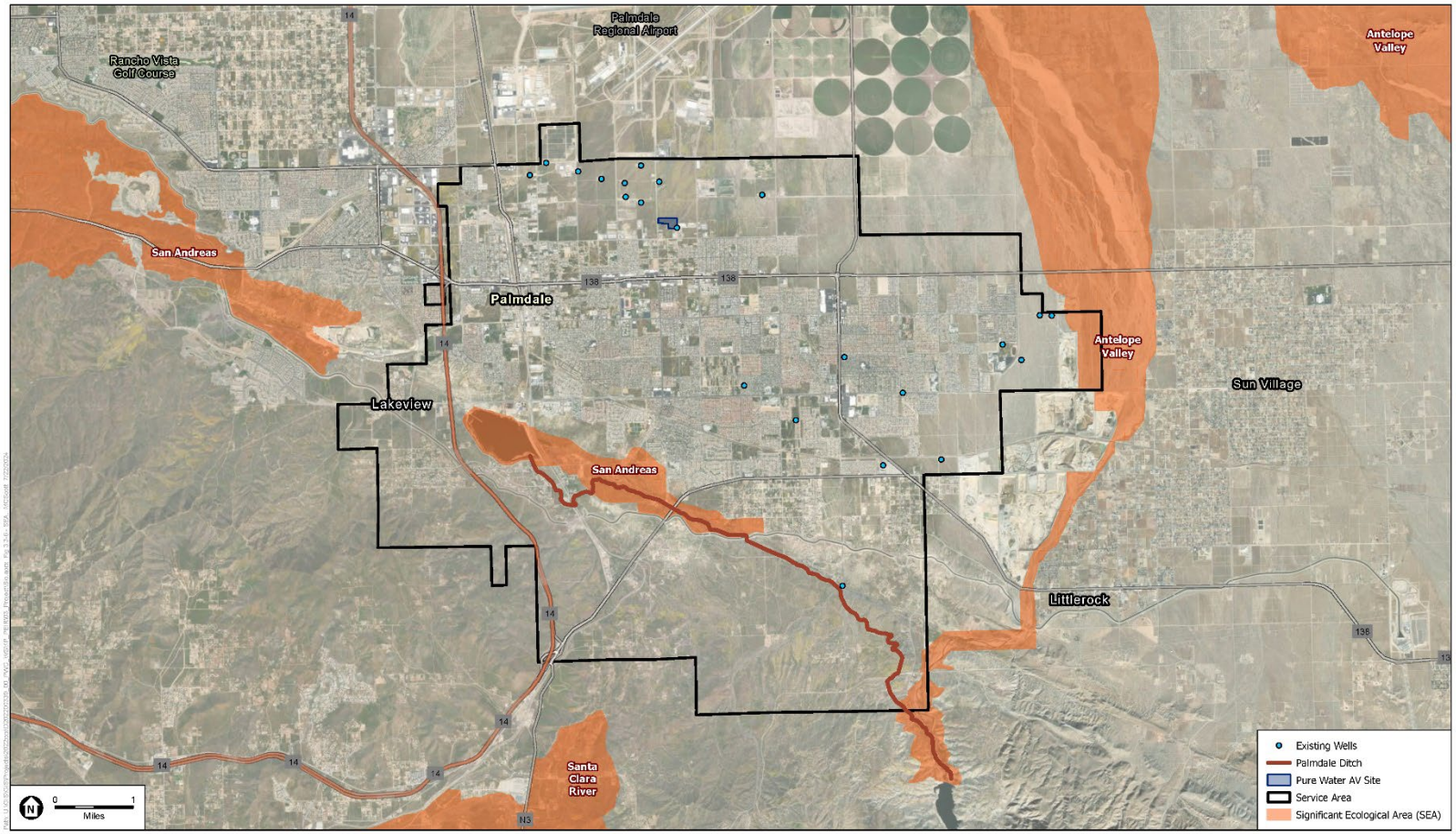
CONSTRUCTION AND OPERATION

Recycled Water

Pure Water Antelope Valley Project

As currently sited, the Pure Water Antelope Valley project is not located within an SEA and no impacts to SEAs would occur. Thus, no mitigation is required.

Figure 3.3-7 Overview of Significant Ecological Areas in the Project Area and Vicinity



SOURCE: ESA, 2024

Palmdale Water District Strategic Water Resources Plan Update

Figure 3.3-6
Overview of Significant Ecological Areas in the Project Area and Vicinity

ESA

Groundwater

Existing Well Rehabilitation and/or Replacement

None of the well locations are located within an SEA, and replacement wells would not be within the boundaries of the SEAs or would adhere to the design compatibility criteria. Therefore, existing well rehabilitation and/or replacement would not significantly impact SEAs and no mitigation is required.

Local Supplies

Palmdale Ditch Conversion Project

Significant Ecological Areas

The portion of the Palmdale Ditch Conversion project BSA in unincorporated Los Angeles County intersects two Los Angeles County SEAs – approximately 0.3 mile of the BSA is within the San Andreas SEA and approximately 0.13 mile of the BSA is within the Antelope Valley SEA (as shown in **Figure 3.3-7**). Implementation of the Palmdale Ditch Conversion Project would involve ground disturbance and vegetation removal that could impact biological resources (plants, wildlife, and vegetation communities) that are important components and targets of protection under the Los Angeles County SEA Program and under Policies C/NR 3.6, 3.8, and 3.10 of the County's 2035 General Plan (Rincon 2024a). Therefore, construction of the Palmdale Ditch Conversion project would potentially conflict with the provisions of the Los Angeles County SEA Program and the County's 2035 General Plan, and impacts would be significant. Implementation of **Mitigation Measures BIO-2** and **BIO-4** through **BIO-20**, which require implementation of BMPs; work limit delineation; a WEAP; special-status species surveys and avoidance, minimization, and compensatory measures; invasive plant species control; biological monitoring; and habitat revegetation, restoration, and monitoring, would be required to achieve consistency with the goals and policies of the Los Angeles County 2035 General Plan and SEA Program. Impacts would be less than significant with mitigation incorporated.

During operation, Palmdale Ditch Conversion project facilities would be located primarily belowground, and aboveground appurtenant structures would have small footprints (Rincon 2024a). Therefore, operation of the Palmdale Ditch Conversion project would not conflict with the provisions of the Los Angeles County SEA Program and the County's 2035 General Plan, and no impacts would occur.

ANF Land Management Plan

A 0.78-mile portion of the southernmost portion of the BSA is located in the San Gabriel Mountains National Monument on ANF lands administered by the USFS and subject to the 2005 ANF Land Management Plan, which outlines program strategies and tactics relevant to biological resources (USDA, USFS 2005), and the San Gabriel Mountains National Monument Plan, which identifies desired conditions for biological resources (USDA, USFS 2018). The Palmdale Ditch Conversion project has the potential to adversely affect biological resources that

are targets for management in the 2005 ANF Land Management Plan and the San Gabriel Mountains National Monument Plan, including, but not limited to, federally listed, proposed, or candidate species and FSS; stability of special-status species habitat; control of invasive species; and vegetation restoration. As a result, the Palmdale Ditch Conversion project would potentially conflict with the 2005 ANF Land Management Plan and San Gabriel Mountains National Monument Plan, and impacts would be significant. Implementation of **Mitigation Measures BIO-2** and **BIO-4** through **BIO-20** would be required to reduce potential Project impacts to special-status species, stability of special-status species habitat, control of invasive species, and vegetation restoration to less than significant and to facilitate conformance with the program strategies and tactics outlined for biological resources in the ANF Land Management Plan, including WL-1, WL-2, IS-1, and FH-1, and the relevant desired conditions of the San Gabriel Mountains National Monument Plan. With implementation of these mitigation measures, the Palmdale Ditch Conversion project would not conflict with the 2005 ANF Land Management Plan or the San Gabriel Mountains National Monument Plan. Impacts would be less than significant with mitigation incorporated.

Conservation

Conservation measures would not result in ground-disturbing impacts and implementation of conservation measures does not require operation and maintenance activities. Therefore, there would be no impacts and no mitigation is required.

IMPACT BIO-6 FINDINGS

Significance before Mitigation: Potentially significant.

Mitigation Measures: Mitigation Measures BIO-2 and BIO-4 through BIO-20

Significance Determination: Less than Significant with Mitigation.

3.3.3.2 Mitigation Measures

MITIGATION MEASURE BIO-1: HABITAT ASSESSMENT

This mitigation measure is applicable to all Project components except the Palmdale Ditch Conversion project. A habitat assessment shall be conducted prior to ground-disturbing activities within 500 feet of each proposed Project component footprint. If no suitable habitat occurs to support special-status plant species, special-status wildlife species, nesting bird species, sensitive plant communities, and/or native desert vegetation, then no further mitigation is necessary. If suitable habitat occurs, implementation of **Mitigation Measures BIO-2** through **BIO-19** shall be required based on the resources identified.

MITIGATION MEASURE BIO-2: SPECIAL-STATUS PLANT SURVEYS, AVOIDANCE MEASURES, MITIGATION AND MONITORING PLAN

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for special-status plant species is identified within the Project component site during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**. PWD shall retain a qualified biologist to conduct surveys for special-status plants prior to any vegetation removal, grubbing, or other construction activity within each proposed Project component footprint. The surveys shall be floristic in nature and seasonally timed to coincide with the blooming periods of the following special-status species with potential to occur:

- **All Project Components except Palmdale Ditch Conversion Project:** Horn's milk-vetch, Palmer's mariposa-lily, alkali mariposa-lily, white pygmy-poppy, Mojave paintbrush, short-joint beavertail, Greata's aster, Peirson's morning-glory, sagebrush loeflingia, and Robbins' nemacladus.
- **Palmdale Ditch Conversion Project:** Horn's milk-vetch, Palmer's mariposa-lily, alkali mariposa-lily, white pygmy-poppy, Mojave paintbrush, short-joint beavertail, and Greata's aster.

The surveys shall be conducted during the relevant target species' blooming periods no more than two years prior to construction. Special-status plant species identified on site shall be mapped onto a site-specific aerial photograph. Surveys shall be conducted in accordance with the most current CDFW and USFWS protocols. A report of the survey results shall be submitted to PWD for review and approval.

If special-status plants other than western Joshua trees are detected during special-status plant surveys, the observed special-status plants shall be avoided through Project component design where feasible, and vegetation clearing within 50 feet (15 meters) of any identified special-status plant shall be conducted by hand by the construction contractor(s), if practicable. An avoidance buffer of at least 50 feet (15 meters), or other distance as approved by a qualified biologist, shall be established around any identified special-status plants that can be feasibly avoided, and the avoidance buffer shall be delineated with bright orange protective fencing. The avoidance buffers shall be maintained for the duration of construction activities at each construction site and shall be removed only after the conclusion of all grading, clearing, and construction activities at each construction site.

If special-status plants other than western Joshua tree are detected during special-status plant surveys and would be impacted by Project component construction, PWD shall retain a qualified restoration specialist to develop a Special-Status Plant Mitigation and Monitoring Plan that provides for the on-site or off-site replacement of the species impacted by the Project component. The Special-Status Plant Mitigation and Monitoring Plan shall specify the following:

- A summary of impacts;

- The location of the mitigation site;
- Methods for harvesting seeds or salvaging and transplanting individuals to be impacted;
- Measures for propagating plants or transferring living plants from the salvage site to the mitigation site;
- Site preparation procedures for the mitigation site;
- A schedule and action plan to maintain and monitor the mitigation site;
- Criteria and performance standards by which to measure the success of the mitigation, including replacement of impacted plants at a minimum 1:1 ratio;
- Measures to exclude unauthorized entry into the mitigation areas; and
- Contingency measures such as replanting or weeding if mitigation efforts are not successful.
- The performance standards for the Special-Status Plant Mitigation and Monitoring Plan shall be, at a minimum, the following:
    - Within five years after introducing the plants to the mitigation site, the number of established, reproductive plants shall equal the number impacted during Project component construction; and
    - Restoration shall be considered successful after the success criteria have been met for a period of at least two years without any maintenance or remediation activities other than invasive species control.

The Special-Status Plant Mitigation and Monitoring Plan shall be initiated prior to Project component construction (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation) and shall be implemented over a five-year period. The plan may also be combined with the Habitat Revegetation, Restoration, and Monitoring Program described under **Mitigation Measure BIO-19**.

Annual reports discussing the implementation and management of the Special-Status Plant Mitigation and Monitoring Plan shall be submitted to PWD for review and approval. Five years after the start of the mitigation for the Project component, a final report shall be submitted to PWD for review and approval and shall, at a minimum, discuss the implementation and management of the Special-Status Plant Mitigation and Monitoring Plan over the five-year period and indicate whether the Special-Status Plant Mitigation and Monitoring Plan has been successful based on the established performance standards. Should the success criteria be met before Year Five, the mitigation effort can be deemed complete.

MITIGATION MEASURE BIO-3: JOSHUA TREE CENSUS SURVEY, AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for western Joshua tree is identified within 50 feet of the Project component site during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**. A western Joshua tree census survey shall be conducted for that component by a qualified arborist in accordance with CDFW's Western Joshua Tree Census Instructions, which requires a census of all western Joshua trees within the Project component area and a 50-foot buffer.

Impacts to western Joshua trees and within a minimum 50-foot buffer shall be avoided to the extent feasible. An avoidance buffer of at least 50 feet shall be established around western Joshua tree individuals that can be feasibly avoided. If a 50-foot buffer is not feasible, a reduced buffer can be established if a qualified desert native plant specialist and CDFW determine the reduced buffer would avoid direct impacts to individual western Joshua tree(s). No activities shall occur within the buffer. The avoidance buffers shall be maintained for the duration of construction activities in each work area and shall be removed only after the conclusion of all grading, clearing, and construction activities at each Project component construction site.

For each dead or live western Joshua tree individual that cannot be avoided through Project component design, PWD shall implement one of the following measures:

- The western Joshua tree individual shall be trimmed or relocated under the guidance of a desert native plant specialist. Tree relocation shall be implemented in accordance with the following measures and CDFW-provided guidelines and relocation protocols, if made available prior to Project component construction, to assist the survival of the relocated tree:
    - The relocated western Joshua tree shall be placed in a suitable location and with proper orientation to improve its survival.
    - The western Joshua tree shall be relocated at a time that maximizes its survival, when feasible.
    - A desert native plant specialist shall be on site to oversee relocation of the tree.
- PWD shall submit payment of an in-lieu fee to CDFW pursuant to CDFW's standard mitigation fee structure for western Joshua tree in effect at the time of application for an Incidental Take Permit. The current (2024) standard mitigation fee structure is as follows:
    - Trees five meters or greater in height - $2,500 per tree
    - Trees one meter or greater but less than 5 meters in height - $500 per tree
    - Trees less than one meter in height - $340 per tree

MITIGATION MEASURE BIO-4: ARROYO TOAD, DESERT TORTOISE, TRICOLORED BLACKBIRD, AND LEAST BELL'S VIREO AVOIDANCE, MINIMIZATION AND COMPENSATION MEASURES

This mitigation measure is applicable to the Project components for which suitable habitat for arroyo toad, desert tortoise, tricolored blackbird, and/or least Bell's vireo is identified within 500 feet of the Project component site during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1** and does not apply to the Palmdale Ditch Conversion project. Focused protocol surveys shall be conducted by a qualified biologist following the protocol outlined in the most recent USFWS and/or CDFW protocol guidelines. These currently include: 1999 Survey Protocol for the Arroyo Toad; 2018 Preparing for Any Action That May Occur Within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*); 2015 Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015; and 2001 Least Bell's Vireo Survey Guidelines). If any special-status wildlife species are observed during the focused surveys, these species and their habitat shall be avoided by the proposed Project. If avoidance of the special-status wildlife species is not feasible, and special-status wildlife may be potentially impacted by the proposed Project, additional avoidance and mitigation measures will be required, such as constructing proposed Project facilities outside the breeding season, establishing a suitable buffer around known territories, and restricting activities around certain times of year. If the proposed Project results in permanent impacts to habitat occupied by special-status wildlife species, USFWS and CDFW shall be consulted to ensure compliance with the Endangered Species Act and/or requirements for avoidance, minimization, or mitigation measures (e.g., replacement of impacted occupied habitat at a minimum 1:1 ratio). If species are identified and cannot be avoided species-specific mitigation measures included in this section shall apply as applicable.

MITIGATION MEASURE BIO-5: CROTCH'S BUMBLE BEE AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for Crotch's bumblebee is identified within 50 feet of the Project component site during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**. If Crotch's bumble bee is still considered a CESA candidate species or has been listed as threatened or endangered under CESA at the time construction of Project components commences, PWD shall implement the following avoidance, minimization, and compensation measures for this species:

- A qualified biologist shall conduct a protocol-level presence/absence survey for Crotch's bumble bee in areas of the Project component site with suitable habitat during the peak active period for Crotch's bumble bee (highest detection probability) that occurs prior to the start of the Project component's initial ground disturbing activities (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation). The peak active period for Crotch's bumble bee in the Project area is anticipated to be April through June given the

expected desiccation of Crotch's bumble bee floral resources within the Project area by mid-summer, though this timing could depend on annual climatic factors. Survey methodology shall be based on Section 4.1.1 of CDFW's *Survey Considerations for CESA Candidate Bumble Bee Species* (CDFW 2023b), or the most current CDFW guidance in effect at the time. Inaccessible areas outside of the Project component site can be surveyed using binoculars from the Project component edge or from public roads. The timing of the presence/absence survey can be phased with Project component build-out, if feasible.

- If construction starts one year or more after the conclusion of the surveys described above, PWD shall consult with CDFW as to whether additional surveys are required and shall retain a qualified biologist to conduct additional surveys if recommended by CDFW.
- If Crotch's bumble bee is present, the qualified biologist shall identify the location of nests in or adjacent to the Project component site to the extent feasible. Inaccessible land adjacent to the Project component site shall be observed using binoculars. If nests are identified within the Project component site or immediately adjacent to the site, a qualified biologist shall determine the need to establish a no-disturbance buffer around the nest, where feasible, to reduce the risk of disturbance or accidental take. The buffer shall provide at least 50 feet (15 meters) of clearance around active nest entrances. If Project component activities may result in disturbance or potential take, the qualified biologist, in coordination with CDFW, shall expand the buffer zone as necessary to prevent disturbance or take. If establishment of a no-disturbance buffer is feasible, construction activities shall not occur within the buffer until a qualified biologist determines the colony is no longer active (i.e., no Crotch's bumble bees are seen flying in or out of the nest for three consecutive days, indicating the colony has completed its nesting season and the next season's queens have dispersed from the colony). Once the nest has been determined to be inactive, construction activities within the no-disturbance buffer(s) shall be allowed to resume. Otherwise, the no-disturbance buffer shall be maintained for the duration of Project component construction activities in each work area and shall be removed only after the conclusion of all grading, clearing, and construction activities at each construction site.
- If establishment of a no-disturbance buffer and/or avoidance of the nest is not feasible, the qualified biologist shall consult with CDFW regarding potential encroachment into the no-disturbance buffer and for Project component activities that may result in take of Crotch's bumble bee.
- If Crotch's bumble bee is determined to be present on the Project component site, floral resources associated with the species that will be removed or damaged by Project component activities in the areas of the Project component site where Crotch's bumble bee is detected and documented shall be replaced at a 1:1 ratio. Planning and implementation of suitable habitat replacement may be integrated into the Habitat Revegetation, Restoration, and Monitoring Program described under **Mitigation Measure BIO-19**.

MITIGATION MEASURE BIO-6: BURROWING OWL BREEDING SEASON SURVEY AND FORAGING HABITAT MITIGATION

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for burrowing owl is identified within 500 feet of the Project component site during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**. PWD shall retain a qualified biologist to conduct focused breeding season surveys for burrowing owl in accordance with the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012), or the most current CDFW guidance in effect at the time. Surveys shall be conducted during the burrowing owl breeding season immediately prior to the start of Project component construction.

The focused surveys shall be conducted by a qualified biologist in the portions of the Project component site with suitable burrowing owl habitat plus a 500-foot buffer (burrowing owl survey area). The surveys shall be conducted in the morning or evening to evaluate the presence/absence of burrowing owl during the nesting season. All potential burrowing owls and burrows with burrowing owl sign shall be recorded using a GPS unit capable of submeter accuracy. Observations shall be conducted to determine if individual owls and/or nesting pairs are present and their status/disposition (e.g., late winter migrant, actively nesting, single individual not nesting). Representative photos of the habitat, potential and occupied burrows, and vegetation within the burrowing owl survey area shall be taken and included as an appendix to the survey report. All vertebrate fauna detected in the burrowing owl survey area shall be recorded in field notes. Inaccessible areas of the burrowing owl survey area outside the Project component site shall be surveyed using binoculars and/or spotting scopes to determine if owls are present.

A survey report shall be prepared that includes survey methodology, survey results, an analysis of potential Project component impacts to actively nesting pairs, and a calculation of the compensatory mitigation for foraging habitat, if impacted. Late winter migrants and non-nesting individuals located outside of the Project component impact area shall not require habitat mitigation unless passive relocation is necessary. Maps showing burrow locations, a delineation of suitable habitat areas, and burrowing owls observed shall be included in the survey report.

If actively breeding owls are observed within 500 feet of Project component activities, PWD shall implement compensatory mitigation for impacts to foraging habitat based on the following methodology:

- A 500-foot buffer shall be established around each active nest burrow to indicate the primary foraging habitat area for each nesting pair.
- Permanent Project component disturbance areas shall be overlain onto the foraging buffer zone(s) to calculate the area(s) of habitat loss.
- Permanent foraging habitat loss shall be mitigated at a 1:1 ratio.

Compensatory mitigation for loss of foraging habitat shall be implemented on- or off-site and may include purchase of Conservation Bank credits, payment of an in-lieu fee to benefit burrowing owl, or permanent conservation and management of burrowing owl habitat through the recordation of a conservation easement, funding of a non-wasting endowment, and/or implementation of a Mitigation Land Management Plan based on the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Mitigation lands shall be identified through coordination with CDFW on, adjacent, or proximate to the impact site where practicable and where habitat is suitable to support burrowing owl.

MITIGATION MEASURE BIO-7: BURROWING OWL PRE-CONSTRUCTION CLEARANCE SURVEY AND OCCUPIED BURROW AVOIDANCE AND MINIMIZATION MEASURES

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for burrowing owl is identified within 500 feet of the Project component site during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**. PWD shall retain a qualified biologist to conduct a pre-construction burrowing owl clearance survey of areas within the Project component site and a 500-foot buffer that contain suitable burrowing owl habitat to confirm presence/absence of burrowing owl individuals no more than 14 days prior to start of construction in each work area. The survey methodology shall be consistent with the methods outlined in the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). If no active breeding or wintering owls or evidence of occupied habitat is identified, then Project component construction in the work area may begin, and no further action is required.

If active breeding or wintering owls or evidence of occupied habitat is detected in the Project component work area or within a 500-foot buffer, PWD shall implement the following measures for mitigation of potential burrowing owl presence in the Project area in accordance with the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012):

- A qualified biologist shall be present on site during initial ground disturbing activities in potential burrowing owl habitat identified in the habitat assessment.
- Occupied burrows shall not be disturbed during the nesting season (February 1 to August 31).
- No ground disturbing activities shall be permitted within a buffer no less than 656 feet (200 meters) from an active burrowing owl burrow during the breeding season, depending on the level of disturbance, unless the qualified biologist determines a reduced buffer would not adversely affect the burrowing owl(s).
- During the nonbreeding (winter) season (September 1 to January 31), ground disturbing work can proceed near active burrowing owl burrows at the discretion of the qualified biologist as long as the work occurs no closer than 165 feet (50 meters) from the burrow, depending on whether the level of disturbance is low and if the active burrow is not directly affected by the Project component activity. A smaller/larger buffer may be

established by the qualified biologist following monitoring and assessment of the Project component's effects on the burrowing owl(s).

- If active winter burrows are found that would be directly affected by ground disturbing activities, owls can be excluded from winter burrows according to recommendations in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). The qualified biologist shall prepare a passive relocation program in accordance with Appendix E (Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans) of the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) and submit the passive relocation program to PWD and CDFW for review and approval prior to the commencement of ground disturbance activities. If required, a compensatory mitigation agreement shall be developed in coordination with CDFW prior to passive relocation of owls.
- Smaller non-disturbance buffers may be permitted in the winter (and sometimes breeding season) for the burrowing owl individuals if a noise and visual barrier, such as hay bale walls, is installed between the occupied burrowing owl burrow and construction activities, as long as the qualified biologist determines the reduced buffer will provide adequate protection.
- When a qualified biologist determines burrowing owls are no longer occupying the Project component site and passive relocation is complete, ground disturbing activities may begin. A final letter shall be prepared by a qualified biologist documenting the results of the passive relocation. The letter shall be submitted to CDFW.

MITIGATION MEASURE BIO-8: SWAINSON'S HAWK AVOIDANCE AND MINIMIZATION MEASURES

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for Swainson's hawk is identified within 0.5-mile of the Project component site during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**. Construction activities shall be limited to the period between September 16 and February 28 to the extent feasible. If construction activities cannot be completed within this timeframe, PWD shall retain a qualified biologist(s) with Swainson's hawk survey experience to conduct a Swainson's hawk nest survey within the Project component site and a 0.5-mile buffer during the nesting season immediately prior to the commencement of Project component construction. While the proposed Project does not propose to construct renewable energy facilities, nest survey methods and timing shall follow those outlined in the CEC and CDFW protocol for the Antelope Valley (CDFW 2010) with the exception that the nest survey shall occur within a 0.5-mile buffer of the Project component site. A report documenting results of the survey shall be prepared and submitted to PWD for review and approval prior to commencement of Project component activities. If no Swainson's hawk nests are documented within 0.5 mile of the Project area, no additional action shall be required.

If an active Swainson's hawk nest is detected within 0.5 mile of the Project component site, PWD shall implement the following measures:

- Retain a qualified biologist to prepare a Swainson's Hawk Nest Monitoring and Mitigation Plan that incorporates the following measures to avoid and minimize impacts to Swainson's hawk nests in and near the construction areas during the breeding season (March 1 to September 15):

    - If nesting Swainson's hawks are detected within 0.5 mile of Project component activities during the breeding season, CDFW shall be consulted regarding the establishment of a no-disturbance buffer to avoid impacts to the active nest. Construction activities shall maintain a 0.25-mile no-disturbance buffer around an active nest unless a reduced buffer is approved in consultation with the qualified biologist and CDFW.

    - If construction activities are necessary within the buffer zone, PWD shall consult with CDFW as to the potential for take. Monitoring of the nest site by a qualified biologist and funding of Swainson's hawk recovery efforts may be necessary.

    - If a hawk is found injured during Project component activities on the Project component site, the injured hawk shall be immediately relocated to a raptor recovery center approved by CDFW. The qualified biologist shall notify CDFW personnel via telephone or email, followed by a written report that includes the date, time, location, and circumstances of the incident.

PWD and its construction contractor(s) shall implement the provisions of the Swainson's Hawk Nest Monitoring and Mitigation Plan. A report documenting measures taken to avoid and minimize impacts to Swainson's hawk nests shall be prepared by the qualified biologist following the completion of Project component construction and submitted to PWD for review and approval.

MITIGATION MEASURE BIO-9: MOHAVE GROUND SQUIRREL AVOIDANCE AND MINIMIZATION MEASURES.

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for Mohave ground squirrel is identified within 50 feet of the Project component site during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**. PWD shall retain a qualified biologist to conduct a focused habitat assessment (visual survey) of the Project component site following the CDFW's *Mohave Ground Squirrel Survey Guidelines* (CDFW 2023c) to assess the potential habitat suitability for the species. If suitable habitat is identified, protocol live-trapping surveys shall be conducted in areas of suitable habitat to assess the potential presence and relative abundance of Mohave ground squirrel within the Project component site. Pursuant to the protocol outlined in the *Mohave Ground Squirrel Survey Guidelines*, trapping surveys shall take place over three terms in specific timing windows in the period of March 15 and July 15 immediately prior to commencement of Project component activities. If construction starts one year or more after the conclusion of surveys, PWD shall consult with CDFW as to whether additional surveys are required and shall retain a qualified biologist to conduct additional surveys if recommended by

CDFW. Findings of the habitat assessment and live-trapping surveys shall be documented in a report that also details survey methodology, timing, and surveyor qualifications. If no Mohave ground squirrels are discovered during the protocol surveys, no further action is required.

If Mohave ground squirrels are observed during the surveys, PWD shall retain a qualified biologist to develop a Mohave ground squirrel biological monitoring plan, in coordination with CDFW, that includes measures to avoid, minimize, and/or mitigate potential impacts as a result of Project component activities, including, but not limited to:

- A qualified biologist shall conduct pre-construction clearance surveys for Mohave ground squirrel no more than 30 days prior to the start of any ground-disturbing activities in areas of the Project component site that contain suitable habitat for the species, as documented in the Mohave ground squirrel habitat assessment and survey report. The survey shall cover 100 percent of the anticipated impact area intersecting suitable Mohave ground squirrel habitat and a 50-foot buffer (survey area). A qualified biologist shall document locations of potential Mohave ground squirrel burrows. A 50-foot no-disturbance buffer shall be established around suspected or known Mohave ground squirrel burrows. Project component activities shall not be conducted within the no-disturbance buffer unless at the discretion of the qualified biologist. A report documenting the results of the survey, locations of suspected or known Mohave ground squirrel burrows, and recommended no-disturbance buffers shall be submitted to PWD for review and approval prior to commencement of Project component activities in the survey area.

- If burrows are identified during the survey that are suspected or known to be occupied by Mohave ground squirrel and cannot be avoided, the qualified biologist shall prepare a Mohave Ground Squirrel Relocation Plan outlining measures to relocate individual Mohave ground squirrels prior to construction start. The plan shall be submitted to PWD and CDFW for review and approval and shall be implemented prior to commencement of Project component activities in work areas with suspected or known Mohave ground squirrel burrows. The Plan shall outline measures for burrow excavation, handling of individuals, identification of proposed relocation areas, and release of relocated individuals after the conclusion of all grading, clearing, and construction activities. A report documenting relocation activities and outcomes shall be prepared by the qualified biologist and submitted to PWD and CDFW for review and approval after completion of relocation activities.

- Within occupied Mohave ground squirrel habitat (as determined by the results of the focused habitat assessment and live trapping survey results as well as the pre-construction clearance survey results), the area of disturbance of vegetation and soils shall be the minimum required for the Project component. Clearing of vegetation and grading shall be minimized. Wherever practicable, rather than clearing vegetation and grading access routes, equipment and vehicles shall use existing surfaces or previously disturbed areas. Where grading is necessary, surface soils shall be stockpiled and replaced following construction. To the extent practicable, disturbance of shrubs and

surface soils due to stockpiling shall be minimized. A qualified biologist shall monitor Project component activities during initial ground disturbance in suitable Mohave ground squirrel habitat. The qualified biologist shall work with the construction foreman and crew to implement and achieve compliance with the Mohave ground squirrel biological monitoring plan prepared for the Project component.

MITIGATION MEASURE BIO-10: ROOSTING BATS AVOIDANCE AND MINIMIZATION MEASURES

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for special-status bats is identified within the Project component site during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**. PWD shall implement the following measures for special-status roosting bats:

- To the extent feasible, demolition or disturbance of suitable bat roosting habitat (e.g., live and dead trees, rock outcrops) shall be scheduled between October 1 and February 28, outside of the maternity roosting season.

- If suitable roost trees must be encroached during the maternity season (March 1 to September 30) or structures must be removed at any time of the year, PWD shall retain a qualified bat specialist to conduct a pre-construction survey no more than seven days prior to the start of Project component construction in a given work area to identify those trees or structures proposed for disturbance that could provide hibernacula or nursery colony roosting habitat for bats. The trees or structures shall be closely inspected by the bat specialist to determine the presence or absence of roosting bats. If potentially suitable hibernacula or nursery colony roosting habitat for bats is not present in areas anticipated to be directly impacted by Project component activities, no additional action is required.

- Trees or structures determined to be maternity roosts shall be left in place until the end of the maternity season (March 1 to September 30). Any structure containing a hibernating colony shall be left in place until a qualified bat specialist determines the bats are no longer hibernating.

- If bats are not detected, but the bat specialist determines roosting bats may be present at any time of year, trees or structures shall be brought down in a controlled manner using heavy machinery. To ensure the optimum warning for any roosting bats that may still be present, the trees or structures shall be nudged lightly two to three times, with a pause of approximately 30 seconds between each nudge to allow bats to become active. Trees or structures may then be pushed to the ground slowly under the supervision of a qualified bat specialist. Felled trees shall remain in place until they are inspected by a bat specialist. Trees that are known to be bat roosts shall not be sawed up or mulched immediately. A period of at least 48 hours shall elapse prior to such operations to allow bats to escape.

- The bat specialist shall document all demolition monitoring activities and prepare a summary report for review and approval by PWD upon completion of tree disturbance or structure demolition activities.

- In exceptional circumstances, such as when roosts cannot be avoided and bats cannot be evicted by non-invasive means, it may be necessary to capture and transfer the bats to appropriate natural or artificial bat roosting habitat in the surrounding area. Bats raising young or hibernating shall not be captured and relocated. Capture and relocation shall be performed by a qualified bat specialist in coordination with CDFW requirements and shall be subject to approval by CDFW.

- If confirmed occupied or formerly occupied bat roosting habitat is destroyed during Project component construction, the bat specialist shall determine the need for artificial bat roosts based on the availability and condition of suitable bat roosts in the immediate vicinity of the Project component site. If artificial bat roosts are deemed necessary due to a potential lack of suitable bat roosts in the area, the artificial roosts shall be of comparable size and quality and shall be constructed and maintained at a suitable undisturbed area. The design and location of the artificial bat roosts shall be determined by the bat specialist in consultation with CDFW and pursuant to the following standards:

    - A monitoring plan shall be prepared for the replacement roosts, which shall include performance standards for the use of the replacement roosts by the displaced species, as well as provisions to prevent harassment, predation, and disease of relocated bats. The performance standards shall consider the location and condition of habitat where replacement roosts are placed and shall be sufficient to serve the number of bats estimated to be displaced by Project component impacts to suitable roosting habitat. Annual reports detailing the success of roost replacement and bat relocation shall be prepared and submitted to PWD and CDFW for five years following relocation. If artificial roosts are not in use by the third year of monitoring, PWD shall consult with CDFW as to larger trends in bat populations in the area that may be affecting roost use and/or determine if adjustments to roost location or design are needed.

MITIGATION MEASURE BIO-11: WOODRAT MIDDEN AVOIDANCE AND MINIMIZATION MEASURES

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for special-status woodrat species is identified within 10 feet of the Project component site during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**. PWD shall retain a qualified biologist to conduct a pre-construction survey for active woodrat middens in and adjacent to areas anticipated for ground disturbance or vegetation removal in the Project component site within 30 days prior to initial site disturbance at each construction site. A report documenting pre-construction survey results, including the location of any active woodrat middens, shall be submitted to PWD for review and

approval. If no active woodrat middens are observed during the pre-construction survey, no additional action shall be required.

All occupied woodrat middens shall be mapped and flagged for avoidance to the extent feasible, with a minimum 10-foot buffer surrounding the active midden. If avoidance is not feasible, middens shall be "daylighted" by a qualified biologist one night before anticipated vegetation removal or ground disturbance within each construction site to allow for the rats to escape and passively relocate prior to disturbance of the area. A brief report documenting the passive relocation actions taken shall be submitted to PWD for review and approval prior to commencement of Project component construction activities within 10 feet of the active woodrat middens.

MITIGATION MEASURE BIO-12: PRECONSTRUCTION SURVEYS FOR SPECIAL-STATUS WILDLIFE SPECIES

PWD shall implement the following preconstruction surveys for special-status wildlife species:

- **All Project Components except Palmdale Ditch Conversion Project:** If suitable habitat for any special-status wildlife species with the potential to occur (e.g., western pond turtle, Northern California legless lizard, California legless lizard, California glossy snake, coast horned lizard, two-striped gartersnake, pallid bat, Townsend's big-eared bat, San Diego desert woodrat) is identified during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**, pre-construction surveys shall be required prior to ground-disturbing activities. If any of these species are identified on or near construction areas during the preconstruction survey, **Mitigation Measures BIO-13 through BIO-16** shall be implemented. Additional avoidance measures may include establishing a buffer around the species or host plants if a population of a special-status species is observed.
- **Palmdale Ditch Conversion Project:** PWD shall retain a qualified biologist to conduct a pre-activity clearance survey for special-status reptile species no more than seven days prior to commencement of ground or vegetation disturbing activities at each work area within the Palmdale Ditch Conversion project site. The pre-activity survey shall utilize methods to detect special-status reptile species with potential to occur at the site. Prior to commencement of Palmdale Ditch Conversion project construction activities at each work area, the methods and results of the surveys and, if a special-status reptile species is found, recommended species-specific avoidance and/or relocation measures, shall be submitted in a report for review and approval by PWD, and implemented during construction activities. These measures may include, but would not be limited to, the qualified biologist conducting a sweep of the proposed impact areas before the daily start of construction in each work area in the locations where special-status reptile individuals were observed during the pre-construction survey, or have moderate or high potential to occur based on habitat suitability as determined by the qualified biologist, and avoidance of work in the sweep areas until the qualified biologist confirms special-status reptiles are not present, or if present, until they have moved out of harm's on their

own, as determined by the qualified biologist, or have been moved out of harm's way to adjacent suitable habitat by the qualified biologist.

MITIGATION MEASURE BIO-13: GENERAL BEST MANAGEMENT PRACTICES.

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which special-status wildlife species are identified during the pre-construction survey conducted pursuant to **Mitigation Measure BIO-12** and/or for which protected oak trees, oak woodlands, California juniper, or native desert vegetation may be impacted. PWD shall require construction contractor(s) and their personnel to adhere to the following general BMPs during construction:

- Construction-related vehicles shall observe a 10-mile-per-hour speed limit within the unpaved limits of construction.
- All open trenches or excavations shall be fenced and/or sloped to prevent entrapment of wildlife species.
- All food-related trash items such as wrappers, cans, bottles, and food scraps generated during construction shall be disposed of in closed containers only and removed daily from the construction site.
- No deliberate feeding of wildlife shall be allowed.
- No pets shall be allowed on the construction site.
- No firearms shall be allowed on the construction site.
- Vehicle or equipment maintenance shall be performed in designated staging areas.
- Access to the construction area outside of established work hours for the proposed Palmdale Ditch Conversion project shall be prohibited.
- If construction must occur at night (i.e., between dusk and dawn), all lighting shall be shielded and directed downward to minimize the potential for glare or spillover.
- During construction, heavy equipment shall be operated in accordance with standard BMPs. All equipment used on-site shall be properly maintained to avoid leaks of oil, fuel, or residues. Provisions shall be in place to remediate accidental spills.
- While encounters with special-status species are not anticipated, any worker who inadvertently injures or kills a special-status species or finds one dead, injured, or entrapped shall immediately report the incident to the construction foreman or biological monitor (required under **Mitigation Measure BIO-16**). The construction foreman or biological monitor shall immediately notify PWD.

MITIGATION MEASURE BIO-14: WORK LIMIT DELINEATION

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which special-status wildlife species are identified during the pre-construction survey conducted pursuant to **Mitigation Measure BIO-12** and/or for which protected oak trees, oak woodlands, California juniper, or native desert vegetation may be impacted. PWD shall clearly identify work area limits on design and construction plans and shall require its construction contractor(s) to delineate and clearly mark approved construction work area limits with flagging or temporary orange construction fencing in the field prior to initial ground disturbing activities (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation). The marked boundaries shall be maintained for the duration of construction activities in each work area and shall be clearly visible to personnel on foot and by heavy equipment operators. Fencing or other barriers shall be placed on the impact side of the work area limit (i.e., within the construction site boundaries) to reduce the potential for encroachment and additional vegetation loss within adjacent open space. Fencing shall be installed pursuant to the approved construction and grading plans. Prior to initial ground disturbing activities (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation), the biological monitor (if required under **Mitigation Measure BIO-16**) shall verify the limits of construction have been properly staked and are readily identifiable. Employees shall strictly limit their activities and vehicles to the designated construction area, staging areas, and routes of travel. Intrusion by unauthorized vehicles outside of construction limits shall be prohibited, with control exercised by an on-site foreman. All temporary fencing shall be removed only after the conclusion of all grading, clearing, and construction activities at each construction site.

MITIGATION MEASURE BIO-15: CONSTRUCTION WORKER ENVIRONMENTAL AWARENESS PROGRAM

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which special-status wildlife species are identified during the pre-construction survey conducted pursuant to **Mitigation Measure BIO-12** and/or for which protected oak trees, oak woodlands, California juniper, or native desert vegetation may be impacted. PWD shall retain a qualified biologist to conduct a preconstruction WEAP training for all personnel working on the Project component. The WEAP shall aid workers in recognizing special-status species and regulated biological resources known to occur (e.g., western Joshua trees, sensitive natural communities, jurisdictional waters or wetlands) or potentially occurring on the Project component site (as determined by the preconstruction survey conducted pursuant to **Mitigation Measure BIO-12** and the qualified biological monitor identified in **Mitigation Measure BIO-16** and as confirmed by the results of the focused surveys conducted pursuant to **Mitigation Measures BIO-2 through BIO-11**) and focus on conditions and protocols necessary to avoid and minimize potential impacts to biological resources. All personnel associated with construction of the Project component shall attend the WEAP training

prior to initiation of construction activities (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation). The training shall include information about the special-status species potentially occurring within the Project component site, identification of special-status species and habitats, a description of the regulatory status and general ecological characteristics of special-status resources, and a review of the limits of construction and measures required to avoid and minimize impacts to biological resources within the work area. A fact sheet conveying this information shall also be prepared for distribution to all contractors, their employees, and other personnel involved with construction. All employees working at the Project component construction site shall sign a form provided by the trainer documenting they have attended the WEAP and understand the information presented to them. The signed form shall be provided to PWD as documentation of training completion. The crew foreman shall be responsible for ensuring crew members adhere to the guidelines and restrictions designed to avoid impacts to special-status species and other regulated biological resources. If new personnel are brought onto the Project component after completion of the initial WEAP training, the training shall be conducted for all new personnel before they can participate in Project component construction activities. Construction personnel shall be instructed to not directly harm any special-status species on site by halting activities until the species can move to off-site areas or contact a qualified biologist to move the species out of harm's way, if appropriate.

MITIGATION MEASURE BIO-16: QUALIFIED BIOLOGICAL MONITOR

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which special-status wildlife species are identified during the pre-construction survey conducted pursuant to **Mitigation Measure BIO-12** and/or for which protected oak trees, oak woodlands, California juniper, or native desert vegetation may be impacted. PWD shall retain a qualified biological monitor with relevant experience with the taxa and species in the Antelope Valley desert and mountain foothills for which pre-construction surveys, monitoring, or other support is required during Project component construction (potentially including, but not limited to, special-status plants, Northern California legless lizard, coast horned lizard, raptors, nesting birds, roosting bats, woodrats, and those special-status species with potential to occur based on the results of pre-activity and focused surveys conducted prior to Project component initiation in accordance with **Mitigation Measures BIO-2** through **BIO-12** and **Mitigation Measure BIO-17**). The qualified biologist role may be satisfied by one or more individuals depending on qualifications and experience with one or more species and taxa. The qualified biologist shall be present during initial ground disturbance or vegetation removal activities and shall have the authority to temporarily stop work if one or more special-status species are observed that may be impacted by Project component activities. The biologist shall relocate special-status amphibian, reptile, or mammals present within anticipated Project component impact areas to suitable undisturbed habitat outside the areas directly and indirectly affected by construction activities. The biologist shall hold the requisite incidental take permits or authorizations for the capture and handling of the species, if applicable.

The biologist shall recommend measures to ensure compliance with avoidance and minimization measures, applicable permit conditions, and conditions required for observed special-status species. When the biologist is present on site, they shall be responsible for:

- Verifying Project compliance with environmental mitigation measures and requirements;
- Establishing lines of communication and reporting methods in coordination with the construction crew foreman and PWD;
- Conducting pre-construction clearance sweeps for special-status species and nesting birds, as needed;
- Documenting special-status species observations;
- Recommending preventative or protective actions to avoid and minimize potential Project impacts to regulated biological resources where feasible;
- Recommending actions to be taken in the event of non-compliance; and
- Daily and weekly reporting of compliance.

Monitoring logs documenting the above shall be submitted to PWD for review and approval for the duration of Project component construction.

MITIGATION MEASURE BIO-17: NESTING BIRD SURVEYS AND AVOIDANCE AND MINIMIZATION MEASURES

This mitigation measure is applicable to the Palmdale Ditch Conversion project and other Project components for which suitable habitat for nesting birds is identified during the habitat assessment conducted pursuant to **Mitigation Measure BIO-1**. Project component construction activities shall occur outside of the bird breeding season (February 1 to August 31) to the extent practicable. If construction must commence within the bird breeding season, PWD shall retain a qualified biologist to conduct a pre-construction nesting bird survey within the disturbance footprint plus a 100-foot buffer (300 feet for raptors), where feasible, no more than seven days prior to initiation of ground disturbance (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation) in each work area. If the Project component is phased or construction activities stop for more than one week, a subsequent pre-construction nesting bird survey shall be conducted prior to each phase of construction, if initiated during the bird breeding season.

Pre-construction nesting bird surveys shall be conducted during the time of day when birds are active and shall factor in sufficient time to perform this survey adequately and completely. A brief report of the nesting bird survey results, if applicable, shall be submitted to PWD for review and approval prior to ground disturbance and/or vegetation removal activities.

If no nesting birds are observed during pre-construction surveys, no further action is required. If nests are found, an appropriate avoidance buffer ranging in size from 25 to 50 feet for passerine

(perching birds) nests and up to 300 feet for active, non-listed raptor nests (depending on the species and the proposed work activity) shall be determined by the qualified biologist and demarcated with bright orange construction fencing or other suitable flagging. Active nests shall be monitored at a minimum of once per week until a qualified biologist has determined the birds have fledged and are no longer reliant upon the nest or parental care for survival. No construction activity shall occur within this buffer until the qualified biologist confirms the breeding/nesting is completed and all the young have fledged. If Project component activities must occur within the buffer, they shall only be conducted at the discretion of the qualified biologist.

MITIGATION MEASURE BIO-18: INVASIVE PLANT SPECIES CONTROL MEASURES

For the Palmdale Ditch Conversion project and other Project components for which protected oak trees, oak woodlands, California juniper, or native desert vegetation may be impacted, PWD shall require the construction contractor(s) and their construction personnel to ensure equipment is free of invasive plant seeds, propagules, and any material which may contain them (e.g., soil). For purposes of this mitigation measure, invasive plant species shall include all species with a California Invasive Plant Council rating of moderate or high. Prior to entering the construction site, equipment shall be inspected to confirm it is free of mud, dirt, and debris. Tire track stations shall be installed at construction site entrances and exits. Staging areas and access routes shall avoid weed infestations, and infestations within the work area(s) shall be flagged and avoided to the maximum extent feasible. Only certified weed-free materials (e.g., fiber rolls, straw, and fill) shall be used during construction.

MITIGATION MEASURE BIO-19: SENSITIVE NATURAL COMMUNITIES AND JURISDICTIONAL FEATURES AVOIDANCE, MINIMIZATION MEASURES

Sensitive natural communities and jurisdictional features identified for avoidance within the Project component site shall be demarcated using brightly colored flagging, as necessary, and avoided to the extent feasible during Project component construction. The marked boundaries shall be maintained for the duration of Project component construction activities in each work area and shall be clearly visible to personnel on foot and by heavy equipment operators. Construction personnel shall be instructed to avoid these areas as much as feasible. All temporary flagging shall be removed only after the conclusion of all grading, clearing, and construction activities at each construction site. Compliance with this measure shall be documented in the biological monitoring reporting, if required under **Mitigation Measure BIO-16**.

In addition, PWD shall require its construction contractor(s) and their personnel to implement the following measures:

- Any material/spoils generated from construction shall be located away from sensitive natural communities and jurisdictional features and protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.

- Materials, hand-held equipment and other non-heavy or non-vehicle equipment shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and generally at least 50 feet from sensitive natural communities and jurisdictional areas.
- Any spillage of material shall be stopped if it can be done safely. The contaminated area shall be cleaned, and any contaminated materials shall be properly disposed of. For all spills, the Project foreman and biological monitor (if required under **Mitigation Measure BIO-16**) shall be notified.

If impacts to sensitive natural communities cannot be avoided, PWD shall identify compensatory mitigation prior to disturbance of the features. Mitigation may take the form of permittee-responsible, on-site or off-site mitigation or the purchase of credits from an approved mitigation bank or through applicant-sponsored mitigation (e.g., purchase and/or dedication of land for mitigation). If required, compensatory mitigation for unavoidable impacts to sensitive vegetation communities shall be accomplished at a minimum ratio of 1:1; however, the final ratio shall be determined and approved by CDFW. If on-site or off-site restoration would occur, PWD shall retain a qualified biologist to develop a Habitat Revegetation, Restoration, and Monitoring Program and submitted for CDFW approval prior to the commencement of Project component construction (including, but not limited to, site preparation, staging and mobilization, vegetation clearance/mowing/trimming, grading, and excavation). At a minimum, the program shall include the following:

- A description of the purpose and goals of the restoration
- Identification of success criteria and performance standards
- Methods of site preparation, including topsoil salvage and replacement procedures
- Irrigation plan and schedule
- Best Management Practices (BMPs)
- Maintenance and monitoring program
- Adaptive management strategies
- Key stakeholders and responsible parties
- Funding
- Contingencies

MITIGATION MEASURE BIO-20: AQUATIC RESOURCES DELINEATION AND COMPENSATORY MITIGATION

An aquatic resources delineation shall be conducted to determine the limits of potential jurisdictional aquatic resources within the vicinity of proposed Project components. The results

of the aquatic resources delineation shall be used during proposed Project component design to determine if aquatic resources can be avoided. If aquatic resources can be avoided, then no compensatory measures are necessary. Avoidance of aquatic resources within Project component sites shall be implemented according to **Mitigation Measure BIO-19**.

If impacts to jurisdictional waters and wetlands cannot be avoided, PWD shall identify compensatory mitigation prior to disturbance of the features. Compensatory mitigation for impacts to the jurisdictional extents of the Palmdale Ditch shall be provided at a minimum 0.5:1 ratio given the Ditch's altered hydrology as a manmade structure constructed entirely in uplands that is artificially lined in a number of areas (concrete, synthetic liner, elevated flume) and its controlled flow that fluctuates in quantity and timing from year to year depending on annual climatic conditions and available water supply in Littlerock Reservoir. Compensatory mitigation for impacts to other jurisdictional waters and wetlands shall be provided at a minimum 1:1 ratio, unless a higher ratio is required by Lahontan RWQCB, CDFW, and/or USACE. Mitigation may take the form of permittee-responsible, on-site or off-site mitigation or the purchase of credits from an approved mitigation bank. If on-site or off-site mitigation is proposed, a Compensatory Mitigation Plan shall be prepared that outlines the compensatory mitigation in coordination with the Lahontan RWQCB, CDFW, and/or USACE. If on-site mitigation is proposed, the Compensatory Mitigation Plan can be integrated with the Habitat Revegetation, Restoration, and Monitoring Program described in **Mitigation Measure BIO-19** and shall identify those portions of the site, such as relocated drainage routes, that contain suitable characteristics (e.g., hydrology) for restoration. Determination of mitigation adequacy shall be based on comparison of the restored habitat with similar, undisturbed habitat in the site vicinity. The Compensatory Mitigation Plan shall include remedial measures if performance criteria are not met. If the Compensatory Mitigation Plan is not integrated with the Habitat Revegetation, Restoration, and Monitoring Program described in **Mitigation Measure BIO-19**, the same reporting requirements shall apply for monitoring and evaluation of Compensatory Mitigation Plan implementation as detailed in **Mitigation Measure BIO-19**.

If off-site mitigation is proposed, off-site land shall be preserved through a deed restriction or conservation easement and the Compensatory Mitigation Plan shall identify an approach for funding assurance for the long-term management of the conserved land.

MITIGATION MEASURE BIO-21: GROUNDWATER-DEPENDENT ECOSYSTEMS

If the proposed Project (particularly rehabilitation of groundwater wells 6A, 15, 18, 19, 30, and/or 33 and/or replacement wells) is in proximity to mapped GDEs, then representative groundwater monitoring stations shall be installed within GDEs to track groundwater levels and vegetation responses over time. Prior to implementation of the proposed Project, the GDEs that may potentially be affected by the proposed Project shall be mapped to identify the baseline conditions, including the extent of vegetation communities (e.g., via vegetation mapping on the ground and via remote sensing) and composition of vegetation (e.g., percent cover via transects on the ground) that comprises each vegetation community. Baseline data shall be collected, and long-term monitoring shall be conducted for areas of potential affect as well as representative control sites with similar conditions (to account for other variables, such as changes in climate,

precipitation, etc.). Thresholds for changes in vegetation over time shall be established prior to proposed Project implementation (e.g., greater than 20 percent vegetation decline that correlates with increased pumping and decreased groundwater levels). Monitoring shall be conducted for a minimum 5-year period following any increase in groundwater pumping that is beyond the existing range of pumping currently conducted (i.e., prior to the Project) for the life of the proposed Project. If there is no impact to GDEs, then no further mitigation is necessary.

If GDEs are impacted by the proposed Project, then adaptative management measures shall be implemented to reduce pumping to changes in vegetation to allow for re-establishment of vegetation communities to pre-existing conditions, which will be determined by monitoring for a minimum of an additional three years or until pre-existing conditions (i.e., both groundwater monitoring well levels and GDE vegetative cover) are obtained. Alternatively, if adaptive management measures cannot be implemented to reduce pumping and re-establish pre-existing conditions, then mitigation for permanent impacts to GDEs would include:

On- and/or off-site creation, restoration, and/or enhancement of in-kind GDE habitat at a ratio no less than 1:1 for permanent impacts. Off-site creation, restoration, and/or enhancement at a ratio no less than 1:1 may include the purchase of mitigation credits at an off-site mitigation bank or in-lieu fee program.

3.3.3.6 Cumulative Impact Analysis

When considered with future actions and development considered in planning documents such as the City's 2045 General Plan and the Antelope Valley Groundwater Basin adjudication the proposed Project would not considerably contribute to a cumulative impact. Given the Project's limited footprint and localized impacts associated with Pure Water Antelope Valley project, Groundwater Well Replacement and Rehabilitation projects, the Palmdale Ditch Conversion project, and conservation actions the proposed Project is not anticipated to cumulatively contribute to impacts to biological resources that could result from development of other planning actions. Future developments would also include similar mitigation and be governed by existing laws and regulations. The proposed Project's impacts to special-status species, desert native vegetation (including sensitive natural communities), riparian habitat/jurisdictional features, and the San Andreas and Antelope Valley Significant Ecological Areas are generally localized to the specific proposed component areas and with mitigation would not compound impacts associated with future planned actions. Therefore, when considered in addition to the anticipated impacts of other projects in the cumulative scenario, the Project's incremental contribution to biological resources impacts would not be cumulatively considerable. With implementation of mitigation measures, impacts would be less than significant.

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3.4 CULTURAL AND TRIBAL CULTURAL RESOURCES

This section describes the environmental and regulatory setting for cultural and tribal cultural resources in the Project Area, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts to cultural and tribal cultural resources that could result from implementation of the Project.

3.4.1 ENVIRONMENTAL SETTING

The following sections describe the environmental setting for cultural resources within the Project area, which is located almost entirely within the City of Palmdale, but also includes portions of land within unincorporated Los Angeles County. The Project area includes the PWD service area plus areas adjacent to the service area where the proposed facilities are located.

3.4.1.1 Natural Setting

The proposed Project area lies within the Antelope Valley, which exists along the boundary between two major geomorphic provinces: the Transverse Ranges and the Mojave Desert (CGS 2002). The Transverse Ranges province is characterized by east-west oriented ranges including the Tehachapi Mountains to the north, and the San Gabriel, Sierra Pelona and Liebre Mountains to the southwest. The Mojave Desert province is characterized primarily by a broad interior region of isolated mountain ranges separated by expanses of desert plains. The Mojave Desert province is wedged between the Garlock Fault and the San Andreas Fault, which have uplifted the surrounding mountains relatively rapidly, isolating the Mojave Desert from the Pacific Coast and creating the interior drainage basins of the western Mojave Desert, such as the Antelope Valley. The west end of the Antelope Valley is defined by the Tehachapi and San Gabriel Mountains, forming the v-shaped basin of the western Mojave Desert.

The Antelope Valley varies in elevation from 2,270 feet above mean sea level (amsl) on the desert floor to 3,000 to 4,000 feet amsl at the surrounding foothills. Due to its location in the rain shadow of the nearby San Gabriel Mountains, the Antelope Valley experiences a wide range of diurnal and seasonal temperature variations. Precipitation within the Antelope Valley averages just above five inches per year and falls principally as either rain or snow during October through March; however, tropical storms originating in the Pacific Ocean can cause as much as 20 percent of the annual rainfall to occur during the months of August through October (Grayson 1993). The southern foothills generally receive more precipitation than the drier, lower plains.

3.4.1.2 Geologic Setting

The Project area is located in the southern Antelope Valley, at the eastern-most edge of the Mojave Desert, and includes the San Andreas Fault and the northern slopes of the San Gabriel Mountains. The Antelope Valley is a tectonically controlled basin, forming a wedge between the San Andreas Fault to the south and the Garlock Fault to the north (Ponti 1985). Sediment has

been deposited into the basin since the Miocene, with recent deposition resulting from erosion of the Transverse Ranges and Tehachapi Mountains that began in the Late Tertiary, when the San Gabriel Mountains were uplifted (Norris and Webb 1990; Ponti 1985). The geology of the Project area is in large part dominated by the San Andreas Fault, which crosses the central-southern Project area on a northwest-to-southeast diagonal. Rocks on the northern side of the fault consist of the Anaverde Formation and the underlying granitic bedrock, while rocks to the south of the fault consist of the older Punchbowl and Vasquez formations and the underlying granitic bedrock.

3.4.1.3 Prehistoric Setting

The prehistory of the Mojave Desert is generally described in terms of cultural "complexes." A complex is a specific archaeological manifestation of a general mode of life, characterized archaeologically by technology, artifact types, economic systems, trade, burial practices, and other aspects of culture. Complexes are typically associated with particular chronological periods. The prehistory of the Mojave is generally divided into the following time-periods/complexes: Paleo-Indian, Lake Mojave Complex, Pinto Complex, Gypsum Complex, Rose Springs Complex, and Late Prehistoric.

PALEO-INDIAN (10,000-8,000 B.C.)

The Paleo-Indian period is sparsely represented in the Mojave, primarily by large, fluted Clovis projectile points. This limited evidence suggests that early human occupants of the Mojave probably lived in small, mobile groups in temporary camps in the vicinity of permanent water sources (Sutton et al. 2007). In the Antelope Valley, a fragment of a fluted Clovis point was recorded on the southern slopes of the Tehachapi Mountains, and recent excavations at Rosamond Lake have documented a terminal Pleistocene/Early Holocene occupation (Pacific Legacy 2007). In addition, the earliest occupation of CA-KER-2821/H, an extensive multicomponent site near Willow Springs, has been radiocarbon dated to 9,020-9,430 RCYBP (radiocarbon years before present) (Way 2009).

LAKE MOJAVE COMPLEX (8,000-6,000 B.C.)

In terms of material culture, the Lake Mojave Complex is typified by stone tools such as Lake Mojave and Silver Lake projectile points, bifaces, steep-edged unifaces, crescents, and some ground stone implements (Sutton et al. 2007). Lake Mojave groups were organized in relatively small, mobile groups and practiced a forager-like subsistence strategy. Some trade with coastal groups was practiced, as evidenced by the presence of shell beads. Lake Mojave sites have been found primarily around Fort Irwin, Lake Mojave, Lake China, Rosamond Lake, and Twentynine Palms.

THE PINTO COMPLEX (6,000 TO 3,000 B.C)

Archaeological deposits dating from the Pinto Period suggest that Pinto settlement patterns consisted of seasonal occupation by small, semi-sedentary groups that were dependent upon a

combination of big and small-game hunting and collection strategies, which could include the exploitation of stream or water resources. Typically, sites of this period are found along lake shores and streams or springs, some of which are now dry. Material culture representative of this period in California prehistory includes roughly formed projectile points, "heavy-keeled" scrapers, choppers, and a greater prevalence of flat millingstones and manos (hand-held grinding stones), indicating a more intensive use and processing of plant resources (Warren 1984; Sutton et al. 2007). At the end of the middle Holocene, around 3,000 B.C., environmental conditions became much drier and hotter, and few sites in the Mojave date to the period between 3000 and 2,000 B.C., suggesting that the area's population may have decreased during this period of unfavorable climate (Sutton et al. 2007).

GYPSUM COMPLEX (C. 2,000 B.C. TO A.D. 200)

Many archaeological sites of this period are small and surficial, probably of a temporary nature. It is during this time, however, that more archaeological evidence suggestive of inter-tribal trade appears, particularly between the desert and the coast. At a site Lovejoy Springs, which has a prominent Gypsum component, a group inhumation with at least nine individuals was uncovered, including a child buried with approximately 3,000 *Olivella* shell beads from the southern Californian coast (Price et al. 2008). The artifact assemblage associated with this period also includes an increased number of millingstones and manos, and it is believed that it was during this period that the pestle and mortar were introduced. These technological developments may point to the increased consumption of seeds and mesquite. Other artifacts associated with the Gypsum Period include Humboldt Concave Base, Gypsum Cave, Elko Eared, and Elko Corner-notched projectile points (Warren 1984).

ROSE SPRINGS COMPLEX (C. A.D. 200 TO 1200)

The general cultural pattern for this period is a continuation of that of the preceding Gypsum Period. Rose Springs archaeological sites are more numerous than previous periods and contain more well-developed middens, indicating an increase in population and a more permanent settlement pattern (Sutton et al. 2007). In addition, the archaeological record attests to established trade routes between desert and coastal populations by way of shell beads and steatite, as well as an introduction of Anasazi influence from the eastern Great Plains as evidenced by the appearance of turquoise and pottery. Material culture related to this complex includes obsidian artifacts, Rose Spring and Eastgate projectile points, millingstones, manos, mortars and pestles, slate pendants, and incised stones (Warren 1984). Rose Springs sites along Amargosa Creek, west of Palmdale, contain workshops for the production of beads made out of steatite and chlorite schist, materials native to that area (Price et al. 2008). These beads, and others like them, are found in other sites across the western Mojave.

The frequent use of obsidian is a defining feature of the Rose Springs period. Obsidian from the Coso volcanic field, 70 miles north of Mojave, was imported in near-finished form for use in making lithic tools (Price et al. 2008). The importing of obsidian seems to have dropped sharply at the end of the Rose Springs period, possibly associated with the Medieval Climatic Anomaly, a

period of climate change around A.D. 1100 to 1300, and the concurrent migration of Numic-speaking populations out of southeastern California and into the Great Basin.

LATE PREHISTORIC PERIOD (A.D. 1200 TO EUROPEAN CONTACT)

By the Late Prehistoric Period, an extensive network of established trade routes wound their way through the desert, routing goods to populations throughout the Mojave region. Trade routes have been postulated as running along the foothills on the southern border of the Antelope Valley and along the Mojave River (Farmer 1935; Sutton 1988). The Antelope Valley sat at a convenient geographical location for controlling trade, between the Great Basin and the southern coastal region (Sutton 1988).

It is also believed that these trade routes encouraged or were the motivating factors for the development of more "increasingly complex socioeconomic and sociopolitical organizations" among Protohistoric peoples in southern California (Warren 1984). Housepit village sites are prevalent during this period, as are the presence of Desert Side-notched and Cottonwood projectile points, brownware and buffware ceramics, steatite shaft straighteners, painted millingstones, and, to a lesser degree, coastal shell beads. Beginning around A.D. 1300, however, a decline in trade occurred and well-established village sites were abandoned (Warren 1984). Few sites in the Antelope Valley were occupied after A.D. 1650 (Warren 1984). This is in direct contrast to the southern Sierra Nevada and Tehachapi Mountains regions, where the density of settlements increased after A.D. 1300.

3.4.1.4 Historic Setting

ANTELOPE VALLEY

The first Europeans explorers were Pedro Fages in 1772 and Juan Bautista de Anza and Father Francisco Garces in 1774 (Greene 1983). In 1775, Father Garces separated from de Anza and crossed the Mojave Desert along the ancient Mojave Trail from Needles west to the San Gabriel Mission.

The first recorded American visitors were the party of Jedediah Smith, who crossed the Mojave Desert along the Mojave Trail in 1826. Ewing Young and Kit Carson followed his route in the 1820s and 1830s. Kit Carson, who had participated in Jedediah Smith's 1828 expedition, later was the guide for John C. Fremont in 1844. This expedition was one of the first to document in detail the Antelope Valley.

Prior to the advent of the railroad, stagecoach routes were the primary means of transportation across the Antelope Valley. Willow Springs, located about 20 miles northwest of Palmdale, was an established resting place along both prehistoric and historic-era Spanish and American trails and stage routes. Jedediah Smith stopped there in 1827, and later John C. Fremont in 1944 (Pacific Legacy 2007). In 1876, the railroad came to the Antelope Valley when the Southern Pacific Railroad's line that ran south from the San Joaquin Valley was connected to the line from

Los Angeles. In 1884, this line joined the Atchison, Topeka, & Santa Fe line that ran east through Needles (Pacific Legacy 2007).

Although settlement had been encouraged by the Homestead Act of 1862 and the Desert Land Act of 1877, the Antelope Valley did not see much growth until after the coming of the railroad. In the 1880s, a number of groups established colonies in the Antelope Valley, including the Quakers, German Lutherans, and Utopian Socialists. However, fluctuating water levels and years of severe drought brought a quick end to many of these colonies (Jones & Stokes 2005). By 1930, over eighty settlements had been established in the region, most along railroad lines (Jones & Stokes 2005).

Agriculture and ranching were the primary economic focus of homesteaders in the Antelope Valley. During the initial wave of settlement in the 1880s and 1890s, dry-farming methods proved fairly successful. However, this was in large part because these were unusually wet years. A severe drought between 1894 and 1904 brought an end to most agricultural enterprises. After the drought, irrigation was used with some success, particularly for the cultivation of alfalfa, grapes, and peaches which became the valley's primary crop (COLA Public Library 2009).

CITY OF PALMDALE

Palmdale has its roots in two small, early communities: Harold (Alpine Station) and Palmenthal. Harold was a natural location for a community because it was at the crossroads of the two major transportation routes on the valley floor: the Southern Pacific Railroad and Fort Tejon Road (now Barrel Springs Road). Palmenthal was established in 1886 when approximately 60 families of Swiss and German descent moved westward to California primarily from Nebraska and Illinois. They had been told that when they saw palm trees, they would be very close to the Pacific Ocean. The families settled here and called their new town Palmenthal (City of Palmdale 2009).

By the 1890s, farming families began to migrate to Palmenthal and nearby Harold to grow grain and fruit. However, most of these settlers were unfamiliar with the desert climate, so when drought years came about, many abandoned their farms. Palmenthal's name changed to Palmdale in 1899. The rest of the settlers, including the post office, moved closer to the Southern Pacific Railroad, which had been established through the valley in 1876. Southern Pacific built a railroad station along the tracks which eventually became the center of today's Palmdale.

Agriculture continued to be the primary industry for Palmdale until the outbreak of World War II. In addition to the establishment of Muroc Air Force Base in Lancaster in 1933, the United States government later bought Palmdale Airport in 1952 where aerospace development and testing facilities called United States Air Force Plant 42, were located. One year later, in 1953, Lockheed established a facility at the airport. From that point on, the aerospace industry surpassed agriculture as the primary source of local employment. Today Palmdale is even referred to as the "Aerospace Capital of America" because of its heritage in being the home of many of the aircraft used in the United States military. In August 1962, the township of Palmdale

officially became the City of Palmdale with the incorporation of 2 square miles (5 square kilometers) of land around the present day civic center.

PALMDALE WATER DISTRICT

PWD evolved from several private water companies, the first being the Palmdale Water Irrigation Company in 1886 (PWD n.d.). The company dug its first irrigation ditch, which was 6.5 miles long and diverted water from Little Rock Creek to serve the burgeoning town. In 1895, the South Antelope Valley Irrigation Company formed and began construction on the Palmdale Dam (known as that time as the Harold Dam) which helped form the Palmdale Lake (known at that time as Harold Reservoir). The Palmdale Ditch (Ditch), which was an approximate 8.5-mile earthen ditch with a wooden trestle and wooden flume, was constructed to bring water to Lake Palmdale (PWD n.d.).

In the early 1900s a survey of a reservoir site on Little Rock Creek for the Palmdale Water Company was compiled by the engineering offices of J.P. Lippincott. From this survey and other studies, it was decided by a vote in 1918 that a public irrigation district would be the most financially feasible option for Palmdale. Under provisions of Division 11 of the Water Code of the State of California, the Palmdale Water Irrigation District (PWD) was formed to supply irrigation water to approximately 4,500 acres of agricultural land. Six years after the Palmdale Water Irrigation District was formed, Littlerock Dam was constructed by the Bent Bros. Builders in 1924 (PWD n.d.).

Once completed, the Littlerock Dam was the highest reinforced concrete, multiple-arch dam in the United States, and had a water capacity of 4,200-acre feet. Within eight years of its completion, the State of California declared the dam unsafe, and repairs and renovations were completed. In 1940, dam's capacity was reduced due to sediment built up and to help with areas water storage capacity standby water walls were developed (PWD n.d.).

A shift in the water supply needs developed in Palmdale during the late 1940s and 1950s when the predominate industry in Palmdale shifted from agricultural to aerospace. To keep up with the demand for ground water and water from the Littlerock Reservoir, Palmdale Water Irrigation District expanded the water supply from the State Water Project. Under this new program, the Palmdale Water Irrigation District expanded and encompassed a total of 34,000 acres (PWD n.d.).

In 1973, the name of the company was changed to PWD since it primarily supplied water for municipal and industrial uses. From the mid-1960s through 1985, concern was raised over the seismic safety of Littlerock Dam, and in 1995 rehabilitation of the Dam was completed and the spillway height was raised twelve feet, which doubled the capacity of the reservoir (PWD n.d.). The dam was documented by the Historic American Engineering Record in 1981, and images and plans of the dam are available at the U.S. Library of Congress.

PWD now boasts a district that encompasses 187 square miles of land and has a distribution system of "403 miles of pipeline…24 active water wells, 14 booster pumping stations, and 20 water tanks with a capacity of 50 million gallons of water" (PWD n.d.).

3.4.1.5 Ethnographic Setting

At the time of European contact, numerous groups occupied the area in and surrounding the Antelope Valley. The southeastern portion of the Valley, around the Mojave River, was inhabited by the Serrano and Vanyume. The territory of the Tataviam centered on the southwestern extent of the Antelope Valley, the Santa Clara River drainage, and possibly the Sierra Pelonas and the Palmdale area (Sutton 1988). The Kitanemuk inhabited the southern Tehachapi Mountains and the northern and central portion of the Antelope Valley. Finally, during the historic period, there is some evidence for the occupation of the Western Mojave by the Chemehuevi. The groups that are known to have lived in the vicinity of the proposed project area (Kitanemuk, Tataviam, Serrano, and Chemehuevi) are described in more detail below.

KITANEMUK

The Kitanemuk occupied a territory that extended from the Tehachapi Mountains into the western end of the Antelope Valley. While most of their recorded villages were located in the Tehachapis, their settlement pattern is poorly understood. Some scholars posit that the Antelope Valley's desert floor was used only on a seasonal basis, while others point to archaeological evidence of permanent occupation of the desert floor during the Late Prehistoric Period (Sutton 1980). While the Kitanemuk maintained friendly relations with their other neighbors such as the Chumash, historical evidence indicates that their relationship with the Tataviam was generally hostile (Blackburn and Bean 1978).

Like other Takic-speaking groups, such as the Serrano, Kitanemuk society had a patrilineal organization. Families grouped together into villages, which were headed by a team of "administrative elite" composed of a chief, messengers, and shamans. Kitanemuk subsistence was similar to their neighbors the Tataviam. Primary vegetable food sources included acorns, juniper berries, seeds, and yucca buds. Small game such as antelope and deer supplemented these foods.

TATAVIAM

Tataviam territory was concentrated along the upper reaches of the Santa Clara River drainage, east Piru Creek, and along the southern slopes of Sawmill and Liebre Mountains; however, their territory extended north into the southern end of the Antelope Valley (King and Blackburn 1978). Tataviam villages varied in size from larger centers with as many as 200 people, to smaller villages with only a few families. At the time of Spanish contact, the Tataviam population is estimated to have been less than 1,000. Primary vegetable food sources included acorns, juniper berries, seeds, and yucca buds. Small game such as antelope and deer supplemented these foods.

As with the Kitanemuk, there are few historical sources regarding the Tataviam. The word "Tataviam" most likely came from a Kitanemuk word that may be roughly translated as "people of the south-facing slope," due to their settlement on south-facing mountain slopes (King and Blackburn 1978). What the Tataviam called themselves is not known.

Several Tataviam villages may have been located near the proposed project area, including Kwarun (or Quariniga) at Elizabeth Lake (King and Blackburn 1978).

SERRANO

The Serrano occupied territories that ranged from low or moderately low desert to the mountain regions of the Transverse and Peninsular ranges. Serrano territory was bordered to the west roughly by the Cajon Pass in the San Bernardino Mountains, to the east by Twenty-Nine Palms and to the south by Yucaipa Valley. Their territory extended north of the San Bernardino Mountains into the desert near Victorville, along the Mojave River. According to Kroeber (1925) Serrano territory may have extended at least 20 miles to the west of Mount San Antonio.

The Serrano were organized into clans, with the clan being the largest autonomous political entity. They lived in small villages where extended families lived in circular, dome-shaped structures made of willow frames covered with tule thatching. Each clan had one or more principal villages in addition to numerous smaller villages associated with the principal village (Price et al. 2008).

Villages located at higher elevations were placed near canyons that received substantial precipitation or were adjacent to streams and springs. Villages situated at lower elevations were also located close to springs or in proximity to the termini of alluvial fans where the high water table provided abundant mesquite, and shallow wells could be dug.

The Serrano subsistence strategy relied upon hunting and gathering, and occasionally fishing. Villages divided into smaller, mobile gathering groups during certain seasons to gather seasonally available foods. The division of labor was split between women gathering and men hunting and fishing (Bean and Smith 1978; Warren 1984). Mountain sheep, deer, rabbits, acorns, grass seeds, piñon nuts, bulbs, yucca roots, cacti fruit, berries, and mesquite were some of the more common resources utilized (Bean and Smith 1978; Warren 1984).

Despite early European and Spanish contact in 1771, the Serrano remained relatively autonomous until the period between 1819 and 1834 when most of the western Serrano were removed and placed into missions (Bean and Smith 1978; Warren 1984).

CHEMEHUEVI

The Chemehuevi, a branch of the Southern Paiute, had a territory that stretched from the Colorado River to the San Bernardino Mountains. The Chemehuevi moved into the eastern Mojave around A.D. 1500 and into the Antelope Valley in the early 19th century (Earle 2005). By the 1840s, many of the native populations of the Antelope Valley had been depleted by missionization or driven out by an increasing number of non-native settlers. In particular, the opening of the Old Spanish Trail along the Mojave River caused the displacement of Vanyme groups, and brought other native groups, such as the Chemehuevi, into their former territory (Earle 2005). Early American settlers in the Antelope Valley note the presence of “Paiutes” around Elizabeth Lake, Rosamond Dry Lake, Barrel Springs, and Big Rock Creek in the Valyermo and Littlerock areas, where there were apparently small Chemehuevi settlements (Earle 2005).

Chemehuevi material culture and subsistence was similar to the Serrano and Cahuilla. One major difference was the use of baskets instead of pottery (Bean and Vane 2002). As the Chemehuevi population movement into the Antelope Valley, cattle raiding became the predominant mode of subsistence (Earle 2005). The Chemehuevi were divided into two moieties represented by two songs, the Mountain Sheep Song and the Deer Song, which were each associated with different hunting areas. They generally lived in bands of two or three families, with each band having its own leader (Bean and Vane 2002).

3.4.1.6 Cultural and Tribal Cultural Resources Setting

Preparation of the program-level study involved a desktop review of historic, aerial, and geologic maps as well as readily available literature and in-house records for previously recorded historic and archaeological resources within and immediately surrounding the PWD service area. Preparation of the study also involved a review of the National Register of Historic Places and its annual updates, and a California Native American Heritage Commission Sacred Land Files search of the Project area. Additionally, this information was synthesized into an archaeological sensitivity assessment for the Project area, which appears below.

HISTORIC MAP AND AERIAL IMAGERY REVIEW

Historic map and aerial imagery were examined to identify historic resources within the program area. Available United States Geological Survey topographic quadrangle maps available for review include the 1915 and 1917 Elizabeth Lake 30-minute quadrangles; the 1932, 1937, 1958, and 1974 Palmdale 7.5-minute quadrangles; and the 1958 Ritter Ridge 7.5-minute quadrangle. Historic aerial imagery of the Project area from 1948, 1953, 1959, 1965, 1971, 1974, 1987, 1990, 1994, 2005, 2009, 2010, 2012, 2014 2016, 2018, and 2020, as well as general topographic maps from 1930, 1932, 1934, 1937, 1943, 1959, 1960, 1965, 1966, 1975, and 1981 were also reviewed for similar purposes (HistoricAerials.com). These maps and images indicate the Project area was largely rural in in the early 20th century with development and subdivisions occurring in the mid-1950s following the founding of United States Air Force Plane 42 to the northeast of Palmdale. Residential developments began to propagate in northwest Palmdale and near the Air Force Plant in the mid-1960s with many of the City's agricultural fields being developed by the mid-1970s and residential developments emerging with frequency along State Route14 and 138.

Review of the Palmdale 1958 and 1974 USGS quad maps identified multiple structures in immediate proximity to the Pure Water Antelope Valley Project and associated components, including injection wells and brine ponds, whose proposed locations are sited between Avenue Q and 25th Street. Moreover, these structures can also be observed on historic aerial images for this location dating back to 1948 (HistoricAerials.com). The site of the proposed brine ponds component is located approximately 1.75 miles northeast of the proposed Pure Water Antelope Valley Project area. The area shows up as undeveloped land on the 1958 USGS quad map, while the 1974 quad identifies approximately one-quarter of the area as a reservoir. Aerial Imagery for this location from 1959 depicts the reservoir while its fully developed current condition first appears on the 1987 aerial. No historic resources can be seen on historic maps or aerial imagery of the proposed roadway and rural land alignments anticipated to site water conveyance

pipelines between the treatment facility and injection wells or between the treatment facility and brine ponds Program components.

The Existing Well Rehabilitation and/or Replacement Program component is dispersed throughout the PWD service area. Ten of the twenty-two existing wells are located in the northern well zone, another ten being located in the central to eastern section of the PWD service area, and the remaining two wells are positioned at the southern end of the PWD service area approximately 225 feet north of the intersection of 47th Street East and Barrel Springs Road. Review of USGS quad maps and historic aerial imagery show that all three existing well areas were largely undeveloped, with the northern well zone experiencing subdivision development first and most visibly in the mid-1960s with development in remaining two sections proliferating much later in the mid-1980s.

The Palmdale Cemetery is located within the PWD service area at the northeast corner of the intersection of Avenue S and 20th Street. The cemetery appears on the general 1930 – 1975 topographic maps for the area and can also be found on the Palmdale 1958 and 1974 USGS quad maps and it ceased operations in 1979. No proposed Project components, including the existing wells distributed throughout the service area, are situated in proximity to its grounds.

GEOLOGIC MAP REVIEW

The geology of the Project area is highly varied and presented on the maps by Dibblee (1959, 1960) and Dibblee and Ehrenspeck (1997, 2001). While Holocene alluvium (Qa) dominates the Project area (i.e., approximately 45 percent), additional geologic units underlying Project area include Artificial Fill (af), Holocene-Pleistocene Landslide debris (Qls), Pleistocene older alluvium (Qoa), Pleistocene alluvium elevated (Qos), the Anaverde Formation (Tac, Tas, and Tar), the Punchbowl Formation (Tpc, Tps, and Tpcg), the Vasquez Formation (Tva, Tvb, and Tvt), Pelona schist (ps), and Plutonic igneous rocks (hornblade diorite [di], syenite [sy], lowe granodiorite [lgdb], quartz diorite [qd], quartz monzonite [qm], and granite [gr]). Additionally, the San Andreas Fault crosses the central-southern portion of the Project area following a northwest-to-southeast trajectory. Qoa (Pleistocene older alluvium; 10,000 yrs. – 2.5 Mya), Qoa (Pleistocene alluvium elevated; 10,000 yrs. – 2.5 Mya), Qls (Holocene-Pleistocene Landslide debris), and Qa (Holocene alluvium; i.e., up to 10,000 years ago) are, notably, the only geologic map units corollary to human occupation within the Project area and, accordingly, constitute locales which are sensitive for buried archaeological deposits.

Bell 2017 provides a full discussion of all geologic units underlying the Project area. Qa represents the geologic unit underlying the Pure Water Antelope Valley project, and Existing Well Rehabilitation and/or Replacement components of the Project. The Palmdale Ditch, by comparison, is underlain by multiple geologic units (**Figure 3.4-1**).

Figure 3.4-1 Geology

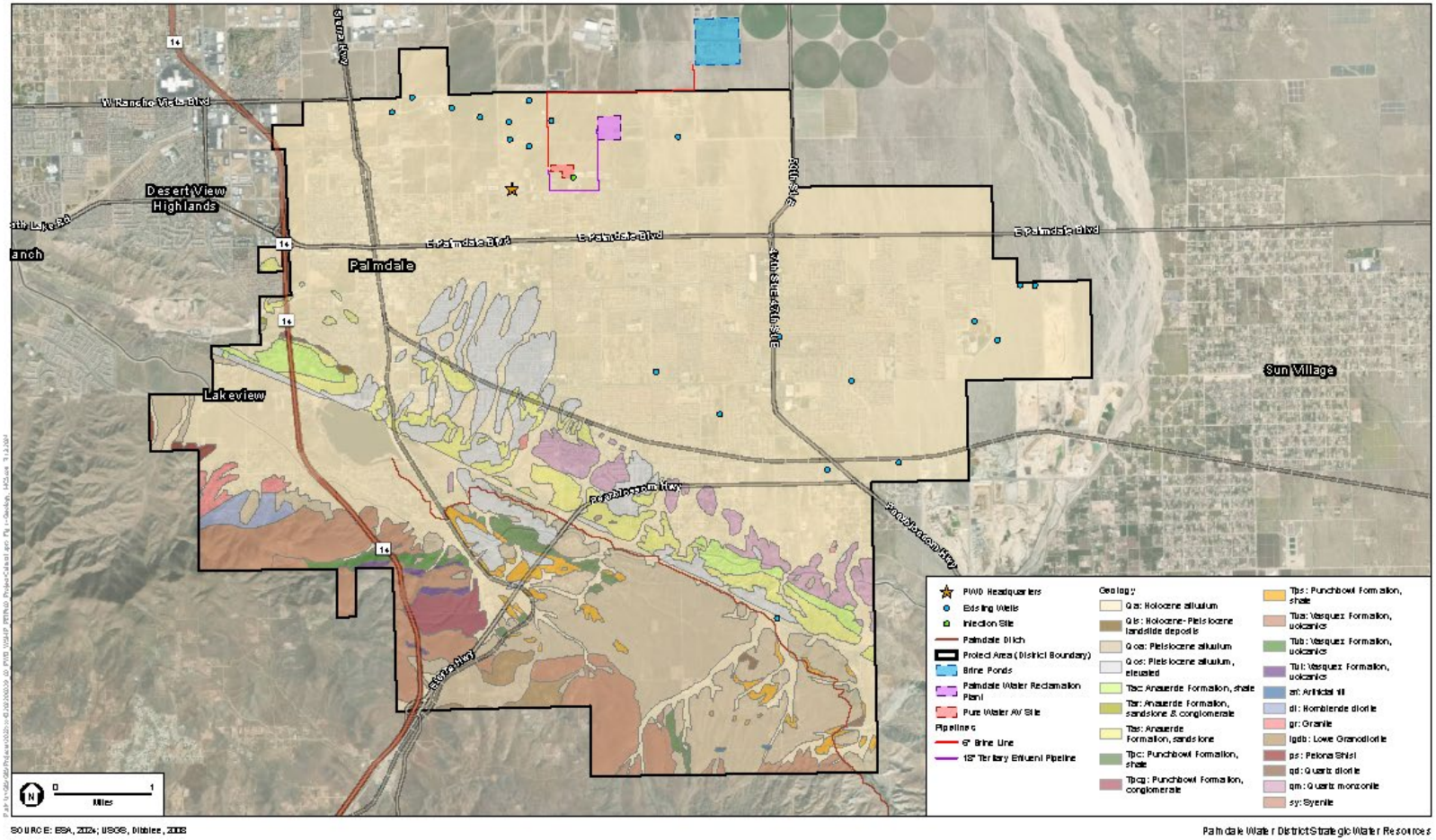

Figure 3.4-1
Geology

ESA

NATIONAL REGISTER OF HISTORIC PLACES

The National Park Service maintains the National Register of Historic Places which is the official list of the Nation's historic properties deemed worthy of preservation. The National Register of Historical Places (NRHP) public online database was accessed on June 19, 2024, and its contents were reviewed to identify historic properties that may be present within the Project area. As a result of this effort, no NRHP-listed historic properties were identified within the Project area.

SACRED LANDS FILES SEARCH

The NAHC maintains a confidential Sacred Lands File (SLF) which contains sites of traditional, cultural, or religious value to the Native American community. The NAHC was contacted on June 18, 2024, to request a search of the SLF for the proposed Project. The NAHC responded to the request in a letter dated July 9, 2024. The letter indicated that the search of the SLF yielded negative results confirming that there is no record of sacred lands within the search area. To see NAHC communications for the proposed Project see **Appendix D-1**.

The NAHC response also provided a list of Native American tribes recommended for consultation for additional information regarding cultural and Tribal cultural resources within the Project area. The list included the recommendation that the following representatives be consulted for additional information they may have regarding the presence of tribal cultural resources within the proposed Project site:

- Sarah Brunzell, CRM Manager, Secretary, Fernandeno Tataviam Band of Mission Indians
- Robert Martin, Chairperson, Morongo Band of Mission Indians
- Ann Brierty, THPO, Morongo Band of Mission Indians
- Jill McCormick, Historic Preservation Officer, Quechan Tribe of the Fort Yuma Reservation
- Jordan Joaquin, President, Quechan Tribal Council, Quechan Tribe of the Fort Yuma Reservation
- Manfred Scott, Acting Chairman - Kw'ts'an Cultural Committee, Quechan Tribe of the Fort Yuma Reservation
- Donna Yocum, Chairperson, San Fernando Band of Mission Indians
- Alexandra McCleary, Senior Manager of Cultural Resources Management, San Manuel Band of Mission Indians
- Mark Cochrane, Co-Chairperson, Serrano Nation of Mission Indians
- Wayne Walker, Co-Chairperson, Chairperson, Serrano Nation of Mission Indians

The NAHC was also contacted separately for individual Project components such as the Pure Water Antelope Valley project and Palmdale Ditch Conversion project. In December 2022, the NAHC was contacted to request an SLF search for the Pure Water Antelope Valley project site and surrounding area. In response to this request, the NAHC was also asked to supply a list of Native American groups and/or individuals culturally affiliated with the area who may have knowledge of tribal cultural resources within the Pure Water Antelope Valley project site and/or vicinity. The NAHC emailed a response on January 13, 2023, stating the SLF search was negative and including a contact list.

On October 3, 2023, the NAHC was contacted to request an SLF search for the Palmdale Ditch Conversion project site and surrounding area. As part of this request, the NAHC was also requested to provide a list of Native American groups and/or individuals culturally affiliated with the area who may have knowledge of tribal cultural resources within the Palmdale Ditch Conversion project site and/or in the vicinity. The NAHC emailed a response on November 27, 2023, stating the SLF search was negative and including a contact list.

NATIVE AMERICAN CONSULTATION

As a part of the AB 52 process for the proposed Project, PWD mailed letters on June 27, 2024, to representatives from each of the six tribes identified by the NAHC inviting them to consult on the proposed Project pursuant to AB 52. In particular, AB 52 letters were sent via electronic mail to the eleven California Native American tribes and individuals recommended by the NAHC as follows:

- Sarah Brunzell, CRM Manager, Secretary, Fernandeno Tataviam Band of Mission Indians (FTBMI)
- Robert Martin, Chairperson, Morongo Band of Mission Indians
- Ann Brierty, THPO, Morongo Band of Mission Indians
- Jill McCormick, Historic Preservation Officer, Quechan Tribe of the Fort Yuma Reservation
- Jordan Joaquin, President, Quechan Tribal Council, Quechan Tribe of the Fort Yuma Reservation
- Manfred Scott, Acting Chairman - Kw'ts'an Cultural Committee, Quechan Tribe of the Fort Yuma Reservation
- Donna Yocum, Chairperson, San Fernando Band of Mission Indians
- Alexandra McCleary, Senior Manager of Cultural Resources Management, Yuhaaviatam of San Manual Nation (formerly San Manuel Band of Mission Indians) (YSMN)
- Jamie Nord, Tribal Archaeologist, Yuhaaviatam of San Manuel Nation (formerly San Manuel Band of Mission Indians) (YSMN)
- Mark Cochrane, Co-Chairperson, Serrano Nation of Mission Indians
- Wayne Walker, Co-Chairperson, Chairperson, Serrano Nation of Mission Indians

PWD received responses from and conducted consultation with the following two tribes:

- **YSMN**: On July 12, 2024, PWD received an email response from Kristen Tuosto, Tribal Archaeologist of Yuhaaviatam of San Manuel Nation, indicating that the Palmdale Water District Strategic Plan Update Project is located within Serrano ancestral territory, is of interest to the Tribe, and YSMN would like to initiate consultation. Ms. Tuosto requested a copy of the Water Resources Plan Update for review. YSMN explained in their response that the YSMN has consulted on at least one SWRP Update project (e.g., the Palmdale Ditch Conversion Project). YSMN also inquired if the SWRP Update consultation will be used as a guide before project-specific AB52 consultations or in lieu of individual consultations. PWD responded on July 23, 2024, explaining that the EIR would form the basis of AB 52 consultation on future SWRP Update facilities that are covered

programmatically in the EIR. PWD also explained that if any projects require project-specific analysis in the future, AB 52 will be undertaken at that time. PWD provided a copy of the SWRP Update to the YSMN. AB 52 consultation between PWD and YSMN is ongoing; however, until consultation with this tribe is completed, for the purposes of CEQA (and excluding the Palmdale Ditch Conversion project), PWD assumes the proposed Project will not impact tribal cultural resources. **FTBMI**: On July 15, 2024, PWD received an email response from Sarah Brunzell, Manager of the Cultural Resources Management Division of the Tribal Historic and Cultural Preservation Department of the Fernandeño Tataviam Band of Mission Indians. In the email, she requested PWD complete the Project Intake Form and provide a revised project map showing the locations of all proposed actions related to the Strategic Water Resources Plan Update. On July 24, 2024, Ms. Brunzell sent a follow-up email confirming that FTBMI received the intake form for the Palmdale Water District Strategic Water Resources Plan Update (Project), and that the initial assessment to categorize the Project would be performed following receipt of the requested project map. On July 25, 2024, Ms. Brunzell confirmed via email that the Project is deemed of low sensitivity; therefore, no consultation pursuant to AB 52 for the content of the EIR is required. Additionally, Ms. Brunzell stated the FTBMI is consulting for specific projects subject to AB 52 within the EIR (i.e., The Palmdale Ditch Conversion project), that the FTBMI will continue to consult for those projects, and requested that the Palmdale Water District notify the FTBMI if any other undertakings within the EIR become subject to AB 52. PWD concluded the consultation with consensus on July 25, 2024.

No other tribes responded to PWD's request for consultation for the proposed Project. However, PWD has initiated consultation for the Pure Water Antelope Valley Project and the Palmdale Ditch Conversion Project separately as described below.

PURE WATER ANTELOPE VALLEY PROJECT CONSULTATION

As part of the Pure Water Antelope Valley project AB 52 process, PWD sent consultation letters via certified mail on March 1, 2023, to the following six Native American tribes that are traditionally and culturally affiliated within the Pure Water Antelope Valley Project site:

- Fernandeño Tataviam Band of Mission Indians (FTBMI)
- Morongo Band of Mission Indians
- Quechan Tribe of the Fort Yuma Reservation
- San Fernando Band of Mission Indians
- Yuhaaviatam of San Manuel Nation (formerly known as the San Manuel Band of Mission Indians) (YSMN)
- Serrano Nation of Mission Indians

PWD received responses from and conducted consultation with the following three tribes:

- **Morongo Band of Mission of Indians**: On March 28, 2023, PWD received a response via email from Bernadette Ann Brierty, Tribal Historic Preservation Officer for the Morongo

Band of Mission Indians. In the email, she notified PWD that the Pure Water Antelope Valley Project is not located within the ancestral territory and traditional use area of the Cahuilla and Serrano people of the Morongo Band of Mission Indians.

- **Quechan Tribe of the Fort Yuma Reservation**: On March 9, 2023, PWD received a response via email from H. Jill McCormik, Historic Preservation Officer for the Quechan Tribe of the Fort Yuma Reservation. In the email, she notified PWD that the Quechan Tribe of the Fort Yuma Reservation do not wish to comment on the Pure Water Antelope Valley Project. She deferred to more local tribes and would support the local tribes' determinations on this matter.
- **YSMN**: On March 22, 2023, PWD received a response via email from Ryan Nordess, Cultural Resource Analyst for the Yuhaaviatam of San Manual Nation. In the email, he notified PWD that the Yuhaaviatam of San Manual National does not have any concerns with the Pure Water Antelope Valley project's implementation, as planned, at this time. He requested cultural and tribal mitigation measures to be included in the CEQA document and requested the project's permitting and plan conditions be provided when available.

PALMDALE DITCH CONVERSION PROJECT CONSULTATION

As part of the Palmdale Ditch Conversion project AB 52 consultation process, PWD sent consultation letters via certified mail on December 13, 2023, to the following six Native American tribes that are traditionally and culturally affiliated with the Palmdale Ditch Conversion Project site:

- Fernandeño Tataviam Band of Mission Indians (FTBMI)
- Morongo Band of Mission Indians
- Quechan Tribe of the Fort Yuma Reservation
- San Fernando Band of Mission Indians (SFBMI)
- Serrano Nation of Mission Indians
- Yuhaaviatam of San Manual Nation (YSMN)

PWD received responses from and conducted consultation with the following three tribes:

- **FTBMI:** On December 19, 2023, PWD received a response via email from Sarah Brunzell, Manager of the Cultural Resources Management Division of the Tribal Historic and Cultural Preservation Department of FTBMI; Ms. Brunzell requested PWD complete the Project Intake Form. Ms. Brunzell sent a follow-up email on January 4, 2024, and PWD responded that same day via email indicating they would fill out the Project Intake Form. Ms. Brunzell sent follow-up emails on January 22 and February 2, 2024, to check in on project status. PWD responded via email on February 2, 2024, indicating they were waiting to receive the results of the biological and cultural surveys before submitting the Project Intake Form. On February 14, 2024, PWD submitted the Project Intake Form and followed up with FTBMI via email. That same day, Ms. Brunzell responded via email confirming receipt of the Project Intake Form. On February 15, 2024, PWD followed up via email to provide additional information on the parcels included in the Area of Potential Effects as well as a list of native plants and the location of Tucker's oaks

observed during the biological resources reconnaissance surveys. Ms. Brunzell confirmed receipt of the additional materials via email that same day.
On February 21, 2024, Ms. Brunzell requested additional project information via email regarding the proposed pipeline alignment and proposed activities near Lake Palmdale. On February 21, 2024, PWD responded with the requested information, then sent a follow-up email the same day to provide further clarification. That same day, PWD also notified Ms. Brunzell that an Extended Phase I / Phase II archaeological resources investigation (XPI/Phase II) would be conducted for the project and inquired as to the FTBMI's interest in providing Native American monitoring for the work. On February 22, 2024, Ms. Brunzell responded indicating FTBMI had categorized the project as "medium sensitivity" and requesting PWD complete the Project Consultation Form. That same day, Ms. Brunzell emailed PWD with a proposal for conducting monitoring. On March 11, 2024, Ms. Brunzell sent a follow-up email to PWD to check on the status of the Project Consultation Form. On March 20, 2024, PWD submitted the Project Consultation Form, and that same day, Ms. Brunzell responded via email requesting consultation and indicating interest in scheduling a virtual consultation meeting.

On March 26, 2024, Scott Rogers of PWD held a virtual consultation meeting with Ms. Brunzell. During the meeting, Ms. Brunzell noted several areas of sensitivity for tribal cultural resources within and near the APE and indicated she would provide recommended language for mitigation measures for monitoring and unanticipated discoveries of tribal cultural resources and human remains in a follow-up email. On March 27, 2024, Ms. Brunzell provided recommended mitigation measures regarding the distribution of archaeological documents pertaining to the project, Native American monitoring, and the disposition and treatment of inadvertent discoveries of tribal cultural resources and human remains. Ms. Brunzell requested a final copy of the project measures be provided to FTBMI for review prior to concluding consultation. On April 25, 2024, the XPI/Phase II work plan was provided via email to Ms. Brunzell along with an inquiry as to whether the Tribe would be amenable to a rotating monitoring schedule with YSMN. Ms. Brunzell responded via email that same day, indicating receipt and noting the FTBMI was amenable to a rotating monitor schedule. Sisco Valenzuela of the FTBMI provided Native American monitoring of the XPI; however, the Phase II was determined to be unnecessary given the negative findings of the XPI.

- On July 10, 2024, the draft Phase I cultural report, including the XPI/Phase II report, was emailed to Ms. Brunzell for review. Ms. Brunzell responded on July 17, 2024, requesting clarification on how the FTBMI's requested mitigation measures would be incorporated into the measures required for the project. Rincon provided clarification to Ms. Brunzell via email that same day, indicating that FTBMI's recommendations for tribal cultural resources would be incorporated into the CEQA document rather than the Phase I cultural report. Ms. Brunzell responded via email on July 22, 2024, indicating FTBMI did not have feedback on the Phase 1 cultural report. PWD emailed draft mitigation measures for tribal cultural resources to Ms. Brunzell for review on August 30, 2024, and

requested feedback be provided by September 11, 2024. Ms. Brunzell responded via email confirming receipt. Additional feedback on the draft mitigation measures was provided by Ms. Brunzell via email on September 10, 2024. PWD provided revised mitigation measure language to Ms. Brunzell for review via email on September 18, 2024. Additional feedback on the draft mitigation measures was provided by Ms. Brunzell via email on September 20, 2024. PWD responded via email on September 23, 2024, with a suggested revision that incorporated Ms. Brunzell's feedback. That same day, Ms. Brunzell responded via email accepting the revision. PWD concluded consultation with the FTBMI on September 23, 2024.

- **SFBMI:** On March 26, 2024, PWD received an email response with an attached letter from Donna Yocum, Chairwoman of SFBMI, requesting consultation on the Palmdale Ditch Conversion project. That same day, PWD responded and requested SFBMI's availability for a consultation meeting. On April 8 and April 22, 2024, follow-up emails were sent to Ms. Yocum, requesting availability for a consultation meeting. On April 23, 2024, Ms. Yocum responded indicating her availability. Scott Rogers of PWD held a virtual consultation meeting with Ms. Yocum and Steven Villa of SFBMI on April 30, 2024. The SFBMI representatives requested information on the timing of the AB 52 notification process, indicated they would like to be included in Native American monitoring for the Phase II Excavation, and noted there are tribal cultural resources near the Palmdale Ditch Conversion Project site, in the vicinity of the proposed testing locations for the XPI/Phase II. The SFBMI representatives stated that avoidance of known resources was preferable when feasible and that they would like to review the findings of the XPI/Phase II before providing further mitigation recommendations. Phase II was determined not to be necessary given the negative findings of the XPI; therefore, PWD did not request SFBMI to provide monitoring of Phase II. On July 15, 2024, the draft Phase I cultural report, including the XPI/Phase II report, was emailed to Ms. Yocum for review. Ms. Yocum and Mr. Villa requested clarification on certain items included in the Phase 1 cultural report during a call with Rincon on August 2, 2024, but did not otherwise provide feedback on the report. PWD emailed draft mitigation measures for tribal cultural resources to Ms. Yocum and Mr. Villa for review on August 30, 2024, and requested feedback be provided by September 11, 2024. Ms. Yocum concurred with the draft mitigation measures via email on September 11, 2024, and PWD concluded consultation with the SFBMI on September 12, 2024.

- **YSMN:** On January 2, 2024, PWD received an email response from Kristen Tuosto, Tribal Archaeologist of YSMN, indicating that the Palmdale Ditch Conversion Project site is near highly culturally sensitive areas/known sites and that there is a high probability for inadvertent subsurface discoveries of cultural resources and ancestor remains during construction. Ms. Tuosto also requested review of the cultural report, geotechnical report, and project plans showing the depth of disturbance. Ms. Tuosto indicated a

preference for inadvertent discoveries of ancestor remains and cultural materials to be buried at or as close to their original find location, or at a location within or near the original find location when not feasible to rebury in the original location. PWD responded via email on February 14, 2024, indicating the cultural surveys/report and project design process were in progress and that the requested materials would be provided when available. On March 19, 2024, Ms. Tuosto requested a meeting with PWD to discuss the project and potential pipeline alignment alternatives. Scott Rogers of PWD held a virtual consultation meeting with Ms. Tuosto and Jerry Howard, Cultural Resources Manager of YSMN, on March 26, 2024. During the meeting, the YSMN representatives requested information on whether any alternative pipeline alignments were under consideration and indicated there are culturally significant locations along the proposed Ditch alignment. The YSMN representatives noted that the proposed testing locations for the XPI/Phase II, which were shared during the meeting, aligned with their high-concern areas and indicated they would likely recommend archaeological and Native American monitoring for the areas of high cultural sensitivity. The YSMN representatives requested to review the XPI/Phase II work plan and to be present when excavation for the XPI/Phase II occurred. PWD indicated that the draft Phase I cultural report and XPI/Phase II work plan would be provided to YSMN when available and that PWD would coordinate with YSMN on the dates of the XPI/Phase II so their Tribal representatives could be present. The XPI/Phase II work plan was emailed to Ms. Tuosto for review on April 19, 2024. Ms. Tuosto provided comments on the XPI/Phase II work plan on May 1, 2024, and the Tribe's recommendations were taken into consideration prior to finalizing the work plan. On April 25, 2024, Ms. Tuosto agreed via phone call to a rotating monitor schedule with the FTBMI for the XPI/Phase II. Cora Sweetwater of YSMN provided Native American monitoring of the XPI; however, the Phase II was determined not be necessary given the negative findings of the XPI. On July 10, 2024, the draft Phase I cultural report, including the XPI/Phase II report, was emailed to Ms. Tuosto for review. Ms. Tuosto provided feedback on July 26, 2024, and the Tribe's recommendations were taken into consideration prior to finalizing the Phase 1 cultural report. Additional feedback on the draft mitigation measures was provided by Ms. Tuosto via email on September 10, 2024. PWD provided revised mitigation measure language to Ms. Tuosto for review via email on September 18, 2024. On September 23, 2024, Ms. Tuosto responded via email and indicated YSMN agreed to the revised mitigation measure language. That same day, PWD concluded consultation with the YSMN.

Archaeological Sensitivity Assessment

Archaeological sensitivity of each proposed Project component Project area was based on a variety of factors in the bulleted list below as originally presented in Ehringer et al. 2018 and Ehringer 2018. Taking into account these factors, along with desktop review results for the aforementioned data sources, each proposed Project component was assigned a high, moderate, or low level of subsurface archaeological sensitivity. Proposed Project component areas assessed as having high sensitivity include the Palmdale Ditch (P-19001534; CA-LAN-1534H) and the Pure Water Antelope Valley Project brine ponds. Project component areas

assessed as having moderate sensitivity include the Pure Water Antelope Valley Project treatment facility, injection wells, and their associated water conveyance pipelines; and existing wells 2A, 3A, 6A, 7A, 8A, 10, 11A, 14A, 15, 16, 21, 22, 23A, 25, 26, 29, 30, 32, 33, and 35. Project component Project areas assessed as having low sensitivity include existing wells 18 and 19.

- Number of known prehistoric archaeological resources within a 0.5-mile radius – Project areas where a large number of prehistoric resources have been documented within a 0.5-mile radius are considered more sensitive. Project areas where very few prehistoric resources have been documented within a 0.5-mile radius are considered less sensitive (assuming surveys have been conducted in the vicinity).
- Age/type of landform – Holocene-aged alluvium (<10,000 years ago) is generally more likely to contain subsurface evidence of previous human occupation. Pleistocene alluvium (10,000 years ago to 2.5 Mya) may contain subsurface evidence of human occupation dating the Late Pleistocene peopling of North American, but these deposits are sparser. Other landforms that pre-date human occupation of North America may contain surface evidence of human occupation (e.g., mortars/slicks on bedrock outcroppings, rock art), but are less likely to contain subsurface deposits. Based on the results of the paleontological resources assessment (provided below), archaeological sensitivity within Holocene-aged alluvium decreases at depths of 3 feet (the depth at which paleontological discoveries have been recovered from similar sediments in the Project vicinity), and while archaeological and paleontological resources can both be recovered from sediments dating to the Late Pleistocene and Middle Holocene, archaeological resources are less commonly associated with these sediments given the that human habitation of California was sparser during these time periods.
- Previous land uses – areas that have never been developed are considered more sensitive for prehistoric archaeological resources. In addition, previous land uses may be indicative of the likelihood for historic-period archaeological resources.
- Proximity of water sources and degree of slope – Meyer et al. (2010:141-151) have previously demonstrated elsewhere in California that the presence of buried archaeological sites is positively correlated with proximity to water as well as gently sloped landforms.
- Degree of surface visibility during survey – visible evidence of archaeological resources would be present in areas where surface deposits are more likely based on age/type of landform.
- Level of previous ground disturbance – areas that have been subject to higher levels of previously ground disturbance are considered less sensitive for archaeological resources, unless depth of proposed ground disturbance would exceed the depth of previous disturbance.
- Level of proposed ground disturbance – typically projects that require little or shallow ground disturbance are considered less likely to encounter subsurface resources, particularly in areas where there was good ground surface visibility during the survey.
- Input received from tribes consulting on the Project.

PALMDALE DITCH CONVERSION PROJECT CULTURAL AND TRIBAL CULTURAL INVESTIGATIONS

A cultural resources investigation for the Palmdale Ditch Conversion project was conducted (Maldonado et al. 2024; **Appendix D-2**). The study entailed a records search of the Palmdale Ditch Conversion project 's Area of Potential Effect (APE) at the South-Central Coastal Information Center on the campus of California State University Fullerton; an Angeles National Forest Heritage Records Search, a Native American Heritage Commission SLF search; historic and geologic map review; aerial imagery map review; and a pedestrian survey of the APE.

The records search phase of the study identified two previously recorded NRHP and the California Register of Historical Resources (CRHR) recommended-eligible built environment resources (the Palmdale Ditch [CA-LAN-1534H] and the California Aqueduct [CA-LAN-4154H]); two unevaluated prehistoric sites (CA-LAN-82 and CA-LAN-1851), and one unevaluated multicomponent site (CA-LAN-1616/H) as being present within the Palmdale Ditch Conversion project APE (Maldonado et al. 2024).

Next, although the SLFS was negative, informal outreach efforts to tribes identified in the results letter from the NAHC indicated the APE should be considered sensitive for buried archaeological resources. Historic and Geologic map review confirmed the APE was situated in proximity to Barrell Springs and Little Rock Creek and underlain by Holocene alluvium which is known to be conducive to the preservation of buried archaeological deposits.

Finally, as a result of fieldwork conducted for this study, eleven historical-period archaeological sites (PWD-001, PWD-002, PWD-005, PWD-008, PWD-027, PWD-028, PWD-029, PWD-041, PWD-042, PWD-048, and PWD-051), one prehistoric isolate (PWD-022), and two historical-period isolates (PWD-009 and PWD-049) were discovered and recorded within the APE with each of the eleven historical-period sites being recommended not eligible for listing in both the NRHP and CRHR (Maldonado et al. 2024).

After it was determined that the construction phase of the Palmdale Ditch Conversion project had the potential to significantly impact sites CA-LAN-82, CA-1616/H, and CA-LAN-1851, for the purposes of the Palmdale Ditch Conversion project each site was first assumed eligible for listing in the NRHP an CRHR and subsequently subjected to an Extended Phase I (XP1) cultural resource investigation (Maldonado et al. 2024: Appendix G). The purpose of the XP1 was to (a) identify any intact subsurface deposit associated with each site present within the Palmdale Ditch Conversion project APE and, if found, (b) evaluate these deposits to see if they contribute to the overall NRHP and CRHR eligibility for each respective site (Maldonado et al. 2024: Appendix G). The investigation limited its focus to the portions of each site within the Palmdale Ditch Conversion project APE and involved the excavation of 50 shovel test pits, with six at CA-LAN-82, twenty at CA-LAN-1616/H, and twenty-four at CA-LAN-1851. The XP1 investigation failed to locate a subsurface deposit at each site, and the only subsurface discovery was a single quartz flake at CA-LAN-1616/H in a highly disturbed context 20-40 centimeters below ground surface. Nevertheless, the NRHP and CRHR assumed-eligible recommendations for CA-LAN-82, CA-1616/H, and CA-LAN-1851 remained in place as a result of this study, and their areas

examined in the XP1 investigation were all noted as being non-contributing elements to each site.

3.4.2 REGULATORY FRAMEWORK

This section describes local and state policies and regulations that apply to the proposed Project.

3.4.2.1 State Policies and Regulations

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at *Public Resources Code (PRC) Section 21000 et seq.* CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or unique archaeological resources. Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.

The *CEQA Guidelines* (Title 14 California Code of Regulations [CCR] Section 15064.5) recognize that historical resources include: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (California Register); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the *CEQA Guidelines* apply. If an archaeological site does not meet the criteria for a historical resource contained in the *CEQA Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is as a unique archaeological resource. As defined in Section 21083.2 of CEQA a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or,

- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required. The *CEQA Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (*CEQA Guidelines* Section 15064.5(c)(4)).

A significant effect under CEQA would occur if a project results in a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* Section 15064.5(a). Substantial adverse change is defined as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired" (*CEQA Guidelines* Section 15064.5(b)(1)). According to *CEQA Guidelines* Section 15064.5(b)(2), the significance of a historical resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics that:

A. Convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
B. Account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
C. Convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a Lead Agency for purposes of CEQA.

In general, a project that complies with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (Standards) is considered to have mitigated its impacts to historical resources to a less-than-significant level (CEQA Guidelines Section 15064.5(b)(3)).

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility for the California Register are based upon National Register criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-period property must be significant at the local, state, and/or federal level under one or more of the following four criteria:

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

A resource eligible for the California Register must meet one of the criteria of significance described above and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally determined eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and,
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

California Health and Safety Code Section 7050.5

California Health and Safety Code Section 7050.5 requires that in the event human remains are discovered, the County Coroner be contacted to determine the nature of the remains. In the event the remains are determined to be Native American in origin, the Coroner is required to contact the California Native American Heritage Commission (NAHC) within 24 hours to relinquish jurisdiction.

California Public Resources Code Section 5097.98

California PRC Section 5097.98, as amended by Assembly Bill 2641, provides procedures in the event human remains of Native American origin are discovered during project implementation.

PRC Section 5097.98 requires that no further disturbances occur in the immediate vicinity of the discovery, that the discovery is adequately protected according to generally accepted cultural and archaeological standards, and that further activities take into account the possibility of multiple burials. PRC Section 5097.98 further requires the NAHC, upon notification by a County Coroner, designate and notify a Most Likely Descendant (MLD) regarding the discovery of Native American human remains. Once the MLD has been granted access to the site by the landowner and inspected the discovery, the MLD then has 48 hours to provide recommendations to the landowner for the treatment of the human remains and any associated grave goods.

In the event that no descendant is identified, or the descendant fails to make a recommendation for disposition, or if the land owner rejects the recommendation of the descendant, the landowner may, with appropriate dignity, reinter the remains and burial items on the property in a location that will not be subject to further disturbance.

California Government Code Sections 6254(r) and 6254.10

These sections of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency."

Assembly Bill 52 and Related Public Resources Code Sections

Assembly Bill (AB) 52 was approved by California State Governor Edmund Gerry "Jerry" Brown, Jr. on September 25, 2014. The act amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. The primary intent of AB 52 is to include California Native American tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a lead agency, in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural Resources Agency adopted the final text for tribal cultural resources update to Appendix G of the CEQA Guidelines, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an EIR or adopt an MND (PRC Section 21082.3(d)(2) and (3)).

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

California Government Code Sections 6254(r) and 6254.10

Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency."

3.4.2.2 Local Policies and Regulations

LOS ANGELES COUNTY HISTORIC PRESERVATION ORDINANCE

The Los Angeles County Board of Supervisors adopted the County's Historic Preservation Ordinance (HPO) on September 1, 2015 (Los Angeles County Historic Preservation Ordinance, Ord. 2015-0033 § 3, 2015). The HPO establishes criteria for designating landmarks and historic districts and provides protective measures for designated and eligible historic resources. The HPO applies to all privately owned property within the unincorporated territory of the County and all publicly owned landmarks, except properties that were not listed prior to the issuance of a demolition permit or properties affiliated with religious organizations. The HPO defines a landmark as "any property, including any structure, site, place, object, tree, landscape, or natural feature, that is designated as a landmark by the Board of Supervisors." The HPO defines a historic district as, "A contiguous or noncontiguous geographic area containing one or more contributing properties which has been designated as an historic district by the Board of Supervisors." Landmarks and historic districts may be designated if it is fifty years of age and meets one of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of the history of the nation, State, County, or community in which it is located;
2. It is associated with the lives of persons who are significant in the history of the nation, State, County, or community in which it is located;
3. It embodies the distinctive characteristics of a type, architectural style, period, or method of construction, or represents the work of an architect, designer, engineer, or builder whose work is of significance to the nation, State, County, or community in which it is located; or possesses artistic values of significance to the nation, State, County, or community in which it is located;
4. It has yielded, or may be likely to yield, significant and important information regarding the prehistory or history of the nation, State, County, or community in which it is located;
5. It is listed, or has been formally determined eligible by the United States National Park Service for listing, in the National Register of Historic Places, or is listed, or has been formally determined eligible by the State Historical Resources Commission for listing, on the California Register of Historical Resources;
6. If it is a tree, it is one of the largest or oldest trees of the species located in the County; or
7. If it is a tree, landscape, or other natural land feature, it has historical significance due to an association with an historic event, person, site, street, or structure, or because it is a defining or significant outstanding feature of a neighborhood.

COUNTY OF LOS ANGELES GENERAL PLAN

The Conservation and Natural Resources Element (the Element) of the County's General Plan indicates that "Historic, cultural, and paleontological resources are an important part of Los Angeles County's identity." The Element provides the following goal and policies for the treatment of historic resources:

Goal C/NR 14: Protected historic, cultural, and paleontological resources.

Policy C/NR 14.1: Mitigate all impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible.

Policy C/NR 14.2: Support an inter-jurisdictional collaborative system that protects and enhances historic, cultural, and paleontological resources.
Policy C/NR 14.3: Support the preservation and rehabilitation of historic buildings.
Policy C/NR 14.5: Promote public awareness of historic, cultural, and paleontological resources.
Policy C/NR 14.6: Ensure proper notification and recovery processes are carried out for development on or near historic, cultural, and paleontological resources.

CITY OF PALMDALE 2045 GENERAL PLAN UPDATE

The City of Palmdale recently updated its General Plan (City of Palmdale 2022; effective October 22, 2022; amended March 15, 2023). The 2045 General Plan update includes goals and policies for its Conservation Element addressing historic and cultural resources:

GOAL CON-8: Protect historical and culturally significant resources, which contribute to the community's sense of history.

CON-8.1: **Historic landmark identification**. Identify and recognize historic landmarks from Palmdale's past.
CON-8.2: Cultural and historic buildings. Identify and preserve unique cultural and historic buildings and features in order to enhance community character.
CON-8.3: Identified landmarks. Maintain, rehabilitate, and appropriately reuse identified landmarks where feasible.
CON-8.4: Preservation in new development. Require that new development preserve significant historic, paleontological, or archaeological resources.
CON-8.5 Tribal consultation. Conduct Native American consultation consistent with the applicable regulations when new development is proposed in potentially culturally sensitive areas.
CON-8.6 Discovery coordination with Tribal groups. When human remains suspected to be of Native American origin are discovered, coordinate with the Native American Heritage Commission and any local Native American groups to determine the most appropriate course of action.
CON-8.7 Cooperation with preservation entities. Cooperate with private and public entities whose goals are to protect and preserve historic landmarks and important cultural resources.
CON-8.8 Recognition of local historic resources. Promote respect and recognition of unique historical resources within the community by identifying significant cultural resources with landmark designation plaques, directional signage, self-guided tours, school curriculum, programs, and events.
CON-8.9 Maintain cultural assets. Discourage historic landmark properties from being altered in such a manner as to significantly reduce their cultural value to the community.

3.4.3 IMPACT ANALYSIS

3.4.3.1 Methodology for Analysis

This section focuses on the nature and magnitude of the change to cultural and Tribal cultural resources due to implementation of the proposed Project. Known cultural and Tribal Cultural Resources associated with the proposed Project were reviewed and assessed to support the impact determination of the proposed Project. Impacts are identified and evaluated based on relevant CEQA Guidelines, professional standards, Tribal consultations, and federal, state, and local standards, policies, and guidelines. These resources were used to help to identify potential impacts the proposed Project may have on cultural and Tribal cultural resources.

Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines,* as updated in December 2018, an impact on recreation would be considered significant if the Project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5;
- Disturb any human remains, including those interred outside of formal cemeteries;
- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
  - Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
  - A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

3.4.3.2 Criteria Requiring No Further Evaluation

All criteria require evaluation.

3.4.3.3 Impacts and Mitigation Measures

Impact CUL-1 Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.

IMPACT CUL-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Review of Geologic maps confirmed each Pure Water Antelope Valley project component is underlain by Qa Holocene alluvium, which is sensitive for buried archaeological deposits. Historic map and aerial image review revealed the north well field in which Pure Water Antelope Valley project is in proximity to historic architectural resources dating back to the mid-20th century, when the development and subdivision of the City of Palmdale for residential purposes gained momentum. Additionally, based on previous records search data conducted for the Water Supply Master Plan Program EIR in 2018 (Ehringer et al. 2018), several previously recorded resources are located within a half-mile radius of the Pure Water Antelope Valley project components (**Table 3.4-1**).

Table 3.4-1: Previously Recorded Resources in Proximity (<0.50 miles) to Proposed Project Components

Program Project	Primary Number	Description
Pure Water Advanced Water Purification Facility	P-19-190803 P-19-190804 P-19-002194 P-19-004283	Built Environment Built Environment Historical-Period Refuse Scatter Historical-Period Refuse Scatter
Injection Wells	P-19-190803 P-19-190804 P-19-002194 P-19-004283	Built Environment Built Environment Historical-Period Refuse Scatter Historical-Period Refuse Scatter
Pipelines to Advanced Water Purification Facility and Injection Wells	P-19-190803 P-19-190804 P-19-002194 P-19-004283 P-19-004365	Built Environment Built Environment Historical-Period Refuse Scatter Historical-Period Refuse Scatter Historical-Period Refuse Scatter
Brine Ponds	-	-
Pipelines to Brine Ponds	P-19-002194 P-19-004283	Historical-Period Refuse Scatter Historical-Period Refuse Scatter
2A (Existing Well)	P-19-190803 P-19-190804 P-19-002194 P-19-004283 P-19-001367	Built Environment Built Environment Historical-Period Refuse Scatter Historical-Period Refuse Scatter Historical-Period Refuses Scatter
3A (Existing Well)	P-19-190803 P-19-190804 P-19-002194 P-19-004283 P-19-001367	Built Environment Built Environment Historical-Period Refuse Scatter Historical-Period Refuse Scatter Historical-Period Refuses Scatter
6A (Existing Well)	P-19-003703 P-19-003705 P-19-190818 P-19-003258	Historical-Period Refuse Scatter Historical-Period Refuse Scatter Built Environment Historical-Period Refuse Scatter

Program Project	Primary Number	Description
	P-19-190817	Built Environment
	P-19-101034	Prehistoric Isolate: Projectile Point (Obsidian)
	P-19-190802	Built Environment
	P-19-187071	Built Environment
	P-19-190800	Built Environment
	P-19-004364	Historical-Period Concrete Pads
7A (Existing Well)	P-19-190803	Built Environment
	P-19-190804	Built Environment
	P-19-002194	Historical-Period Refuse Scatter
	P-19-004283	Historical-Period Refuse Scatter
8A (Existing Well)	P-19-190803	Built Environment
	P-19-190804	Built Environment
	P-19-002194	Historical-Period Refuse Scatter
	P-19-004365	Historical-Period Refuse Scatter
10 (Existing Well)	P-19-003941	Historical-Period Refuse Scatter w/Foundations
11A (Existing Well)	P-19-190803	Built Environment
	P-19-190804	Built Environment
	P-19-002194	Historical-Period Refuse Scatter
	P-19-004283	Historical-Period Refuse Scatter
	P-19-001367	Historical-Period Refuse Scatter
	P-19-001623	Historical-Period Refuse Scatter
	P-19-187071	Built Environment
	P-19-190800	Built Environment
	P-19-004364	Historical-Period Concrete Pads
	P-19-003703	Historical-Period Refuse Scatter
	P-19-003705	Historical-Period Refuse Scatter
	P-19-190817	Built Environment
	P-19-190818	Built Environment
	P-19-190802	Built Environment
	P-19-004365	Historical-Period Refuse Scatter
	P-19-190803	Built Environment
	P-19-190804	Built Environment
14A (Existing Well)	P-19-190803	Built Environment
	P-19-190804	Built Environment
	P-19-002194	Historical-Period Refuse Scatter
	P-19-004283	Historical-Period Refuse Scatter
	P-19-001367	Historical-Period Refuse Scatter
	P-19-001623	Historical-Period Refuse Scatter
	P-19-187071	Built Environment
	P-19-190800	Built Environment
	P-19-004364	Historical-Period Concrete Pads
15 (Existing Well)	P-19-003703	Historical-Period Refuse Scatter
	P-19-003705	Historical-Period Refuse Scatter
	P-19-190818	Built Environment
	P-19-003258	Historical-Period Refuse Scatter
	P-19-190817	Built Environment
	P-19-101034	Prehistoric Isolate: Projectile Point (Obsidian)
	P-19-190802	Built Environment
	P-19-187071	Built Environment
	P-19-190800	Built Environment
	P-19-001623	Historical-Period Refuse Scatter
16 (Existing Well)	P-19-003384	Historical-Period Refuse Scatter
	P-19-003785	Historical-Period Residential Complex
	P-19-003786	Historical-Period Residential Complex
	P-19-004160	Historical-Period Residential Complex
	P-19-004161	Historical-Period Foundations
	P-19-100954	Prehistoric Isolate: Ceramic Sherd
18 (Existing Well)	P-19-001534	Palmdale Ditch
	P-19-004154	California Aqueduct
19 (Existing Well)	P-19-001534	Palmdale Ditch
	P-19-004145	California Aqueduct
21 (Existing Well)	P-19-001717	Historical-Period Refuse Scatter
	P-19-001687	Historical-Period Refuse Scatter w/well and foundation
	P-19-100004	Prehistoric Isolate: Flake (Jasper)
	P-19-100005	Prehistoric Isolate: Flake (Quartz)
	P-19-120020	Built Environment
	Railway	

Program Project	Primary Number	Description
22 (Existing Well)	P-19-001600	Historical-Period Refuse Scatter and Road Alignment
23A (Existing Well)	P-19-190803	Built Environment
	P-19-190804	Built Environment
	P-19-002194	Historical-Period Refuse Scatter
	P-19-004283	Historical-Period Refuse Scatter
	P-19-001367	Historical-Period Refuse Scatter
25 (Existing Well)	-	
26 (Existing Well)	P-19-001553	Historical-Period Residential Complex
29 (Existing Well)	P-19-001588	Historical-Period Residential Complex
	P-19-001609	Historical-Period Residential Complex
30 (Existing Well)	P-19-001588	Historical-Period Residential Complex
	P-19-001609	Historical-Period Residential Complex
	P-19-001610	Historical-Period Residential Complex (Adobe House)
32 (Existing Well)	-	
33 (Existing Well)	P-19-001588	Historical-Period Residential Complex
	P-19-001609	Historical-Period Residential Complex
	P-19-001610	Historical-Period Residential Complex (Adobe House
35 (Existing Well)	P-19-001717	Historical-Period Refuse Scatter
	P-19-001614	Historical-Period Residential Complex
	P-19-100004	Prehistoric Isolate: Flake (Jasper)
	P-19-100005	Prehistoric Isolate: Flake (Quartz)
Palmdale Ditch (CA-LAN-1534H)	P-19-000239	Prehistoric Artifact Scatter
	P-19-004607	Prehistoric Bedrock Milling Complex
	P-19-004608	Historical-Period Refuse Scatter
	P-19-004609	Historical Period Refuse Scatter
	P-19-004610	Historical-Period Refuse Scatter
	P-19-004611	Historical-Period Refuse Scatter
	P-19-004612	Historical-Period Refuse Scatter
	P-19-002371	Historical-Period Refuse Scatter
	P-19-001528	Historical-Period Refuse Scatter
	P-19-003815	Historical Period Refuse Scatter
	P-19-002474	Historical-Period Refuse Scatter
	P-19-001903	Prehistoric Lithic Scatter
	P-19-001904	Prehistoric Lithic Scatter
	P-19-001906	Historical-Period Rock Pile w/Refuse
	P-19-004144	Historical-Period Refuse Scatter
	P-19-100861	Prehistoric Isolate: Flake (Felsite)
	P-19-100869	Historical-Period Isolate (Drilling Rig on Truck)
	P-19-001988	Prehistoric Lithic Scatter
	P-19-001895	Prehistoric Lithic Scatter w/Projectile Points
	P-19-001896	Prehistoric Lithic Scatter
	P-19-001897	Prehistoric Lithic Scatter
	P-19-001899	Prehistoric Lithic Scatter and Rock Ring Alignment
	P-19-001901	Prehistoric Lithic Scatter
	P-19-004154	California Aqueduct (East Branch Aqueduct [EBA])
	P-19-001251	Prehistoric Lithic Scatter
	P-19-001252	Prehistoric Lithic Scatter w/Pendant
	P-19-001253	Prehistoric Lithic Scatter
	P-19-001597	Prehistoric Lithic Scatter
	P-19-002387	Historical-Period Refuse Scatter
	P-19-003559	Prehistoric Lithic Scatter
	P-19-001850	Prehistoric Thermal Feature w/Groundstone Artifacts
	P-19-001851	Prehistoric Lithic Scatter
	P-19-004145	Prehistoric Lithic Scatter
	P-19-004146	Historical-Period Concrete Slab
	P-19-100830	Prehistoric Isolate: Flake (Chert) and Flake (Quartz)
	P-19-000082	Prehistoric Barrell Springs Habitation Site
	P-19-001853	Multicomponent Site: Rock Alignment and Quartz Blade
	P-19-100001	Prehistoric Isolate: Flake (Chert)
	P-19-001573	Prehistoric Lithic Scatter
	P-19-100646	Prehistoric Isolate: Tufa stone and Lithic Bowl Fragment
	P-19-100650	Prehistoric Isolate: Metate Fragment (Schist)
	P-19-100647	Prehistoric Isolate: Unifacial Mano (Granite)
	P-19-100648	Prehistoric Isolate: Metate Fragment (Schist)
	P-19-100649	Prehistoric Isolate: Metate Fragment (Schist)
	P-19-100651	Historical-Period Isolate: Bottle Fragment (Beverage)
	P-19-100652	Historical-Period Isolate: Bottle Fragment (Medicine)

Program Project	Primary Number	Description
	P-19-100003	Prehistoric Isolate: Flake (Quartz)

Taking into account the components of the Pure Water Antelope Valley project are each underlain by Holocene alluvium, the anticipated excavation depths of the proposed Project (even within existing roads), and the proximity of the Project area within the north wellfield to previously recorded resources, this proposed Project component exhibits the potential to encounter historic architectural resources and intact archaeological deposits that may qualify as a historic resource under CEQA. If such resources are encountered, impacts could be significant. With implementation of **Mitigation Measures CUL-1** through **CUL-7**, which would involve which would involve the retention of a Qualified Architectural Historian and Archaeologist; the completion of Historic and Archaeological Resources Assessments; WEAP Training; Archaeological monitoring; Native American monitoring; and procedures for unanticipated discovery of cultural resources, impacts would be reduced to a less than significant level.

Groundwater

Existing Well Rehabilitation and/or Replacement

Geologic map review confirmed the existing well locations are underlain by Qa Holocene alluvium which is sensitive for buried archaeological deposits. Historic map and aerial image review revealed existing wells in the north well field are in proximity to several previously recorded historic architectural resources dating back to the mid-20th century, when the development and subdivision of the City of Palmdale for residential purposes gained momentum. Historic map, aerial imagery and previous records search data review all identified the California Aqueduct (P-19-004154; CA-LAN-4154H) and the Ditch (P-19001534; CA-LAN-1534H) as being in the vicinity of existing wells 18 and 19 in the southern section of the PWD service area along 47th Street East. Additional review of previous records search data revealed existing wells 6A and 15 are both in proximity to previously recorded resource P-19-190818, while 6A alone is proximal to resource P-19-003705 (CA-LAN-3705H; refuse scatter). Furthermore, all existing wells in the north well field are in proximity to several previously recorded resources (**Table 3.4-1**), and until the ages of the existing wells themselves can be confirmed, they too should be recognized for their potential to be considered historic resources.

Taking into account the anticipated excavation depth for the Existing Well Rehabilitation and/or Replacement project, the fact that each of the existing wells in the PWD service area are at locations underlain by Holocene soils, and the proximity of several existing wells in the north well field to previously recorded resources demonstrates this Project component and has potential to encounter historic architectural resources and intact archaeological deposits that may qualify as a historic resource under CEQA. If such resources are encountered, impacts would be significant. With implementation of **Mitigation Measures CUL-1** through **CUL-7**, which would involve the retention of a Qualified Architectural Historian and Archaeologist; the completion of Historic and Archaeological Resources Assessments; WEAP Training; Archaeological monitoring; Native American monitoring; and procedures for unanticipated discovery of cultural resources, impacts to historic resources would be reduced to a less than significant level.

Local Supplies

Palmdale Ditch Conversion Project

A CHRIS South-Central Coastal Information Center records search (Maldonado et al. 2024) identified two NRHP and CRHR recommended eligible built environment resources (CA-LAN-1534H, Palmdale Ditch; and CA-LAN-4154H, California Aqueduct EBA [concrete-lined trapezoidal canal, canal check structures, siphons, overcrossings, and other associated facilities]), two prehistoric sites (CA-LAN-82 and CA-LAN-1851), one multi-component site (CA-LAN-1616/H), and two historical period isolates (P-19- 100651 and P-19-100652) as intersecting the Project's APE (Maldonado et al. 2024). Review of relevant geologic maps shows the Project as being situated in proximity to Barrell Springs and Little Rock Creek and underlain by Holocene alluvium which is known to be conducive to the preservation of buried archaeological deposits. Although the previously recorded prehistoric sites and the multicomponent site possessed NRHP and CRHR status designations of "unevaluated" because these intersected the APE and had the potential to be significantly impacted by construction activity related to the Project, they were each assumed eligible for listing in both registers and, therefore, recognized as being historic properties under National Historic Preservation Act (NHPA) and historical resources under CEQA for the purpose of this Project. Further, the sites were tested via XP1 investigation for the presence of intact subsurface archaeological deposits, however the results were negative and the portions of the three sites tested within the APE were identified as non-contributing elements to each respective site.

Given ground disturbance related to the Palmdale Ditch Conversion project would occur within portions of CA-LAN-82, CA-LAN-1851, and CA-LAN-1616/H already disturbed by the initial construction of the Ditch (CA-LAN-1534H) and the California Aqueduct (CA-LAN-4154H), and the tested portion of each site within the APE was deemed to be "non-contributing" to their NRHP and CRHR eligibility. Similarly, pursuant to Section 106 of the NHPA, the results of the Rincon Phase I and XP1 investigations concluded the Project would not result in an adverse effect to these historic properties. Nevertheless, implementation of the Palmdale Ditch Conversion project could result in a potentially significant impact to unanticipated discoveries. With implementation of **Mitigation Measures CUL-1** and **CUL-4** through **CUL-7**, which would involve the retention of a qualified Archaeologist, Worker Environmental Awareness Program (WEAP) training, archaeological monitoring, Native American monitoring, and procedures for unanticipated discovery of cultural resources, impacts to historic resources would be reduced to a less than significant level.

Because the Project would require the near-total demolition of the Ditch (CA-LAN-1534H), including the demolition of all or nearly all its character-defining features, the Project would materially impair the Ditch as defined by Section 15064.5(b) of the CEQA Guidelines (Maldonado et al. 2024: 95). As a result, impacts to this feature would be significant and unavoidable. To reduce impacts to the greatest extent feasible, **Mitigation Measure CUL-8** would be required, which would involve preparation of a Historic American Engineering Record -like documentation (Maldonado et al. 2024: 95). Pursuant to Section 106 of the NHPA, the Project would result in an adverse effect to the Ditch pursuant to Criteria of Adverse Effect *i, ii,* and *iv* (Maldonado et al.

2024: 100). Even with implementation of all feasible mitigation, impacts would remain significant and unavoidable.

Finally, the Palmdale Ditch Conversion project activities anticipated to affect the EBA (CA-LAN-4145H) include the installation of a new turnout on the north side of the aqueduct; the rehabilitation of the existing pipeline over the California Aqueduct that is part of the existing ditch system either via cured-in-place pipeline or other slip-lining method; and the partial physical destruction of a small segment of the canal's banks, which help to convey the resource's significance (Maldonado et al. 2024: 96) . However, the scale of the proposed work, which would be confined to the vicinity of the existing Ditch's intersection with the CA-LAN-4145H, is anticipated to be of such a limited scale relative to that of the EBA (CA-LAN-4154H) and the wider California Aqueduct, and is consistent with other existing features along the California Aqueduct, that the Project would not result in a substantial adverse change in the resource's significance pursuant to Section 15064.5(b) of the CEQA Guidelines, and it would remain eligible for listing in the CRHR and NRHP" (Maldonado et al. 2024: 96). Furthermore, pursuant to Section 106 of the NHPA, the Project would not result in an adverse effect to CA-LAN-4154H because it would not directly or indirectly alter any of the characteristics of this historic property that qualify the property for inclusion in the NRHP (Maldonado et al. 2024: 101). Therefore, impacts associated with the turnout are less than significant.

Conservation

Conservation measures would not result in ground-disturbing impacts. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would treat wastewater for indirect potable reuse and may involve a minimal increase in PWD staff to operate the site. Maintenance activities of the facilities may include, but are not limited to, periodic removal of accumulated sediment and debris, replacement of non-operational machinery, and inspection and maintenance of all structures. Therefore, there would be no potential for additional impacts associated with the operation of the proposed Project.

Groundwater

Operation of rehabilitated or replacement wells would not involve an increase in staff to operate and would require minimal inspection and maintenance activities. Therefore, there would be no potential for additional impacts associated with the operation of the proposed Project.

Local Supplies

Palmdale Ditch Conversion Project

Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. Maintenance would involve inspection of the pipeline approximately every five years, which would consist of accessing the pipeline at various manhole structures, cleaning the pipeline as needed using a jetter truck and vacuum truck to remove debris, and using inspection equipment to take video footage of the pipeline interior. Vegetation maintenance and trash removal activities along the Ditch would no longer be conducted because the pipeline would be located underground and would not be subject to obstruction by vegetation overgrowth and trash dumping. Therefore, there would be no potential for additional impacts associated with the operation of the proposed Project.

Conservation

Implementation of conservation measures does not require operation and maintenance activities. Therefore, there would be no impacts.

IMPACT CUL-1 FINDINGS

Significance Determination: Potentially Significant Impact

Mitigation Measures: Mitigation Measures CUL-1 – CUL-8

Significance After Mitigation: Significant and Unavoidable Impact

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Impact CUL-2 Cause a substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5.

IMPACT CUL-2 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Geologic map review confirmed each Pure Water Antelope Valley project component is underlain by Qa Holocene alluvium, which is sensitive for buried archaeological deposits. Additionally, based on SSJVIC records search data, several previously recorded resources are located within a half-mile radius of the Pure Water Antelope Valley project components (**Table**

3.4-1). Taking into account the components of the Pure Water Antelope Valley project are each underlain by Holocene alluvium, the anticipated excavation depths of the Project (even within existing roads), and the proximity of the Project site within the north well field to previously recorded resources, this Project component exhibits the potential to encounter intact archaeological deposits that may qualify as a unique archaeological resource under CEQA. If such resources are encountered, implementation of **Mitigation Measures CUL-1** and **CUL-3** through **CUL-7**, which would involve the retention of a Qualified Archaeologist; the completion of an Archaeological Resources Assessment; WEAP Training; Archaeological monitoring; Native American monitoring; and procedures for unanticipated discovery of cultural resources, would reduce impacts to archaeological resources to a less than significant level.

Groundwater

Existing Well Rehabilitation and/or Replacement

Geologic map review confirmed each of the twenty-two existing well locations are underlain by Qa Holocene alluvium which is sensitive for buried archaeological deposits. Historic map, aerial imagery and SSJVIC records search data review all identified the California Aqueduct (P-19-004154; CA-LAN-4154H) and the Ditch (P-19001534; CA-LAN-1534H) as being in the vicinity of existing wells 18 and 19 in the southern section of the PWD service area along 47th Street East. Additional review of SSJVIC records search data revealed existing wells 6A and 15 are both in proximity to previously recorded resource P-19-190818, while 6A alone is proximal to resource P-19-003705 (CA-LAN-3705H; refuse scatter). Furthermore, all existing wells in the north well field are in proximity to several previously recorded resources (**Table 3.4-1**).

Taking into account the anticipated excavation depth for the Existing Well rehabilitation and/or Replacement project, the fact that each of the existing wells in the PWD service area are at locations underlain by Holocene soils, and the proximity of several existing wells in the north well field to previously recorded resources, demonstrates this Project component and has potential to encounter intact archaeological deposits that may qualify as a unique archaeological resource under CEQA. If such resources are encountered, significant impacts would result. With implementation of **Mitigation Measures CUL-1** and **CUL-3** through **CUL-7**, which would involve the retention of a Qualified Archaeologist; the completion of an Archaeological Resources Assessment; WEAP Training; Archaeological monitoring; Native American monitoring; and procedures for unanticipated discovery of cultural resources, impacts would be reduced to a less than significant level.

Local Supplies

Palmdale Ditch Conversion Project

A CHRIS South-Central Coastal Information Center records search conducted for the Palmdale Ditch Conversion project two prehistoric sites (CA-LAN-82 and CA-LAN-1851), one multi-component site (CA-LAN-1616/H), and two historical period isolates (P-19- 100651 and P-19-100652) as intersecting the Project's APE (Maldonado et al. 2024). Review of relevant geologic maps shows the Project as being situated in proximity to Barrell Springs and Little Rock Creek

and underlain by Holocene alluvium which is known to be conducive to the preservation of buried archaeological deposits. Although the previously recorded prehistoric sites and the multicomponent site possessed NRHP and CRHR status designations of "unevaluated" because these intersected the APE and had the potential to be significantly impacted by construction activity related to the Project, they were each assumed eligible for listing in both registers and, therefore, recognized as being historic properties under NHPA and historical resources under CEQA for the purpose of this Project. Further, the sites were tested via XP1 investigation for the presence of intact subsurface archaeological deposits, however the results were negative and the portions of the three sites tested within the APE were identified as non-contributing elements to each respective site.

Ground disturbance related to the Palmdale Ditch Conversion project would occur within portions of CA-LAN-82, CA-LAN-1851, and CA-LAN-1616/H already disturbed by the initial construction of the Ditch (CA-LAN-1534H) and the California Aqueduct (CA-LAN-4154H), and the tested portion of each site within the APE was deemed to be "non-contributing" to their NRHP and CRHR eligibility, pursuant to CEQA. Given that the Conversion Project is sited in proximity to Barrell Springs and Little Rock Creek and underlain by Holocene alluvium which is known to be conducive to the preservation of buried archaeological deposits, it has the potential to potential to encounter and significantly impact intact archaeological deposits that may qualify as a unique archaeological resource under CEQA and historic property pursuant to Section 106 of the NHPA. If such resources are encountered, impacts would be significant. With implementation of **Mitigation Measures CUL-1** and **CUL-4** through **CUL-7**, which would involve the retention of a Qualified Archaeologist; WEAP Training; Archaeological monitoring; Native American monitoring; and procedures for unanticipated discovery of cultural resources, impacts to archaeological resources would be reduced to a less than significant level.

Conservation

Conservation measures would not result in ground-disturbing impacts. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would treat wastewater for indirect potable reuse and may involve a minimal increase in PWD staff to operate the site. Maintenance activities of the facilities may include, but are not limited to, periodic removal of accumulated sediment and debris, replacement of non-operational machinery, and inspection and maintenance of all structures. Therefore, there would be no potential for additional impacts associated with the operation of the proposed Project.

Groundwater

Operation of rehabilitated or replacement wells would not involve an increase in staff to operate and would require minimal inspection and maintenance activities. Therefore, there would be no potential for additional impacts associated with the operation of the proposed Project.

Local Supplies

Palmdale Ditch Conversion Project

Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. Maintenance would involve inspection of the pipeline approximately every five years, which would consist of accessing the pipeline at various manhole structures, cleaning the pipeline as needed using a jetter truck and vacuum truck to remove debris, and using inspection equipment to take video footage of the pipeline interior. Vegetation maintenance and trash removal activities along the Ditch would no longer be conducted because the pipeline would be located underground and would not be subject to obstruction by vegetation overgrowth and trash dumping. Therefore, there would be no potential for additional impacts associated with the operation of the proposed Project.

Conservation

Implementation of conservation measures does not require operation and maintenance activities. Therefore, there would be no impacts.

IMPACT CUL-2 FINDINGS

Significance Determination: Potentially Significant

Mitigation Measures: Mitigation Measures CUL-1 and CUL-3 – CUL-7

Significance After Mitigation: Less than Significant with Mitigation

Impact CUL-3 Disturb any human remains, including those interred outside of formal cemeteries.

IMPACT CUL-3 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Although the historic Palmdale Cemetery is located within the PWD service area at the northeastern corner of the intersection of Avenue S and 20th Street, there are no cemeteries or known human remains in the vicinity of the Pure Water Antelope Valley project. It is not anticipated that the construction phase would impact human remains. However, given that construction includes ground-disturbing activities that will penetrate to depths of up to 48 inches below ground surface, there nonetheless remains a potential to encounter human remains, resulting in a significant impact. Implementation of **Mitigation Measure CUL-9,** which includes provisions for the unanticipated discovery of human remains, would reduce impacts to a less than significant level.

Groundwater

Existing Well Rehabilitation and/or Replacement

Although the historic Palmdale Cemetery is located within the PWD service area at the northeastern corner of the intersection of Avenue S and 20th Street, there are no cemeteries or known human remains in the vicinity of any of the twenty-two wells associated with the Existing Well/Rehabilitation and/or Replacement project. Given the moderate-to-low archaeological sensitivity of its Project components, their construction phase is not anticipated to impact human remains. However, given that construction includes ground-disturbing activities that will penetrate to depths of up to 20 feet below ground surface, there nonetheless remains a potential to encounter human remains, resulting in a significant impact. Implementation of **Mitigation Measure CUL-9**, which includes provisions for the unanticipated discovery of human remains, would reduce impacts to a less than significant level.

Local Supplies

Palmdale Ditch Conversion Project

Although the historic Palmdale Cemetery is located within the PWD service area at the northeastern corner of the intersection of Avenue S and 20th Street, there are no cemeteries or known human remains in the vicinity of the Palmdale Ditch Conversion project. Given the Palmdale Ditch Conversion project is sited in proximity to Barrell Springs and Little Rock Creek; is underlain by Holocene alluvium which is known to be conducive to the preservation of buried archaeological deposits; and construction includes ground-disturbing activities that will

penetrate to depths of up to 18 feet below ground surface, it has the potential to potential to encounter and significantly impact human remains, resulting in a significant impact. Implementation of **Mitigation Measure CUL-9**, which includes provisions for the unanticipated discovery of human remains, would reduce impacts to a less than significant level.

Conservation

Conservation measures would not result in ground-disturbing impacts. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would treat wastewater for indirect potable reuse and may involve a minimal increase in PWD staff to operate the site. Maintenance activities of the facilities may include, but are not limited to, periodic removal of accumulated sediment and debris, replacement of non-operational machinery, and inspection and maintenance of all structures. Therefore, there would be no potential for additional impacts associated with the operation of the proposed Project.

Groundwater

Operation of rehabilitated or replacement wells would not involve an increase in staff to operate and would require minimal inspection and maintenance activities. Therefore, there would be no potential for additional impacts associated with the operation of the proposed Project.

Local Supplies

Palmdale Ditch Conversion Project

Once the Palmdale Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. Maintenance would involve inspection of the pipeline approximately every five years, which would consist of accessing the pipeline at various manhole structures, cleaning the pipeline as needed using a jetter truck and vacuum truck to remove debris, and using inspection equipment to take video footage of the pipeline interior. Vegetation maintenance and trash removal activities along the Ditch would no longer be conducted because the pipeline would be located underground and would not be subject to obstruction by vegetation overgrowth and trash dumping. Therefore, there would be no potential for additional impacts to human remains associated with the operation of the proposed Project.

Conservation

Implementation of conservation measures does not require operation and maintenance activities. Therefore, there would be no impacts.

IMPACT CUL-3 FINDINGS

Significance Determination: Potentially Significant

Mitigation Measures: Mitigation Measure CUL-9

Significance After Mitigation: Less than Significant with Mitigation

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Impact TCR-1 Result in a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074.

IMPACT TCR-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The NAHC SLF search failed to identify tribal cultural resources within the Project site and AB 52 request to consult notification letters issued by the PWD only yielded responses from two tribes, the FTBMI and YSMN. Following review of requested documents prepared in support of the project, on July 25, 2024, the FTBMI indicated that the proposed Project had low sensitivity for Tribal Cultural Resources and, therefore, no consultation was needed. The YSMN July 12, 2024, email response to PWD's request to consult notification letter acknowledged past consultation the Palmdale Ditch Conversion project but did not state if other proposed Project components had the potential to impact tribal cultural resources. AB 52 consultation between PWD and YSMN is ongoing and until it is complete, for the purposes of CEQA (and excluding the Palmdale Ditch Conversion project), PWD assumes the proposed Project will not impact Tribal cultural resources. Consequently, based on the results of the NAHC SLF search and ongoing AB 52 consultation, construction of the Pure Water Antelope Valley project component of the proposed Project would result in no impacts to tribal cultural resources.

Groundwater

Existing Well Rehabilitation and/or Replacement

The NAHC SLF search failed to identify tribal cultural resources within the Project site and AB 52 request to consult notification letters issued by the PWD only yielded responses from two tribes, the FTBMI and YSMN. Following review of requested documents prepared in support of the

project, on July 25, 2024, the FTBMI indicated that the proposed Project had low sensitivity for Tribal Cultural Resources and, therefore, no consultation was needed. The YSMN July 12, 2024, email response to PWD's request to consult notification letter acknowledged past consultation for the Palmdale Ditch Conversion project but did not state if other proposed Project components had the potential to impact tribal cultural resources. AB 52 consultation between PWD and YSMN is ongoing and until it is complete, for the purposes of CEQA (and excluding the Palmdale Ditch Conversion Project), PWD assumes the proposed Project will not impact Tribal cultural resources. Consequently, based on the results of the NAHC SLF search and ongoing AB 52 consultation, construction activities related to the proposed Project component would result in no impacts to tribal cultural resources.

Local Supplies

Palmdale Ditch Conversion Project

The NAHC SLF search for the Palmdale Ditch Conversion project was returned with negative results. However, three Native American tribes - the FTBMI, SFBMI, and YSMN - requested consultation for the Palmdale Ditch Conversion project under AB 52, the results of which are summarized above. During the AB 52 consultation process, all three tribes indicated the Palmdale Ditch Conversion project site was sensitive for known tribal cultural resources and provided mitigation recommendations. Because construction of the Palmdale Ditch Conversion project would involve ground-disturbing activities within and near known tribal cultural resources, impacts would be potentially significant. The Tribes' recommended mitigation language was incorporated into **Mitigation Measures CUL-4, CUL-5, CUL-6** and **TCR-1**, and consultation with SFBMI was concluded with consensus. Consultation with FTBMI and YSMN is still ongoing. Implementation of Mitigation Measures **CUL-4, CUL-5, CUL-6** and **TCR-1** would be required to reduce impacts to tribal cultural resources to a less-than-significant level.

Conservation

Conservation measures would not result in ground-disturbing impacts. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would treat wastewater for indirect potable reuse and may involve a minimal increase in PWD staff to operate the site. Maintenance activities of the facilities may include, but are not limited to, periodic removal of accumulated sediment and debris, replacement of non-operational machinery, and inspection and maintenance of all structures. Because no tribal cultural resources have been identified within the proposed Project site and operation and maintenance of the Pure Water Antelope Valley

project would not result in additional ground disturbance following its construction, operation of the proposed program component would result in no impacts to Tribal cultural resources.

Groundwater

Operation of rehabilitated or replacement wells would not involve an increase in staff to operate and would require minimal inspection and maintenance activities. Therefore, there would be no potential for additional impacts associated with the operation of the proposed Project.

Local Supplies

Palmdale Ditch Conversion Project

Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. Maintenance would involve inspection of the pipeline approximately every five years, which would consist of accessing the pipeline at various manhole structures, cleaning the pipeline as needed using a jetter truck and vacuum truck to remove debris, and using inspection equipment to take video footage of the pipeline interior. Vegetation maintenance and trash removal activities along the Ditch would no longer be conducted because the pipeline would be located underground and would not be subject to obstruction by vegetation overgrowth and trash dumping.

Conservation

Implementation of conservation measures does not require operation and maintenance activities. Therefore, there would be no impacts.

IMPACT TRC-1 FINDINGS

Significance Determination: Potentially Significant

Mitigation Measures: Mitigation Measures CUL-4, CUL-5, CUL-6, and TRC-1

Significance After Mitigation: Less than Significant with Mitigation

3.4.3.4 Mitigation Measures

For the purpose of Mitigation Measures CUL-4, CUL-5, CUL-6 and TCR-1 as they pertain to the Palmdale Ditch Conversion Project, the phrase "tribes consulting on the Project" refers to the YSMN, SFBMI, and FTBMI.

MITIGATION MEASURE CUL-1: CULTURAL RESOURCES PERSONNEL PROFESSIONAL QUALIFICATIONS STANDARDS

PWD shall retain an archaeologist and architectural historian meeting the minimum professional qualifications standards (PQS) set forth by the Secretary of the Interior (SOI) (codified in 36 Code of Federal Regulations [CFR] Part 61; 48 FR 44738-44739) (Qualified Archaeologist and Qualified Architectural Historian) to oversee the implementation of all mitigation related to cultural resources. All cultural resources documentation resulting from the program shall be filed with the South-Central Coastal Information Center upon document completion.

MITIGATION MEASURE CUL-2: HISTORIC RESOURCES ASSESSMENT

Prior to Project-related construction activities involving demolition or alteration of buildings and/or structures or the construction of above ground infrastructure, the Qualified Architectural Historian shall conduct a historic resources assessment of affected properties over 45 years in age. The assessment shall include a records search at the South-Central Coastal Information Center or review of a prior record search conducted within the previous one year; a review of other pertinent archives and sources; a pedestrian field survey; recordation of all identified historic architectural resources on California Department of Parks and Recreation (DPR) 523 forms; evaluation of resources which may be eligible for listing in the California Register under Criteria 1-4 (i.e., meets the definition for historical resource in *CEQA Guidelines* subdivision 15064.5[a]), and for local listing; and preparation of a technical report documenting the methods and results of the assessment. If a historic architectural resource is found eligible, the Qualified Architectural Historian shall coordinate with the PWD to ensure the Project component is constructed in a manner consistent with the Secretary of the Interior's Standards.

MITIGATION MEASURE CUL-3 ARCHAEOLOGICAL RESOURCES ASSESSMENT

Prior to development of previously unevaluated Project components that involve ground disturbance, PWD shall retain a Qualified Archaeologist, defined as meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (codified in 36 CFR Part 61; 48 FR 44738-44739), to conduct an archaeological resources assessment including: a records search update at the South Central Coastal Information Center; a pedestrian field survey, where deemed appropriate by the Qualified Archaeologist; recordation of all identified archaeological resources on California Department of Parks and Recreation 523 forms; and preparation of a technical report documenting the methods and results of the study, and providing an assessment of the Project area's archaeological sensitivity and the potential to encounter subsurface archaeological resources and human remains. All identified archaeological resources shall be assessed for the Project's potential to result in direct and/or indirect effects to those resources and any archaeological resource that cannot be avoided shall be evaluated for its potential significance prior to PWD's approval of Project plans and publication of subsequent CEQA documents. The Qualified Archaeologist shall provide recommendations regarding archaeological monitoring to be conducted in accordance with Mitigation Measure CUL-4,

protection of avoided resources and/or recommendations for additional work or treatment of significant resources that will be affected by the Project.

MITIGATION MEASURE CUL-4: CONSTRUCTION WORKER CULTURAL RESOURCES SENSITIVITY TRAINING.

For Project components involving ground disturbance, the Qualified Archaeologist shall implement a cultural resources sensitivity training program. The Qualified Archaeologist, or their designee, shall instruct all construction personnel of the types of cultural materials that may be encountered, cultural sensitivity issues, applicable laws protecting cultural resources, the proper treatment procedures to be enacted in the event of an inadvertent discovery of cultural materials or human remains, and confidentiality of discoveries. Tribal representatives from each of the tribes consulting on the Palmdale Ditch Conversion Project shall be allowed to attend and/or participate in the training should they elect to and shall be given a minimum of ten days' notice prior to the training. In the event that construction crews are phased, additional trainings shall be conducted for new construction personnel. The PWD, or their construction contractor(s), shall ensure construction personnel are made available for and attend the training. PWD shall retain documentation demonstrating attendance.

MITIGATION MEASURE CUL-5: ARCHAEOLOGICAL RESOURCES MONITORING

Archaeological monitoring shall be required for the proposed Project components and specifically for the Palmdale Ditch Conversion Project as outlined below.

- **Proposed Project Requirements.** Archaeological monitoring shall be determined by the Qualified Archaeologist based on the results of the archaeological resources assessment conducted under CUL-3 and requires the preparation of a Cultural Resources Monitoring Plan (CRMP) prior to the start of Project-related ground disturbance. The CRMP should discuss the monitoring protocols to be carried out during Project construction and should outline the appropriate measures to be followed in the event that cultural resources are encountered. In general, for ground- disturbing activities in geologic units/sediments of *Higher Sensitivity* for encountering subsurface prehistoric archaeological resources or human remains, full time archaeological monitoring shall be conducted, unless the Qualified Archaeologist has established as part of the archaeological assessment that previous disturbances have reduced the sensitivity for prehistoric archaeological resources to the extent that no or limited archaeological monitoring is warranted. No archaeological monitoring shall be required in geologic units/sediments of *Lower Sensitivity* for encountering subsurface prehistoric archaeological resources or human remains, or in those areas that have been previously subject to monitoring as part of the Project. If the Qualified Archaeologist determines as a result of the archaeological assessment that areas proposed for ground disturbance may be sensitive for historic-period archaeological resources, those areas shall also be subject to archaeological monitoring at a frequency determined by the Qualified Archaeologist. In all cases, the Qualified Archaeologist shall have the discretion to modify the frequency of monitoring based on soils and stratigraphy observed, the extent of past

disturbances, and the type of construction methods employed. Generally, monitoring will not be required of activities employing construction methods such as tunneling and well drilling where soil profiles and spoils are not observable to monitors. The archaeological monitor(s) shall be familiar with the types of resources that could be encountered and shall work under the direct supervision of the Qualified Archaeologist. The number of archaeological monitors required to adequately observe ground-disturbing activities is dependent on the archaeological sensitivity of the area and construction scenario and shall be established by the Qualified Archaeologist. The archaeological monitor(s) shall keep daily logs detailing the types of activities and soils observed, and any discoveries. Archaeological monitor(s) shall have the authority to halt and re-direct ground-disturbing activities in the event of a discovery until it has been assessed for significance and treatment implemented, if necessary, based on the recommendations of the Qualified Archaeologist in coordination with the PWD and the Native American monitor(s) pursuant to TCR-1.

- **Palmdale Ditch Conversion Project Requirements.** Prior to the start of Project-related ground-disturbing activities, a qualified archaeologist shall be retained to prepare a CRMP and provide archaeological monitoring for the Project. The CRMP shall discuss the monitoring protocols to be carried out during Project construction and shall outline the appropriate measures to be followed in the event that cultural resources are encountered. The CRMP shall be submitted to Palmdale Water District (PWD) for dissemination to the tribes consulting on the Project. Once all parties review and agree to the plan, it shall be adopted by PWD – the plan must be adopted prior to permitting for the Project. Any and all findings shall be subject to the protocol detailed within the CRMP. A copy of the final CRMP shall be provided to PWD (and United States Bureau of Reclamation [USBR]/United States Forest Service [USFS], depending on land jurisdiction) and the tribes consulting on the Project upon completion. Archaeological monitoring shall be limited to initial ground disturbance, which is defined as construction-related earthmoving of sediments from their native place of deposition (which includes, but is not limited to, tree/shrub removal and planting, clearing/grubbing, grading, leveling, excavation, trenching, compaction, plowing, fence/gate removal and installation, drainage and irrigation removal and installation, hardscape installation [boulders, walls, etc.], and archaeological work) and does not include any secondary movement of sediment that might be required for the Project (e.g., backfilling). Archaeological monitoring shall be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983). The archaeological monitor shall have the authority to halt and redirect work should any archaeological resources be identified during monitoring. If archaeological resources are encountered during ground-disturbing activities, work within 60 feet of the find shall halt, and the find shall be evaluated for listing in the CRHR/NRHP. A sufficient number of archaeological monitors shall be present each workday to ensure simultaneously occurring ground-disturbing activities receive thorough levels of monitoring coverage. Archaeological monitoring may be reduced or halted at the discretion of PWD (and USBR/USFS, depending on land jurisdiction), in consultation with the qualified archaeologist and the tribes consulting on the Project, as

warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of ground disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground disturbance moves to a new location within the Project site and/or when ground disturbance extends to depths not previously reached (unless those depths are within bedrock). Furthermore, monitoring may be terminated if it is determined the soils within the Area of Potential Effects do not have the potential to contain cultural resources.

MITIGATION MEASURE CUL-6: ARCHAEOLOGICAL RESOURCES DISCOVERIES

In the event that cultural resources are unexpectedly encountered during ground-disturbing activities, work within 60 feet of the find shall halt, an Environmentally Sensitive Area physical demarcation/barrier installed, and a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) contacted immediately to evaluate the resource. If the qualified archaeologist determines the resource to be Native American in origin, then a representative from the tribes consulting on the Project shall also be contacted to participate in the evaluation of the resource. If the qualified archaeologist and/or representative from the tribes consulting on the Project determines it to be appropriate, archaeological testing for CRHR/NRHP eligibility shall be completed. If the resource proves to be eligible for the CRHR/NRHP and significant impacts to the resource cannot be avoided via Project redesign, a qualified archaeologist shall prepare a data recovery plan tailored to the physical nature and characteristics of the resource, pursuant to the requirements of CEQA Guidelines Section 15126.4(b)(3)(C). Should the find be deemed Native American in origin, all plans for analysis shall be reviewed and approved by PWD (and USBR/USFS, depending on land jurisdiction) and the tribes consulting on the Project prior to implementation, and all removed material shall be temporarily curated on site. The data recovery plan shall identify data recovery excavation methods, measurable objectives, and data thresholds to reduce any significant impacts to the resource. Pursuant to the data recovery plan, the qualified archaeologist and Native American representative(s) from the tribes consulting on the Project, as appropriate, shall recover and document the scientifically consequential information that justifies the resource's significance. PWD shall review and approve the treatment plan and archaeological testing as appropriate, and the resulting documentation shall be submitted to the regional repository of the CHRIS, pursuant to CEQA Guidelines Section 15126.4(b)(3)(C).

MITIGATION MEASURE CUL-7: CURATION AND DISPOSITION OF CULTURAL MATERIALS.

PWD shall work with the tribes consulting on the Project to determine the final disposition of any cultural materials removed. However, if the tribes consulting on the Project are not in agreement on the final disposition, PWD shall rebury the artifacts within the Project site in a location free from future disturbance and share the location with the tribes consulting on the Project. Items recovered from USFS lands must be curated in accordance with 36 CFR 79 and cannot be reburied. Should a collection require curation, the tribes consulting on the Project shall be given the opportunity to approve the curation facility but must still meet the standards

of 36 CFR 79. All draft records/reports containing the significance and treatment findings and data recovery results shall be prepared by the qualified archaeologist and submitted to PWD (and USBR/USFS, depending on land jurisdiction) and the tribes consulting on the Project for their review and comment. A copy of the final report and all site/isolate records shall be submitted to PWD (and USBR/USFS, depending on land jurisdiction), the tribes consulting on the Project, and the South Central Coastal Information Center. Disposition of Native American human remains and associated funerary objects, or grave goods shall be determined by the landowner in consultation with the PWD and the Most Likely Descendant (MLD).

The PWD shall curate all eligible historic-period archaeological material, or portions thereof at the discretion of the Qualified Archaeologist, at a repository accredited by the American Association of Museums that meets the standards outlined in 36 CFR 79.9. If no accredited repository accepts the collection, then the PWD may curate it at a non-accredited repository as long as it meets the minimum standards set forth by 36 CFR 79.9. If neither an accredited nor a non-accredited repository accepts the collection, then the PW may offer the collection to a public, non-profit institution with a research interest in the materials, or to a local school or historical society in the area for educational purposes.

Mitigation Measure CUL-8: Historic American Engineering Survey-Like Documentation Package

Prior to the demolition of the Palmdale Ditch (CA-LAN-1534H), PWD should document the structure in a Historic American Engineering Record -like documentation package. The report shall generally comply with the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation (68 Federal Register 43159), Level III. At a minimum, the Historic American Engineering Record Historical Report should include digital photographs of views of Palmdale Ditch and a short-form narrative historical report. Digital copies of the Historic American Engineering Record-like documentation package should be made available to the Los Angeles County Library Acton Agua Dulce Branch and the Palmdale City Library.

Mitigation Measure CUL-9: Inadvertent Discovery of Human Remains

If human remains are encountered, then PWD shall halt work in the vicinity (within 100 feet) of the discovery and contact the County Coroner in accordance with Public Resources Code section 5097.98 and Health and Safety Code section 7050.5. If the County Coroner determines the remains are Native American, then the Coroner shall notify the California Native American Heritage Commission in accordance with Health and Safety Code subdivision 7050.5(c), and Public Resources Code section 5097.98. The California Native American Heritage Commission shall designate a Most Likely Descendant for the remains per Public Resources Code section 5097.98. Until the landowner has conferred with the Most Likely Descendant, the construction contractor(s) shall ensure the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials.

MITIGATION MEASURE TCR-1: NATIVE AMERICAN RESOURCES MONITORING

Native American monitoring shall be implemented for the proposed Project and applied specifically for the Palmdale Ditch Conversion project as identified below.

Proposed Project Requirements. For ground-disturbing activities in geologic units/sediments of *Higher Sensitivity* for encountering subsurface prehistoric archaeological resources or human remains as determined by the archaeological resources assessment conducted under CUL-3, full time Native American monitoring shall be conducted unless the Qualified Archaeologist has established as part of the archaeological assessment that previous disturbances have reduced the sensitivity to the extent that Native American monitoring is not warranted. No Native American monitoring shall be required in geologic units/sediments of *Lower Sensitivity* for encountering subsurface prehistoric archaeological resources or in areas that have been previously subject to monitoring as part of the program.

The PWD shall retain a Native American monitor(s) to conduct the monitoring from a California Native American Tribe that is culturally and geographically affiliated (according to the NAHC) in the area within which the particular Program component is located. If more than one Tribe is interested in monitoring a Program component, the PWD shall prepare a monitoring rotation schedule. The PWD shall rotate monitors on an equal and regular basis to ensure that each Tribal group has the same opportunity to participate in the monitoring program. If a Tribe cannot participate in a given rotation assignment, they shall forfeit that rotation unless the PWD can make other arrangements to accommodate their schedule. The number of Native American monitors required to adequately observe ground-disturbing activities is dependent on the archaeological sensitivity of the area and construction scenario and shall be established by the Qualified Archaeologist. Native American monitors shall have the authority to halt and re-direct ground-disturbing activities in the event of a discovery until it has been assessed for significance and treatment implemented, if necessary, based on the recommendations of the Qualified Archaeologist in coordination with the PWD and the Native American monitor(s).

Palmdale Ditch Conversion Project Requirements. Prior to Project initiation, a Native American monitor from one of the tribes consulting on the Project shall be retained. In general, Native American monitoring shall be limited to initial ground disturbance, which is defined as construction-related earthmoving of sediments from their native place of deposition (which includes, but is not limited to, tree/shrub removal and planting, clearing/grubbing, grading, leveling, excavation, trenching, compaction, plowing, fence/gate removal and installation, drainage and irrigation removal and installation, hardscape installation [boulders, walls, etc.], and archaeological work) and does not include any secondary movement of sediment that might be required for the Project (e.g., backfilling). If more than one Consulting Tribe wishes to be present for monitoring, they shall be present on a rotating basis. The Native American monitor(s) shall have the authority to halt and redirect work should any potential cultural resources be identified during monitoring. If potential cultural resources are encountered during ground-disturbing activities, work within 60 feet of the find shall halt, and the find shall be evaluated for listing in the CRHR/NRHP. PWD shall retain at least one Tribal monitor to be

present at each distinct work area during each workday when initial ground disturbance is conducted. The tribes consulting on the Project may voluntarily provide additional Tribal monitors beyond those retained by PWD for increased monitoring coverage. Native American monitoring may be reduced or halted at the discretion of PWD (and USBR/USFS, depending on land jurisdiction), in consultation with the tribes consulting on the Project, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of ground disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground disturbance moves to a new location within the Project site and/or when ground disturbance extends to depths not previously reached (unless those depths are within bedrock). Furthermore, monitoring may be terminated if it is determined the soils within the Area of Potential Effects do not have the potential to contain cultural resources.

3.4.3.5 Cumulative Impact Analysis

The proposed Project adheres to the 2045 General Plan and adheres to the City's policies. As discussed in *Impact CUL-1,* the proposed Project will cause substantial adverse changes to a historical resource. However, the proposed Project's impact when considered with other development accounted for in planning documents would not have a cumulatively considerable impact. While the Palmdale Ditch Conversion project requires major disturbances to the features of the Palmdale Ditch, considered a historical resource, it is not likely that other projects planned in the area would exacerbate these impacts since the Ditch is located on PWD property and will maintain the current use. Thus, the proposed Project would not be cumulatively considerable.

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3.5 ENERGY

This section describes the environmental and regulatory setting for energy resources in the Project area, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts on energy resources that could result from implementation of the proposed Project. The proposed Project's impacts related to energy usage as it may affect air quality, transportation, or greenhouse gas emissions are discussed in their respective sections of this EIR.

3.5.1 ENVIRONMENTAL SETTING

As a state, California is one of the lowest per capita energy users in the United States, ranked 47th in the nation, due to its energy efficiency programs and mild climate (United States Energy Information Administration 2023).

3.5.1.1 Electricity

Electricity in the Palmdale Water District (PWD) service area is provided by Southern California Edison (SCE). SCE provides electricity to approximately 15 million people throughout its 50,000 square mile service area across central, coastal and Southern California (SCE n.d.). SCE produces and purchases its energy from a mix of conventional and renewable generating sources. **Table 3.5-1** shows the electric power mix that was delivered to SCE's retail customers in 2022 (the most recent data available) compared to the statewide power mix.

Table 3.5-1: Electric Power Mix Delivered to SCE Retail Customers in 2022

Energy Resources	2022 SCE Power Mix	2022 CA Power Mix
Eligible Renewable	33.2%	35.8%
Biomass & waste	*0.1%*	*2.1%*
Geothermal	*5.7%*	*4.7%*
Small hydroelectric	*0.5%*	*1.1%*
Solar	*179%*	*17.0%*
Wind	*9.8%*	*10.8%*
Coal	0.0%	2.1%
Large Hydroelectric	3.4%	9.2%
Natural Gas	24.7%	36.4%
Nuclear	8.3%	9.2%
Other	0.1%	0.1%
Unspecified sources of power[1]	30.3%	7.1%

[1]Unspecified power is electricity that has been purchased through open market transactions and is not traceable to a specific generation source.

Source: CEC, 2022

The total annual amount of electricity supplied to PWD from SCE in 2022 was 15,365,758 kilowatt-hours. This energy was used to power PWD infrastructure including groundwater production wells, clearwell boosters and other booster stations, tanks, the AWPF, Littlerock Dam Reservoir, and lake inlet, turnouts, pumps at Lake Palmdale, and PWD buildings.

In addition to SCE, PWD purchases electricity from Energy for Palmdale's Independent Choice (EPIC), a community choice aggregator. The clean energy that PWD purchases from EPIC is distributed by SCE but comes from renewable sources such as hydroelectric, wind, and solar. PWD purchases from EPIC at commercial rates.

In addition to purchasing electricity, PWD has developed electrical generation using solar resources. A 5,304 megawatt-hour solar array system is installed at PWD's headquarters building to offset power costs (PWD 2022). The solar energy at the headquarters building is connected to the SCE grid. In 2024, PWD completed construction of a 2,914 megawatt-hour solar array and battery storage facility at one of its tank sites, consisting of 2,800 panels and connected to the electrical grid at the tank.

3.5.1.2 Natural Gas

Natural gas in the PWD service area is provided by Southern California Gas Company (SCGC). SCGC provides natural gas to approximately 21.1 million people throughout its 24,000 square mile service area throughout Central and Southern California (SCGC n.d.).

The total annual amount of natural gas energy provided by SCGC in 2022 was 307,136 therms (PWD 2022). This energy was used to power PWD infrastructure including groundwater production wells, booster stations, the AWPF, and PWD buildings.

3.5.1.3 Petroleum

Petroleum fuels are primarily consumed by on-road and off-road equipment in addition to some industrial processes, with California being one of the top petroleum-producing states in the nation (United States Energy Information Administration 2023). Petroleum used in California in 2023 (the most recent data available) came from California (23 percent), Alaska (16 percent) and foreign sources (61 percent) and is refined to produce gasoline and diesel fuel and a variety of other liquid petroleum products (CEC 2024a). California totals may also include minor amounts from North Dakota and Gulf Coast States. There are 13 active crude oil refineries operating in California (CEC n.d.).

Gasoline is the most used transportation fuel in California and 97 percent of all gasoline is consumed by light-duty cars, pickup trucks, and sport utility vehicles (CEC, 2024b). Gasoline sales totaled 13.6 billion gallons in 2022 (California Energy Commission 2023). With 2.3 billion gallons sold in 2022 (California Energy Commission 2023), diesel fuel is the second most used transportation fuel used in California, representing 17 percent of total fuel sales behind gasoline. Nearly all heavy-duty trucks, delivery vehicles, buses, trains, ships, boats and barges, farm, construction and heavy-duty military vehicles and equipment have diesel engines. Diesel has 12 percent more energy per gallon than gasoline and has fuel properties that prolong engine life, making diesel better suited for heavy-duty vehicle applications (CEC, 2024c). According to the State Board of Equalization, approximately 13.6 billion gallons of gasoline and approximately 3 billion gallons of diesel, including off-road diesel, were sold in California in 2023 (BOE 2024a and

2024b). In Los Angeles County, it is estimated that approximately 3 billion gallons of gasoline and 295 million gallons of diesel were sold in 2022 (CEC 2024d).

3.5.2 REGULATORY FRAMEWORK

This section describes local, state, and federal laws, policies and regulations that apply to the proposed Project.

3.5.2.1 Federal Policies and Regulations

ENERGY POLICY AND CONSERVATION ACT

The Energy Policy Act of 1975 was established in response to the oil crisis of 1973, which increased oil prices due to a shortage of reserves. The Energy Policy Act required that all vehicles sold in the United States meet certain fuel economy goals. The Energy Policy Act of 1975 established the corporate average fuel economy (CAFE) standard with the purpose of reducing energy consumption by increasing the fuel economy of cars and light trucks. The CAFE standards are fleet-wide averages that must be achieved by each vehicle manufacturer for its fleet of cars and light trucks, each year, since 1978. The first CAFE standards for heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) were finalized in 2011, covering vehicles beginning with model year 2014 (NHTSA n.d.). The Energy Policy Act of 1975 and CAFE standards indirectly apply to the proposed Project due to their effects on vehicle fuel efficiencies for the vehicles to be used during construction.

NATIONAL ENERGY CONSERVATION POLICY ACT

The National Energy Conservation Policy Act serves as the underlying authority for federal energy management goals and requirements. Signed into law in 1978, the act is regularly updated and amended by subsequent laws and regulations. The National Energy Conservation Policy Act is the foundation of most federal energy requirements.

NATIONAL ENERGY POLICY ACT

The Energy Policy Act of 2005 calls for the development of grant programs, demonstration and testing initiatives, and tax incentives that promote alternative and advanced fuels production and use. The Energy Policy Act also amends existing regulations, including fuel economy testing procedures and National Energy Policy Act of 1992 requirements for federal, state, and alternative fuel provider fleets.

ENERGY INDEPENDENCE AND SECURITY ACT

The Energy Independence and Security Act of 2007 aims to move the United States toward greater energy independence and security; increase the production of clean renewable fuels; protect consumers; increase the efficiency of products, buildings, and vehicles; promote research on and deploy greenhouse gas capture and storage options; improve the energy performance

of the Federal Government; and increase United States energy security, develop renewable fuel production, and improve vehicle fuel economy. The Energy Independence and Security Act reinforces the energy reduction goals for federal agencies, as well as introduces more aggressive requirements. The three key provisions enacted are the Corporate Average Fuel Economy Standards, the Renewable Fuel Standard, and the appliance/lighting efficiency standards (U.S. EPA 2024).

3.5.2.2 State Policies and Regulations

WARREN-ALQUIST ACT

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission. The Act established state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Public Utilities Commission (CPUC) regulates privately-owned utilities in the energy, rail, telecommunications, and water fields. The Energy Commission's Chief Counsel's Office publishes an updated version of the Warren-Alquist Act every year.

STATE OF CALIFORNIA ENERGY ACTION PLAN

The California Energy Action Plan II described a coordinated implementation plan for state energy policies and refined California's original Energy Action Plan I. California Energy Action Plan II identified specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. The plan adopted a loading order of preferred energy resources to meet the state's needs and reduce reliance on natural gas and other fossil fuels, also important for achieving GHG emission reductions from the electricity sector.

The primary ways to meet the energy needs identified in the California Energy Action Plan II were energy efficiency and demand response. Renewable energy and distributed generation were identified as the primary ways to achieve energy efficiency on the supply side. To the extent that energy efficiency, demand response, renewable resources, and distributed generation are unable to satisfy increasing energy and capacity needs, the California Energy Commission supported clean and efficient fossil fuel-fired generation to meet energy demand.

The 2008 Energy Action Plan Update provides a status update and continues the goals of the 2003 California Energy Action Plan, rather than produce a new action plan, by adding some important dimensions to the policy areas included in the 2003 Energy Action Plan, such as the emerging importance of climate change, transportation-related energy issues and research and development activities. The 2008 Energy Action Plan Update focuses on changes in the policy areas of energy efficiency, demand response, renewable energy, electricity reliability and infrastructure, electricity market structure, natural gas supply and infrastructure, research and development, and climate change. The plan calls for energy efficiency through building codes, appliance standards, and utility energy efficiency programs; demand response; investing more in

renewable energy; improving electricity reliability; transitioning away from natural gas; and investing in alternative fuels (CPUC 2008).

California Integrated Energy Policy Report - Senate Bill 1389

Senate Bill 1389 was signed into law in 2002 and requires the California Energy Commission to "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The CEC shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety" (Public Resources Code Section 25301(a)). The California Energy Commission adopts an Integrated Energy Policy Report every two years and an update every other year.

The 2022 Integrated Energy Policy Report, adopted May 10, 2023, is the most recent report. Energy topics covered in the report include embedding equity and environmental justice at the California Energy Commission, California energy planning library, California energy demand forecast, energy reliability, western electricity integration, gasoline cost factors and price spikes, role of hydrogen in California's clean energy future, fossil gas transition, distributed energy resources (CEC 2022b).

State Alternative Fuels Plan - Assembly Bill 1007

AB 1007 of 2005 required the State Energy Resources Conservation and Development Commission, in partnership with the state board, and other state agencies to prepare a state plan by 2007 to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels Plan in partnership with the California Air Resources Board (CARB) and in consultation with other State, federal, and local agencies. The State Alternative Fuels Plan (CARB and CEC 2007) presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. The Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce greenhouse gas emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

The plan recommends alternative-fuel targets of 9 percent in 2012, 11 percent in 2017, and 26 percent by 2022. The plan also presents a 2050 vision that extends the plan outcomes and presents a transportation future that greatly reduces the energy needed for transportation, provides energy through a diverse set of transportation fuels, eliminates over-dependency on oil, and achieves an 80 percent reduction in GHG emissions. With the plan goals, more than 4 billion gasoline gallon equivalents (20 percent) would be displaced by alternative fuels in 2020. CEC estimates that by 2050, alternative fuels could provide more than half of the energy needed to power California's transportation system.

RENEWABLE PORTFOLIO STANDARD PROGRAM

The California Public Utilities Commission and the California Energy Commission jointly implement the statewide Renewable Portfolio Standard (RPS) program through rulemakings and monitoring the activities of electric energy utilities in the state. Senate Bill 1078 established the RPS in 2002, which required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from eligible renewable sources by 2017. SB 1078 changed the target date to 2010. In November 2008, Executive Order S-14-08 expanded the state's RPS goal to 33 percent renewable power by 2020. In September 2009, Executive Order S-21-09 directed the California Air Resources Board (under its AB 32 authority) to enact regulations to help the state meet the 2020 goal of 33 percent renewable energy. The 33 percent by 2020 RPS goal was codified in April 2011 with SB X1-2. SB X1-2 required retail sellers of electricity to provide at least 33 percent of their electricity supply (portfolio) from renewable sources by 2020. This requirement applied to investor-owned utilities, publicly-owned utilities, and community choice aggregators. Senate Bill 350, the Clean Energy and Pollution Reduction Act of 2015, was signed into law on October 7, 2015. It established new goals for clean energy, clean air, and GHG reduction goals for 2030 and beyond. SB 350 required California's renewable electricity procurement goal to be increased under the RPS from 33 percent by 2020 to 50 percent by 2030. On September 10, 2018, Governor Brown signed SB 100, which increased the RPS requirement to 60 percent eligible renewables by 2030 and 100 percent by 2045.

CALIFORNIA AIR RESOURCES BOARD VEHICLE RULES

In 2004, the California Air Resources Board (CARB) adopted an Airborne Toxic Control Measure (CARB 2024a) to limit heavy-duty diesel motor vehicle idling. The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location. CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The California Air Resources Board's In-Use Off-Road Diesel Vehicles regulation (CARB 2024b) became effective in 2008. The regulation covers a wide scope of vehicle types, including those used in construction. Although the stated goal of the regulation is to reduce particulate matter and oxides of nitrogen emissions from existing (i.e., in-use) off-road heavy-duty diesel vehicles in California, the regulation also limits vehicle idling. Under the rule, no vehicle or engine may idle for more than five minutes, which conserves fuel. CARB approved amendments to the off-road regulation in November 2022, that are effective as of January 1, 2024, that are intended to achieve additional NO_X and PM reductions but would also affect construction related energy demand. While intended to reduce construction criteria pollutant emissions, compliance with these regulations would also.

3.5.2.3 Local Policies and Regulations

Under Section 53091 of the California Government Code, PWD, as a local agency and utility district, is not subject to local County or City renewable energy or energy efficiency ordinances for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, PWD considers local policies for guidance during the planning process.

CITY OF PALMDALE GENERAL PLAN

The City of Palmdale General Plan Sustainability, Climate Action, and Resilience Element and the Air Quality Element establish policies concerning greenhouse gas reduction strategies, and regional and local air quality (City of Palmdale 2022). The following goals, objectives and policies in the City's General Plan are specific to energy resources.

Goal SCR-2: Clean Energy Utilize a fossil fuel free energy system (SB100).

- **Policy SCR-2.2 Community Solar.** Explore the development of community solar projects and microgrids.
- **Policy SCR-2.3 Battery Permitting.** Establish a streamlined approval process for battery storage systems.

GOAL SCR-3: Buildings. Green and decarbonized buildings for new construction and major renovations

- **SCR-3.4 Benchmarking Energy and Water Use.** Register municipal buildings with Energy Star Portfolio Manager and report energy and water use (AB 802).

Goal SCR-4 Transportation. Reduced greenhouse gas emissions from transportation (SB 379, EO N-79-20)

- **SCR-4.3 Public EV Chargers.** Install EV chargers at suitable public facilities, including any parking structures, the future multi-modal High Speed Rail station, and community parks.
- **SCR-4.5 ZEV Purchasing.** When purchasing City vehicles give preference to fuel efficient vehicles, including the use of zero emission vehicles.
- **SCR-4.6 Clean Fuels.** Require use of clean fuels for City construction and maintenance vehicles and lawn/garden equipment

Goal AQ-4 Energy Consumption. Reduced air pollution caused by energy consumption.

- **AQ 4-1 EPIC Participation.** Encourage residents and business owners to participate in Energy for Palmdale's Independent Choice (EPIC).

- **AQ 4-2 Energy Conservation.** Encourage energy conservation from all sectors of the community by promoting and/or requiring the use of energy efficient appliances, processes, and equipment, and promoting energy audits and retrofits of existing structures.
- **AQ 4-3 Recycling.** Require local government, Palmdale citizens, and local businesses and industries to recycle, as mandated by state law, and to otherwise recycle to the maximum extent possible in accordance with the requirements of the Palmdale Municipal Code.
- **AQ 4-4 Solar Energy.** Require new developments to minimize obstruction of direct sunlight for solar energy systems on adjacent properties.

CITY OF PALMDALE ENERGY ACTION PLAN

The City of Palmdale Energy Action Plan demonstrates the City's commitment to achieve energy efficiency and independence by reducing greenhouse gas emissions consistent with state legislation. The City developed the Energy Action Plan to achieve energy independence, energy efficiency and conservation, and land uses that reduce transportation time and costs, to encourage jobs-creation, and to identify strategies to increase investment in the local economy. The primary purpose of the Energy Action Plan is to identify how the City will use energy efficiency and independence strategies to achieve its GHG emission reduction target of 15% by the year 2020 consistent with the State's overall target to reduce GHG emissions statewide to 1990 levels by 2020. The Energy Action Plan provides goals and measures focused on energy use, water use, transportation, land use, and solid waste to reduce GHG emissions wherever possible while enhancing the local economy and reducing reliance on inefficient energy imports (City of Palmdale 2011). Current efforts include implementing interior and exterior efficient lighting and heating, ventilation, and air conditioning (HVAC) upgrades across City facilities, installing solar panels to generate renewable, carbon-free energy, installing publicly accessible electric vehicle (EV) chargers, and moving forward with a Community Choice Aggregation program, such as EPIC, to supply carbon-free electricity to City residents and businesses starting in October of 2022.

LOS ANGELES COUNTY GENERAL PLAN

The Los Angeles County General Plan 2035 Conservation and Natural Resources Element (County of Los Angeles 2022) guides the long-term conservation of natural resources and preservation of available open space areas. The Conservation and Natural Resources Element addresses the following conservation areas: Open Space Resources; Biological Resources; Local Water Resources; Agricultural Resources; Mineral and Energy Resources; Scenic Resources; and Historic, Cultural and Paleontological Resources. The Mineral and Energy Resources section of the Conservation and Natural Resources Element addresses the use and management of valuable energy and mineral resources in the unincorporated areas, and the importance of sustaining and maintaining these resources for future users. The following goals and policies in the County's General Plan are related to energy resources.

GOAL C/NR 12: Sustainable management of renewable and non-renewable energy resources.

- **Policy C/NR 12.1:** Encourage the production and use of renewable energy resources.
- **Policy C/NR 12.2:** Encourage the effective management of energy resources, such as ensuring adequate reserves to meet peak demands.
- **Policy C/NR12.3:** Encourage distributed systems that use existing infrastructure and reduce environmental impacts.

3.5.3 IMPACT ANALYSIS

This section evaluates whether implementation of the proposed Project would result in significant impacts related to energy resources. Energy consumption as it relates to greenhouse gas emissions is evaluated in *Section 3.2:* Air Quality and Greenhouse Gas Emissions.

3.5.3.1 Methodology for Analysis

Impacts are identified and evaluated based on relevant CEQA Guidelines and local standards, policies, and guidelines, on the likelihood that energy resources and policies adopted for the purpose of environmental protection are present within the Project area and on the most conservative likely effects that the proposed Project might have on energy resources.

3.5.3.2 Thresholds of Significance

Consistent with Appendix F and G of the *CEQA Guidelines,* as updated in December 2018, an impact on energy resources would be considered significant if the proposed Project would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

3.5.3.3 Criteria Requiring No Further Evaluation

All criteria require further evaluation.

3.5.3.4 Impacts and Mitigation Measures

Impact ENE-1 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

IMPACT ENE-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Implementation of the Pure Water Antelope Valley project would require the use of energy to power vehicles and equipment during construction. The majority of vehicles would likely be diesel-fueled; however, smaller equipment may be electric-, gasoline-, or natural gas-fueled. The construction vehicles and equipment would comply with federal standards for vehicle fuel efficiency because all vehicles and machinery that are sold in the United States must meet those standards. Construction contractors would be required to comply with the provisions of California Code of Regulations Title 13 Sections 2449 and 2485, which prohibit diesel-fueled commercial motor vehicles and off-road diesel vehicles from idling for more than five minutes and would minimize unnecessary fuel consumption. Construction equipment would be subject to the United States Environmental Protection Agency (U.S. EPA) Construction Equipment Fuel Efficiency Standard, which would also minimize inefficient, wasteful, or unnecessary fuel consumption. The use of fuels would be consistent with typical construction and manufacturing practices and would not be wasteful or unnecessary because doing so would be economically disadvantageous for contractors. The number of vehicle trips required for the delivery and hauling of equipment and material would vary based on the phase and duration of the construction activity. PWD would store as much excavated soil on site as possible for reuse as backfill, so as to minimize fuel consumption associated with haul trucks for soil disposal.

The number of workers that would be required to commute to the site and the total number of worker trips would also vary based on the phase and duration of the construction activity. While the specific number of workers required for construction is uncertain, the contractor would seek to hire construction workers from the local workforce, which would minimize commuting distances and overall vehicle miles traveled. Hiring from the local workforce would reduce fuel consumption and reduce the wasteful, inefficient, and unnecessary consumption of energy.

Energy consumption during construction would have a nominal effect on the local and regional energy supplies. There are no unusual proposed Project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region or State. Construction would be temporary and in compliance with regulations, and equipment would be maintained to optimal performance to reduce use of fuels. Therefore, the temporary construction impacts associated with implementation of Pure

Water Antelope Valley would not result in wasteful, inefficient, or unnecessary consumption of energy resources, and impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Construction activities would result in temporary energy use related to fuel consumption for heavy-duty diesel and gasoline-powered equipment, portable auxiliary equipment, material delivery trucks, and worker commuter trips. A conservative estimate of the amounts of diesel fuel consumed from construction activities associated with the proposed groundwater rehabilitation and well replacement are presented in **Table 3.5-2**. The amount of fuel used for replacement well construction was estimated based on factors for calculating GHG emissions from fuel (The Climate Registry 2023) and the proposed Project's GHG emissions, which were estimated in CalEEMod (see **Section 3.2: Air Quality and Greenhouse Gas Emissions**).

Table 3.5-2: Estimated Fuel Consumption for Construction of Groundwater Wells

Source	Gasoline fuel consumption (gallons)	Diesel fuel consumption (gallons)
Construction Equipment & Vendor/Hauling Trips	--	41,100
Construction Worker Vehicle Trips	4,400	--

Note: The amount of diesel fuel is based on an average kg CO_2/gallon factor of 10.45 and the amount of gasoline fuel is based on a factor of 8.78 kg CO_2/gallon (The Climate Registry 2023).

It is assumed that between 2025 and 2035, the approximately 6-month long construction[1] of replacement groundwater wells would consume approximately 26,000 gallons of diesel fuel from operation of on-site heavy construction equipment and hauling trips and approximately 2,000 gallons of gasoline from worker and vendor trips. Trips associated with groundwater rehabilitation are assumed to have a lesser impact than rehabilitation.

The proposed Project would adhere to all applicable energy conservation measures, including Advanced Clean Cars and the In-Use Off-Road Diesel Vehicles regulations. Vehicles used for construction would comply with CAFE fuel economy standards, which would result in more efficient use of transportation fuels and thus lower consumption. Because of the high cost of fuels, contractors have a built-in incentive to minimize energy use and use fuel efficient equipment. Therefore, the well replacement/ rehabilitation component would not cause a significant environmental impact due to inefficient energy use. Although it would consume gasoline and diesel fuel, the proposed Project would not cause a significant environmental impact from unnecessary or wasteful energy use. Therefore, impacts are less than significant.

[1] Includes well drilling and construction and well equipping.

Local Supplies

Palmdale Ditch Conversion Project

Construction of the Palmdale Ditch Conversion project would not include natural gas connections and new electricity usage; therefore, this analysis focuses on fuel consumption. The proposed Project would require clearing/grubbing, demolition, excavation, pipeline installation, paving, and site restoration. During Project construction, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the Project area, construction worker travel to and from the Project area, and vehicles used to transport materials to and from the site. As shown in **Table 3.5-3**, proposed Project construction would require approximately 9,000 gallons of gasoline and approximately 33,000 gallons of diesel fuel. These construction energy estimates are conservative because they assume that the construction equipment used in each phase of construction is operating every day of construction.

Table 3.5-3: Estimated Fuel Consumption during Construction of the Palmdale Ditch Conversion Project

Source	Gasoline fuel consumption (gallons)	Diesel fuel consumption (gallons)
Construction Equipment & Vendor/Hauling Trips	--	33,170
Construction Worker Vehicle Trips	8,943	--

[1]Unspecified power is electricity that has been purchased through open market transactions and is not traceable to a specific generation source.

Source: CEC 2022. See Appendix E for energy calculation sheets.

Energy use during construction would be temporary in nature, and construction equipment used would be typical of similar-sized construction projects in the region. In addition, construction contractors would be required to comply with the provisions of California Code of Regulations Title 13 Sections 2449 and 2485, which prohibit diesel-fueled commercial motor vehicles and off-road diesel vehicles from idling for more than five minutes and would minimize unnecessary fuel consumption. Construction equipment would be subject to the U.S. EPA Construction Equipment Fuel Efficiency Standard, which would also minimize inefficient, wasteful, or unnecessary fuel consumption. These practices would result in efficient use of energy necessary to construct the proposed Project. In the interest of cost-efficiency, construction contractors also would not utilize fuel in a manner that is wasteful or unnecessary. Therefore, proposed Project construction would not result in a potentially significant environmental impact due to wasteful, inefficient, and unnecessary consumption of energy resources, and no impact would occur.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley would involve a net increase in PWD's electricity usage to operate. It is estimated that the proposed 5 million gallons per day advanced water purification facility (AWPF) would require approximately 4.2 Gigawatt hours per year of power (Stantec 2023).

PWD's total electricity usage averaged 15.5 Gigawatt hours over 2021 and 2022. New facilities constructed as part of the proposed Pure Water Antelope Valley project would represent an approximately 27% increase in PWD's current usage. Implementation of **Mitigation Measure ENE-1** would require the installation of energy efficient equipment and off-peak operation of the PWD system. Furthermore, PWD would continue to work closely with SCE, EPIC, and SCGC to ensure consumption is not wasteful and can be handled by the existing distribution infrastructure. In addition, PWD intends to seek opportunities to find clean energy options, such as solar, to offset the Pure Water Antelope Valley project's electrical needs.

The production and use of recycled water requires less energy input than imported water, particularly in southern California (Pacific Institute 2021). Thus, the greater reliance on recycled water over imported water would lower the demand on local and regional energy supplies and the greater the energy efficiency of the proposed Project. Recycled water would not be able to meet all increased demand, as it would only be used for direct non-potable applications or indirect potable applications. However, the use of recycled water could reduce overall energy use because the electricity required to distribute local recycled water would be substantially less than the electricity required to import the equivalent amount of potable water. **Mitigation Measure ENE-2** would require PWD to promote and encourage the use of recycled water as a potable offset to importing water. Implementation of **Mitigation Measure ENE-2** would reduce the overall energy requirements associated with the proposed Project.

With implementation of **Mitigation Measures ENE-1** and **ENE-2**, the operational impacts associated with implementation of the Pure Water Antelope Valley project would not result in wasteful, inefficient, or unnecessary consumption of energy resources, and impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Once the Palmdale Ditch (Ditch) is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. Therefore, the proposed Project would not result in a net increase in operational fuel

consumption. While an increase in electricity use may occur to operate the new future aqueduct turnout, this increase would be nominal because the new future turnout would operate infrequently. In addition, a minor quantity of diesel fuel consumption would be associated with maintenance and testing of the potential backup generator associated with the new future turnout. Therefore, proposed Project operation would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, and no impact would occur.

Conservation

The treatment and distribution of water requires energy and the implementation of water conservation measures would, in turn, result in energy conservation. Therefore, conservation measures would not result in an environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during operation.

IMPACT ENE-1 FINDINGS

Significance before Mitigation: Potentially Significant Impact

Mitigation Measures: Mitigation Measure ENE-1 and ENE-2

Significance after Mitigation: Less than Significant Impact after Mitigation Incorporated

Impact ENE-2 Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

IMPACT ENE-2 ANALYSIS

Neither PWD nor the County has adopted a plan for renewable energy or energy efficiency that is applicable to the proposed Project, and PWD's energy consumption does not fall within the purview of the City's Energy Action Plan, which focuses on City government operations (City of Palmdale 2011). Therefore, no local plans for renewable energy or energy efficiency are applicable to the proposed Project. Applicable State plans for renewable energy or energy efficiency include those listed in Section 3.5.2.2 above, such as the California Energy Action Plan and Alternative Fuels Plan.

CONSTRUCTION

Recycled Water

While the precise amount of construction energy consumption is uncertain, implementation of the Pure Water Antelope Valley project would employ construction contractors who demonstrate compliance with applicable State and local regulations governing renewable energy or energy efficiency. Compliance with these regulations would ensure efficient energy demand from construction equipment. Prior to the start of construction, project-specific environmental review pursuant to CEQA will be conducted to evaluate the potential construction related impacts on energy resources. However, it is reasonably anticipated that the temporary

construction impacts of the Pure Water Antelope Valley project would not conflict with or obstruct applicable renewable energy or energy efficiency plans.

Groundwater

Existing Wells Rehabilitation and/or Replacement

The amount of construction fuel required for well rehabilitation or well replacement is presented in **Table 3.5-2**. PWD would select construction contractors who would comply with applicable rules and regulations governing renewable energy and energy efficiency. PWD would undertake each well rehabilitation or replacement project separately over a period of approximately 10 years, between 2025 and 2035. As regulations on vehicle and energy efficiency become more stringent over time, the contractors would maintain compliance, for example by phasing in more energy efficient vehicles into the construction fleet, as required. As such, groundwater well rehabilitation and/or replacement would not conflict with applicable renewable energy or energy efficiency plans.

Local Supplies

Palmdale Ditch Conversion Project

During Project construction, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the Project area, construction worker travel to and from the Project area, and vehicles used to transport materials to and from the site. As shown in **Table 3.5-3**, proposed Project construction would require approximately 9,000 gallons of gasoline and approximately 33,000 gallons of diesel fuel. PWD would select construction contractors who would comply with applicable rules and regulations governing renewable energy and energy efficiency. As such, the Palmdale Ditch Conversion project would not conflict with applicable renewable energy or energy efficiency plans.

Conservation

Implementation of conservation measures does not require any construction. Therefore, there would be no impact.

OPERATION

Recycled Water

In order to support renewable energy or energy efficiency plans, implementation of the Pure Water Antelope Valley project would incorporate energy efficient equipment locally, such as system pumps and lighting, to minimize energy impacts. In addition, scheduling PWD system pumps to operate as much as possible during off-peak energy demand periods would be consistent with policies for maximizing off-peak power usage for utilities. **Mitigation Measure ENE-1** would require both energy efficient equipment and off-peak operation of the PWD system. The production and use of recycled water is more energy efficient than imported water. Thus, the greater the use of recycled water to offset the need for imported water, the lower the

demand on local and regional energy supplies and the greater the energy efficiency of the proposed Project. **Mitigation Measure ENE-2** would require PWD to promote and encourage the use of recycled water as a potable offset to importing water. Such energy efficiency measures, in addition to any clean energy PWD may install, such as solar, to offset the Pure Water Antelope Valley project's electrical needs, would reduce the overall energy requirements associated with the proposed Project.

With implementation of **Mitigation Measure ENE-1** and **ENE-2**, it is reasonably anticipated that the operational impacts associated with the proposed Project actions would not conflict with or obstruct applicable renewable energy or energy efficiency plans. Therefore, impacts would be less than significant with mitigation incorporated.

Groundwater

Existing Wells Rehabilitation and/or Replacement

The replacement and/or rehabilitated groundwater wells would not result in new energy demands. The replacement wells, or rehabilitated wells would be equipped with new machinery, which would presumably be more efficient than the existing wells and would not result in a net increase in energy impacts. Although it would consume electricity and natural gas, the proposed Project would not conflict with or obstruct applicable renewable energy or energy efficiency plans. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The proposed pipeline would be a gravity flow pipeline and would require nominal additional electricity compared to PWD's existing electricity use. Therefore, operation of the Ditch conversion would not conflict with any State or local plans for renewable energy or energy efficiency, and no impact would occur.

Conservation

Implementation of water conservation measures would result in energy conservation. Therefore, conservation would not conflict with any State or local plans for renewable energy or energy efficiency, and no impact would occur.

IMPACT ENE-2 FINDINGS

Significance before Mitigation: Potentially Significant Impact

Mitigation Measures: Mitigation Measures ENE-1 and ENE-2

Significance after Mitigation: Less than Significant Impact after Mitigation Incorporated

3.5.3.5 Mitigation Measures

MITIGATION MEASURE ENE-1: ENERGY EFFICIENT EQUIPMENT

PWD shall require the use of energy efficient equipment, including pumps and lighting in new water facilities. The PWD system should be designed and operated to shift energy demands to off-peak periods whenever possible.

MITIGATION MEASURE ENE-2: PROMOTION OF RECYCLED WATER

PWD shall promote and encourage the use of recycled water to offset imported water requirements.

3.5.3.6 Cumulative Impact Analysis

Cumulative construction impacts to energy are less than significant when mitigation measures are incorporated. The proposed Project is consistent with the 2045 General Plan and adheres to the City's policies and local, State, and federal regulations. Because the proposed Project would be served by SCE, the geographic scope of the operational cumulative impacts on energy resources encompasses the SCE service area. The proposed Project would result in a significant impact on SCE energy supplies if it would require additional capacity or would exceed SCE's ability to meet peak demand.

Overall electric supply is adequate; however, temporary shortfalls could occur in SCE's service area (and other portions of the statewide grid) during temporary periods of high peak demand. Peak electricity demands occur in SCE's service area during hot weather events when demand for indoor air conditioning rises. In the future, electrification of buildings and increased use of electricity for transportation would add to SCE's peak demand. The proposed Project components would include an additional 4.2 Gigawatt hours per year of power annually for the Pure Water Antelope Valley project, and additional power associated with maximizing PWD's Table A allocations from the SWP. For comparison, SCE's peak hourly demand for electricity is approximately 16 Megawatts (SCE 2022) and the State's total annual system generation in 2022 was 203,257 Gigawatt hours (CEC 2023). Implementation of **Mitigation Measure ENE-1** would require both energy efficient equipment and off-peak operation of the PWD system. In addition, the implementation of **Mitigation Measure ENE-2** would require PWD to promote and encourage the use of recycled water as a potable offset to importing water, which would lower the demand on local and regional energy supplies. Therefore, energy use during operation of the proposed Project would not be considered a cumulatively significant impact.

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3.6 GEOLOGY, SOILS, AND MINERAL RESOURCES

This section describes the geologic, paleontological, and mineral resources, soils and seismicity within the Project area and evaluates potential impacts on those local resources. This section also evaluates whether those conditions would result in geological hazards to the proposed project.

3.6.1 ENVIRONMENTAL SETTING

3.6.1.1 Regional Setting

The proposed Project is located within the Antelope Valley of southern California in the western portion of the Mojave Desert geomorphic province. The Mojave Desert region is dominated by erosional features such as broad alluvial basins that receive non-marine sediments from the adjacent uplands. Topography in this province is controlled by the San Andreas and Garlock Fault systems and consists largely of isolated mountain ranges among desert plains. Numerous playas and dry lakebeds within closed drainage basin are characteristic of the Mojave Desert.

The Antelope Valley is a closed, undrained basin, bordered by the San Andreas Fault and San Gabriel Mountains on the southwest, the Garlock fault and Tehachapi Mountains on the northwest, and a series of hills and buttes within San Bernardino County to the east. The Antelope Valley is underlain by consolidated rocks that crop out in the highlands that surround the basin. The basin consists of igneous and metamorphic rocks of pre-Tertiary age that are overlain by indurated continental rocks of Tertiary age interbedded with lava flows. Thick deposits of alluvial and lacustrine (lakebed) materials have formed the important aquifers within the closed basin. The alluvium is unconsolidated to moderately consolidated, poorly sorted gravel, sand, silt, and clay. Older geologic units of the alluvium are coarser grained, more compact and consolidated, weathered, and poorly sorted than the younger units (USGS 1995).

The San Andreas Fault is the dominant seismic feature in the area. Several fault traces branch off from this fault in the Project area. The San Andreas Fault and its fault traces are active; movement on the San Andreas Fault may activate one or all of these trace faults. Other principal faults that could produce damaging earthquakes in the Palmdale area are the Sierra Madre-San Fernando, Garlock, Owens Valley, and White Wolf faults (City of Palmdale 2022).

TOPOGRAPHY

The Project area is located in the Antelope Valley in the western portion of the Mojave Desert, north of the San Gabriel Mountains. The topography of the Project area varies from relatively flat with occasional drainages and sand dunes on the valley floor to steep foothill and mountain areas in the south portion of the Project area. Elevations range from approximately 2,600 feet above mean sea level (amsl) on the valley floor to 3,000 feet amsl in the foothills. The San Andreas Fault crosses the southernmost portion of the Project area, parallel to and just north of the San Gabriel Mountains. Natural drainage channels including the Amargosa Creek, Anaverde

Creek and Littlerock and Big Rock Washes run generally north and northeast across the Project area toward the Rosamond and Rogers dry lakes (City of Palmdale 2022).

PWD is located at the base of the topographic boundary between the San Gabriel Mountains to the southwest and adjacent valley before the Tehachapi Mountains to the northwest. The proposed Project falls within the City of Palmdale Planning Area (Planning Area) as defined in the City of Palmdale (City) 2045 General Plan (2022). The Planning Area is approximately 201.6 square miles and includes land within Palmdale City Limits, Sphere of Influence, and several unincorporated Los Angeles County areas (City of Palmdale 2022). The Planning Area encompasses various plants and animal communities, slope conditions, soils, and other physical characteristics unique to the area.

The Project area follows the slope conditions of the Planning Area, which is characterized as having slopes from south to the north/northeast, with surface flows and subsurface flows trending away from the foothills to Rosamond Dry Lake. While foothill areas within and adjacent to the City have significant slopes, a majority of the Project area is of relatively flat elevation.

SOILS

Many types of soil are located within the Project area. The soil series found in the Project area include Adelanto, Amargosa, Cajon, Chino, Gaviota, Greenfield, Hanford, Hesperia, Los Posas, Ramona, Rosamond, Sorrento, Vernalis, Vista, and Wyman (NRCS n.d.). The City 2045 General Plan identifies most of Palmdale's soils consist of unconsolidated sedimentary deposits, sources from granitic rocks in the San Gabriel Mountains (City of Palmdale 2022).

SETTLEMENT

Settlement of the ground surface can occur under static conditions (i.e., due to consolidation settlement from overlying load or long-term groundwater extraction) but can also be accelerated and accentuated by earthquakes. Settlement of loose, unconsolidated soils generally occurs slowly but can cause significant structural damage. Loose gravel and related loose soil types are not present in the Project area.

EROSION

Soil erosion is the detachment and movement of soil materials through natural processes (wind or water) or human activities. The Antelope Valley region and local communities contain soils that are characterized by low particle mass and low cohesion qualities. This soil is susceptible to wind erosion and erosion during flash rain events. Areas within Palmdale have been identified to have moderate erosion potential (City of Palmdale 2022).

EXPANSIVE SOILS

Soil expansiveness depends on the type and amount of clay in the soil. Soils with certain types of clay swell or expand when water content is increased. These coils also shrink disproportionately when dry. Highly expansive soils can cause structural damage to structural

foundations and roads. The Project area contains generally designated areas of low, medium and high soil expansion potential. Some of the proposed Project facilities could be located in areas with moderate and high soil expansion potential.

SEISMIC HAZARDS

SURFACE FAULT RUPTURE

Seismically-induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude and nature of fault rupture can vary for different faults, or even along different strands of the same fault. Ground rupture is considered more likely along active faults. Several of the proposed Project's facilities are within an Alquist-Priolo Earthquake Fault Zone, as designated by the Alquist-Priolo Earthquake Fault Zoning Act (See **Figure 3.6-1)**. Rehabilitation and/or replacement of existing wells are not within an Alquist-Priolo Earthquake Fault Zone. Conceptual site locations, such as recycled water injections wells, and pipelines have not been sited yet, so they may fall within the Alquist-Priolo Earthquake Fault Zone.

Figure 3.6-1: Faults and Fault Zones in PWD Service Area

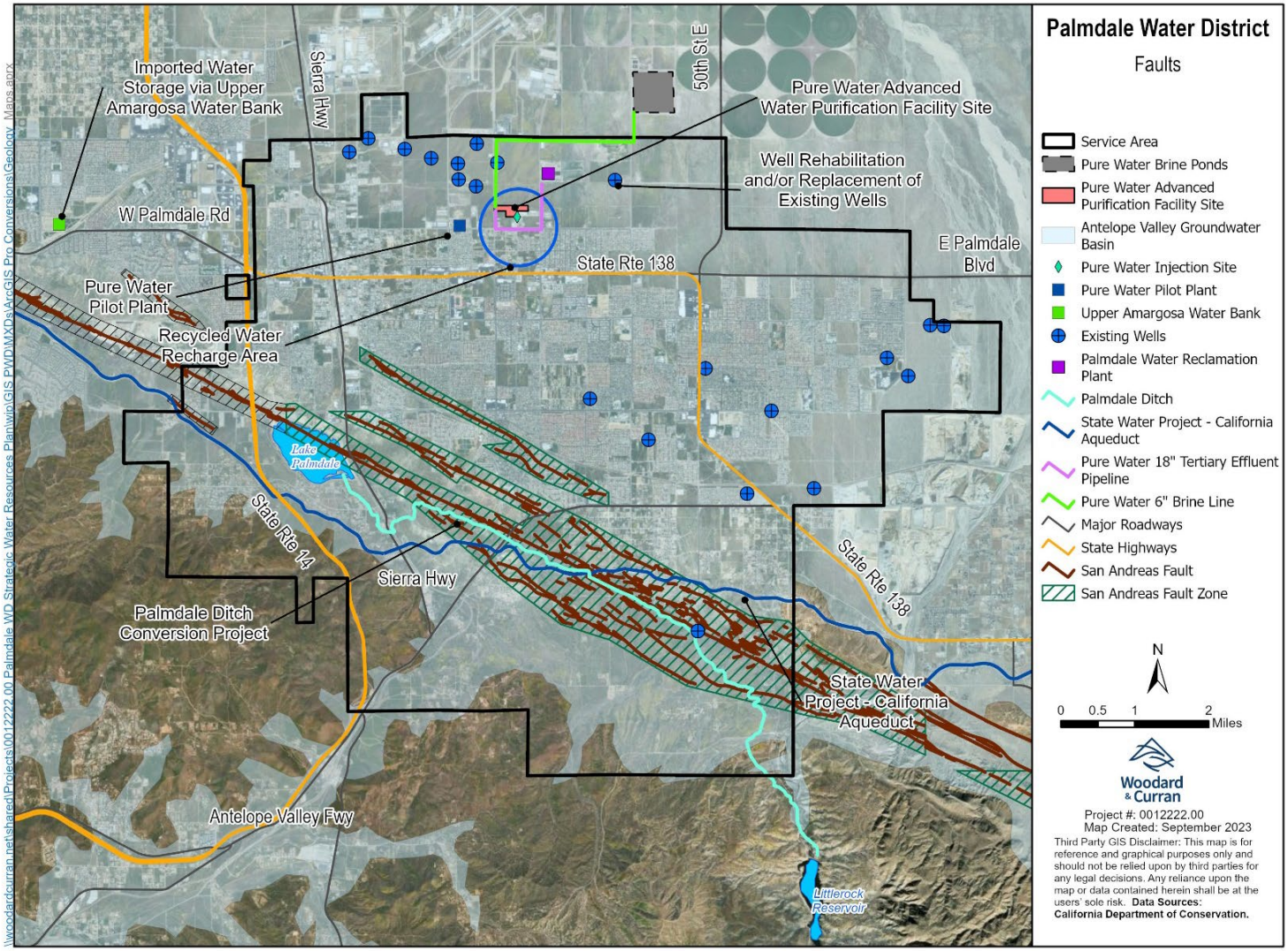
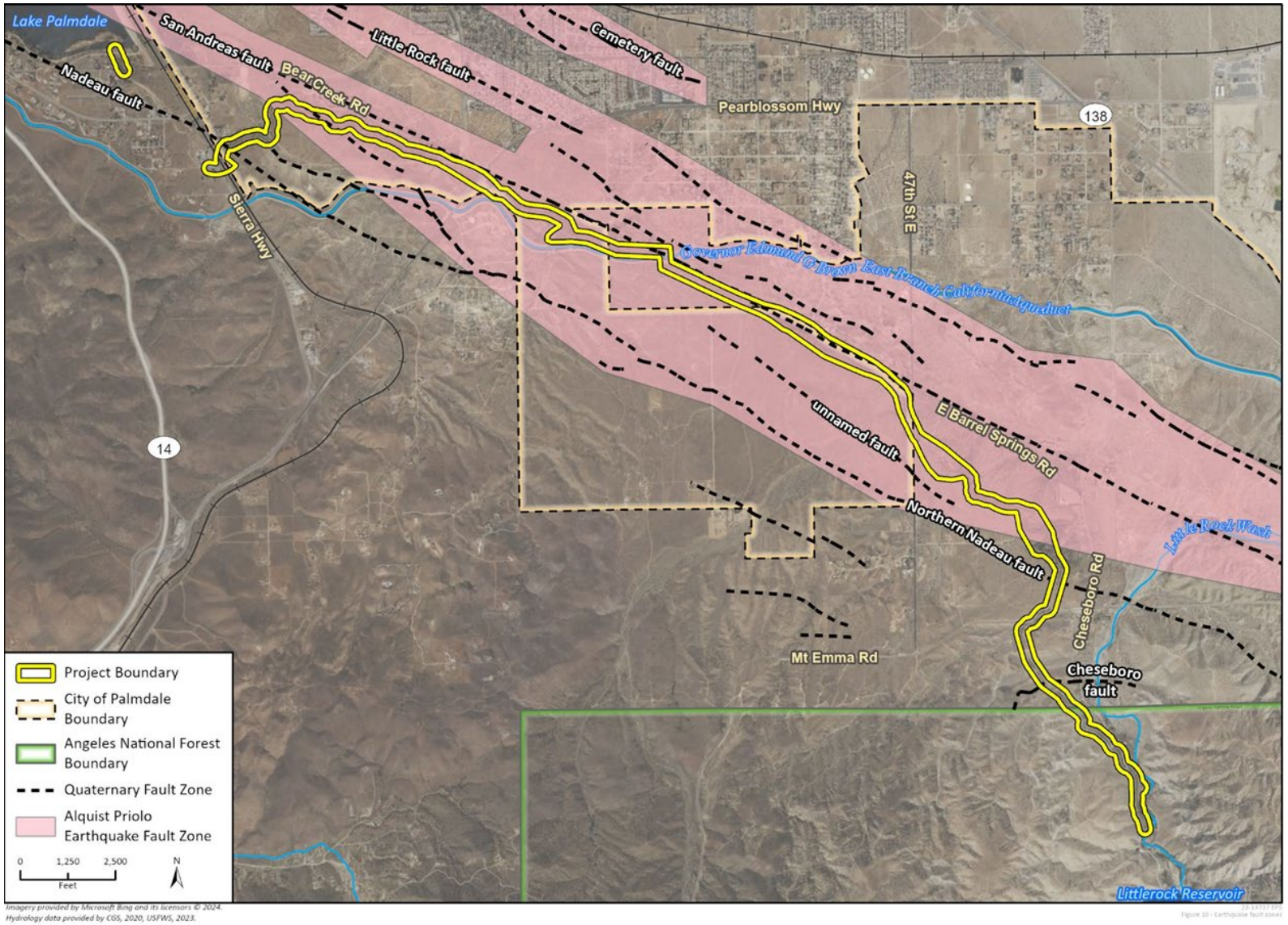


Figure 3.6-2: Faults and Fault Zones in Palmdale Ditch



Source: Rincon 2024

GROUND-SHAKING

The Project area is considered a seismically active region. The San Andreas Fault is the dominant seismic feature in the area. There are a number of existing faults within the City that may cause ground-shaking. Palmdale's proximity to the San Andreas Fault makes it susceptible to the highest level of earthquake hazard risk related to ground-shaking (City of Palmdale 2022). In addition to faults within Palmdale, adjacent faults include the Sierra Madre-San Fernando, Garlock, Owens Valley, and White Wolf faults (City of Palmdale 2022).

LIQUEFACTION

Soil liquefaction is a phenomenon whereby unconsolidated and/or near saturated soils lose cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake shaking results in the temporary fluid-like behavior of the soil. During liquefaction, soils lose strength and ground failure may occur. Secondary ground failures associated with liquefaction include lateral spreading or flowing of stream banks or fills, sand boils, and subsidence. Areas characterized by water-saturated, cohesionless and granular soils are most susceptible to liquefaction and usually at depths of less than 50 feet, especially in areas with a shallow water table. The groundwater table can fluctuate greatly in association with groundwater recharge activities, both natural and artificial. During years of high groundwater recharge, the groundwater table could potentially be shallow enough to present a liquefaction hazard in the area. Portions of the proposed Project are within liquefaction seismic hazard sones (**Figure 3.6-3**).

LANDSLIDES

Landslides are movements of mass rock, debris, or earth down a slope (City of Palmdale 2022). The City General Plan identifies the southern and western edges of Palmdale contain steep hillsides with slopes greater than 25 percent that are susceptible to landslides. The remainder of the General Plan planning area is relatively flat, with low landslide risk (City of Palmdale 2022). Some of the proposed Project facilities would be located within a State-identified liquefaction hazard Zone.

SUBSIDENCE

Subsidence (or gradual sinking) of the ground is caused by decreasing subsurface pressure from substantial loss of ground fluid, which creates a vacuum. Subsidence is often caused by pumping of groundwater, natural gas, or oil, and may cause damage to development, underground utility lines, pipelines, and wells.

Figure 3.6-3: Liquefaction Zones in PWD Service Area

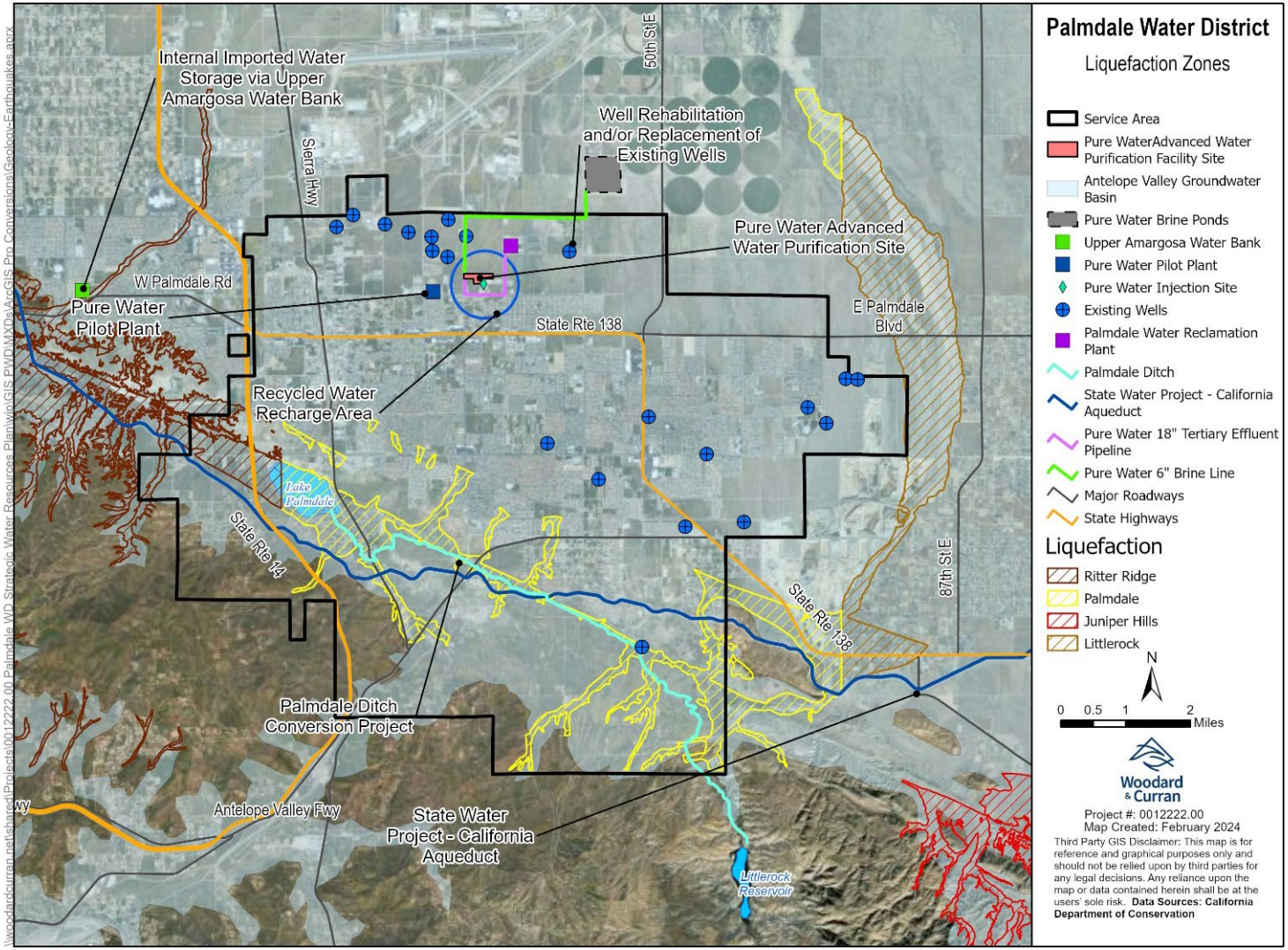


Figure 3.6-4: Landslide Zones in PWD Service Area

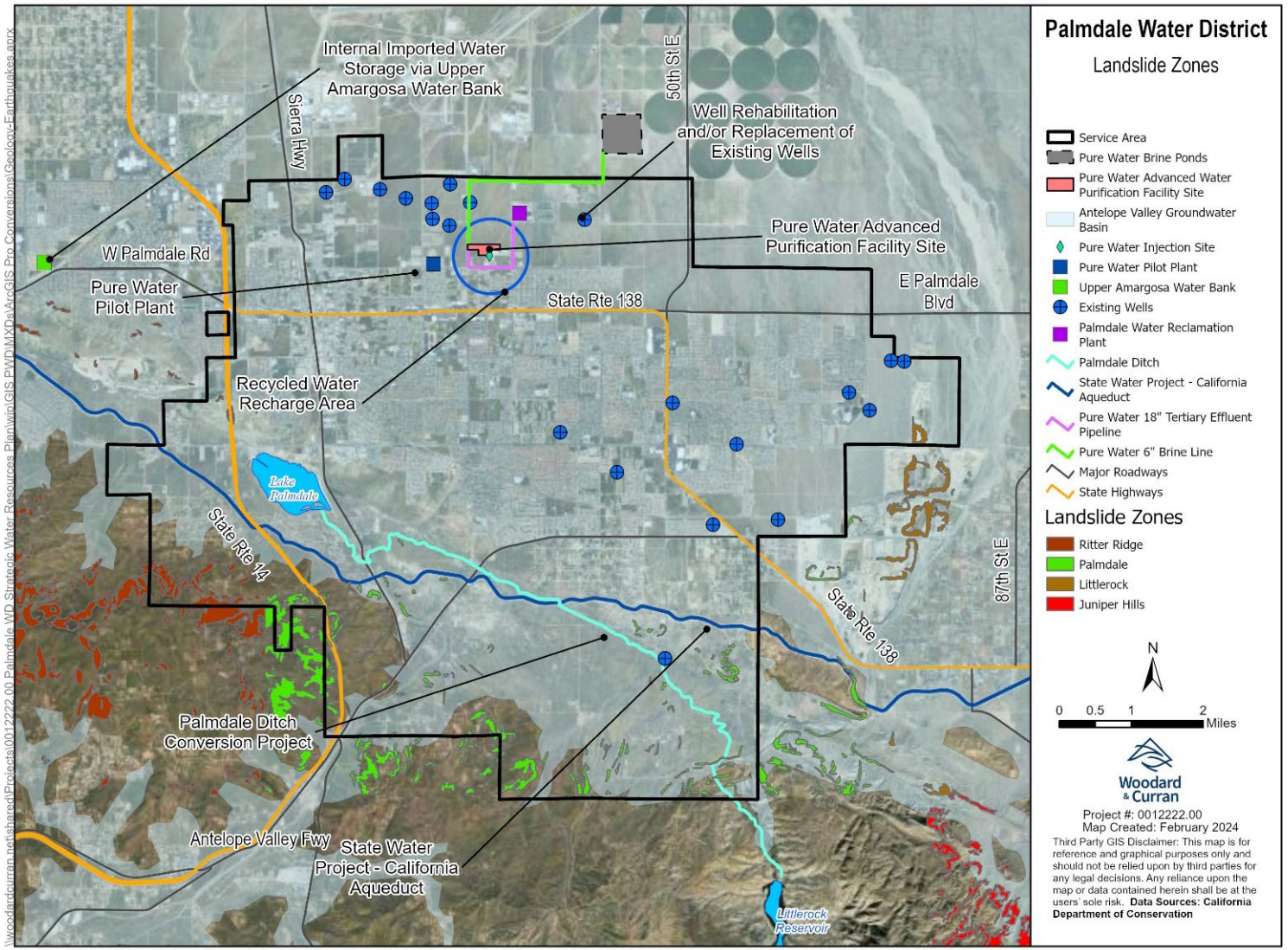
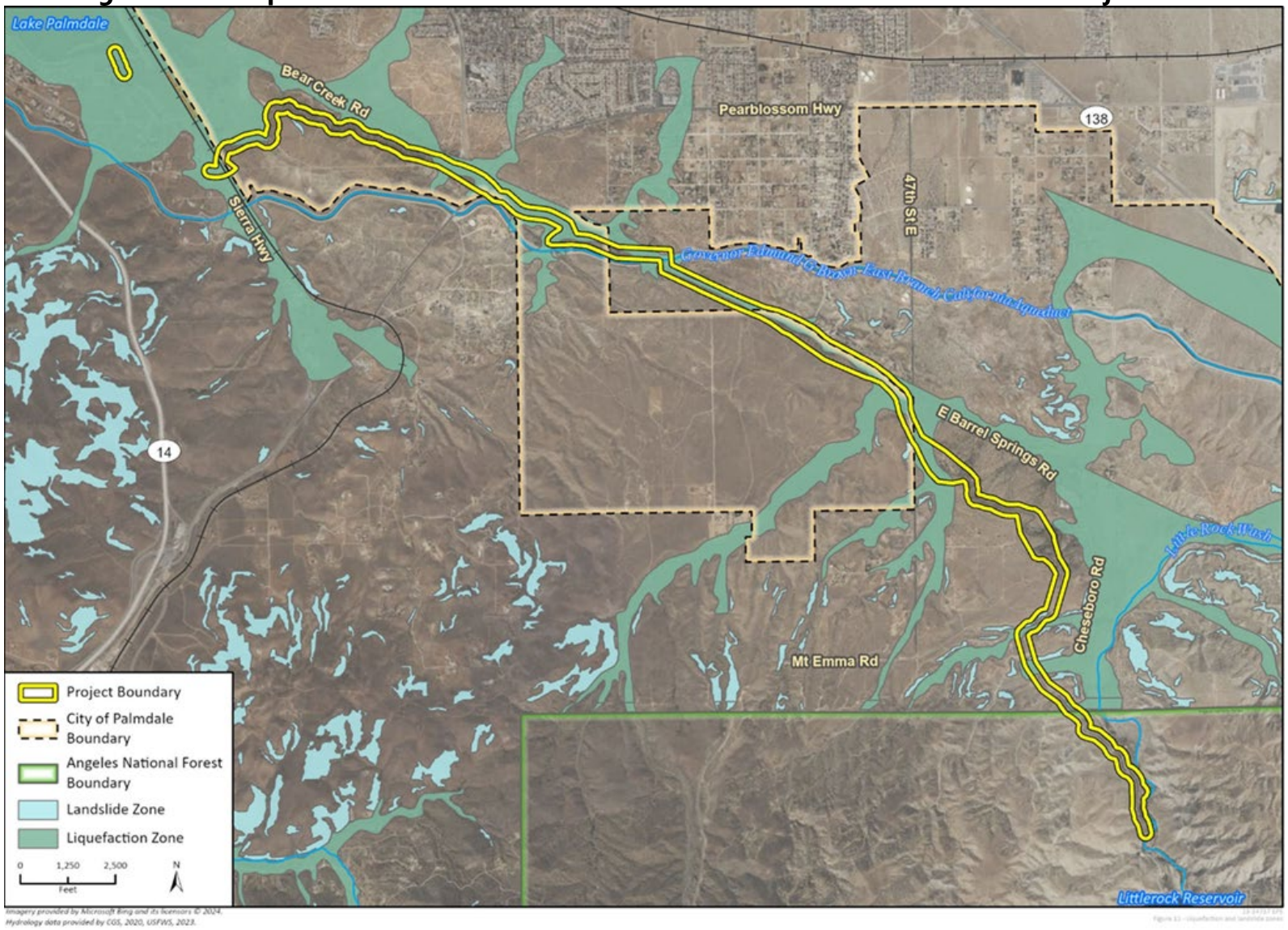


Figure 3.6-5: Liquefaction and Landslide Zones in the Palmdale Ditch Conversion Project Area



Source: Rincon 2024

PALEONTOLOGY

Paleontology is a branch of geology that studies the life forms of the past through the study of plant and animal fossils including the traces left from their activities. Paleontological resources represent a limited, non-renewable, and impact-sensitive scientific and educational resource. As defined in this section, paleontological resources are the fossilized remains or traces of multi-cellular invertebrate and vertebrate animals and multi-cellular plants, including their imprints. Fossil remains such as bones, teeth, shells, and leaves are found in the geologic deposits (rock formations) where they were originally buried. Paleontological resources include not only the actual fossil remains, but also the collecting localities, and the geologic formations containing those localities.

Fossils are contained within surficial sediments or bedrock, and are therefore not observable or detectable unless exposed by erosion or human activity. Therefore, without natural erosion or human-caused exposure, paleontologists cannot know either the quality or quantity of fossils. As a result, even in the absence of surface fossils, it is necessary to assess the sensitivity of rock units based on their known potential to produce significant fossils elsewhere within the same geologic unit (both within and outside of the study area), a similar geologic unit, or based on whether the unit in question was deposited in a type of environment that is known to be favorable for fossil preservation. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if the fossils are significant, that successful mitigation and salvage efforts may be undertaken.

PROJECT GEOLOGY

The proposed Project is located in the broad alluvial Antelope Valley and piedmont region north of the San Gabriel Mountains of the Transverse Ranges in the southwestern Mojave Desert. While the San Gabriel Mountains are composed of a complex suite of bedrock dating back over one billion years, the proposed Project is largely to be developed on the thick alluvial fans that range back to the early Holocene, approximately 10,000 years ago. Mapping by Olson and Hernandez (2013) show that the proposed Project is largely on young alluvial fans (Qyf) that date from the middle to early Holocene, approximately 4,000-12,000 years ago. Alluvial fan sediments are unconsolidated to weakly consolidated sandstone with fine gravel. As these deposits are eroded from the nearby San Gabriel Mountains, they are immature and arkosic. The proposed Project also is to be developed on modern alluvial fans (Qf) that are similar in nature but date to recent activity. The active channels in the vicinity of the proposed Project are underlain by modern alluvium (Qa) deposited through stream activity. Fluvial sediments are more diverse and include silt in addition to sands and gravel.

The Palmdale Ditch (Ditch) Conversion component of the proposed Project extends to the northwest and intersects more complicated geology. Specifically, the Ditch Conversion will transverse bedrock ranging into the older Neogene (Littlerock Creek, Harold Formation, Juniper Hills Formation, Ritter Formation, Anaverde Formation, Punchbowl Formation, and Vasquez Formation) and even older Mesozoic intrusive rocks and pre-Mesozoic metamorphic rocks

(Dibblee and Ehrenspeck 2001; Lancaster et al. 2012; Olson and Hernandez 2013). These geologic units and their paleontological sensitivities in relation to the Project area are shown in **Figure 3.6-6** through **Figure 3.6-10**. The paleontological sensitivity of each of the geologic units is also described in **Table 3.6-1.**

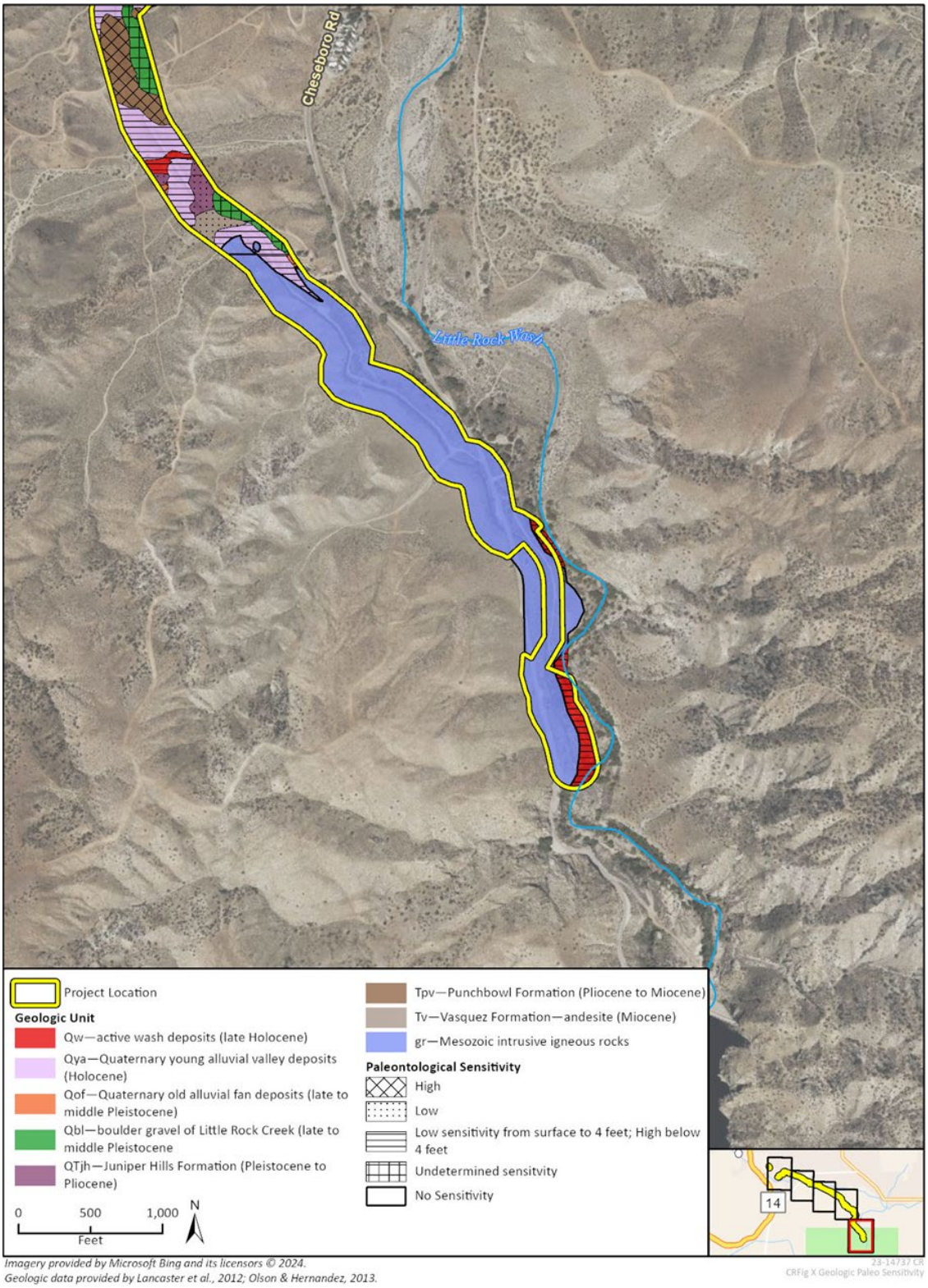
Table 3.6-1: Geologic Units and Paleontological Sensitivity of the Project Area

Geologic Unit	Age	Paleontological Sensitivity
Artificial Fill	Late Holocene	No Sensitivity from Surface to 4 feet; Undetermined below 4 feet
Active Wash Deposits	Late Holocene	Low Sensitivity from Surface to 4 feet; High below 4 feet
Active Alluvial Valley Deposits	Late Holocene	Low Sensitivity from Surface to 4 feet; High below 4 feet
Active Alluvial Fan Deposits	Late Holocene	Low Sensitivity from Surface to 4 feet; High below 4 feet
Quaternary Young Alluvial Valley Deposits	Holocene	Low Sensitivity from Surface to 4 feet; High below 4 feet
Quaternary Old Alluvial Fan Deposits	Late to Middle Pleistocene	High Sensitivity
Quaternary Old Alluvium	Late to Middle Pleistocene	High Sensitivity
Boulder Gravel of Littlerock Creek	Late to Middle Pleistocene	Undetermined Sensitivity
Harold Formation	Middle to Early Pleistocene	High Sensitivity
Juniper Hills Formation	Pleistocene to Pliocene	Low Sensitivity
Ritter Formation	Pleistocene to Pliocene	Undetermined Sensitivity
Anaverde Formation	Pliocene	High Sensitivity
Punchbowl Formation	Pliocene to Miocene	High Sensitivity
Vasquez Formation - andesite	Miocene	Low Sensitivity
Mesozoic Intrusive Igneous Rocks	Mesozoic	No Sensitivity
Pre-Cretaceous Metamorphic Rocks	Mesozoic to Paleozoic	No Sensitivity

As described in **Table 3.6-1,** Quaternary old alluvial fan deposits, Quaternary old alluvium, Harold Formation, Anaverde Formation, and Punchbowl Formation have high paleontological sensitivity. Boulder gravel of Littlerock Creek and Ritter Formation have undetermined paleontological sensitivity. Active wash deposits, active alluvial valley deposits, active alluvial fan deposits, and Quaternary young alluvial valley deposits have high paleontological sensitivity greater than four feet below the surface, and artificial fill has undetermined paleontological sensitivity greater than four feet below the surface.

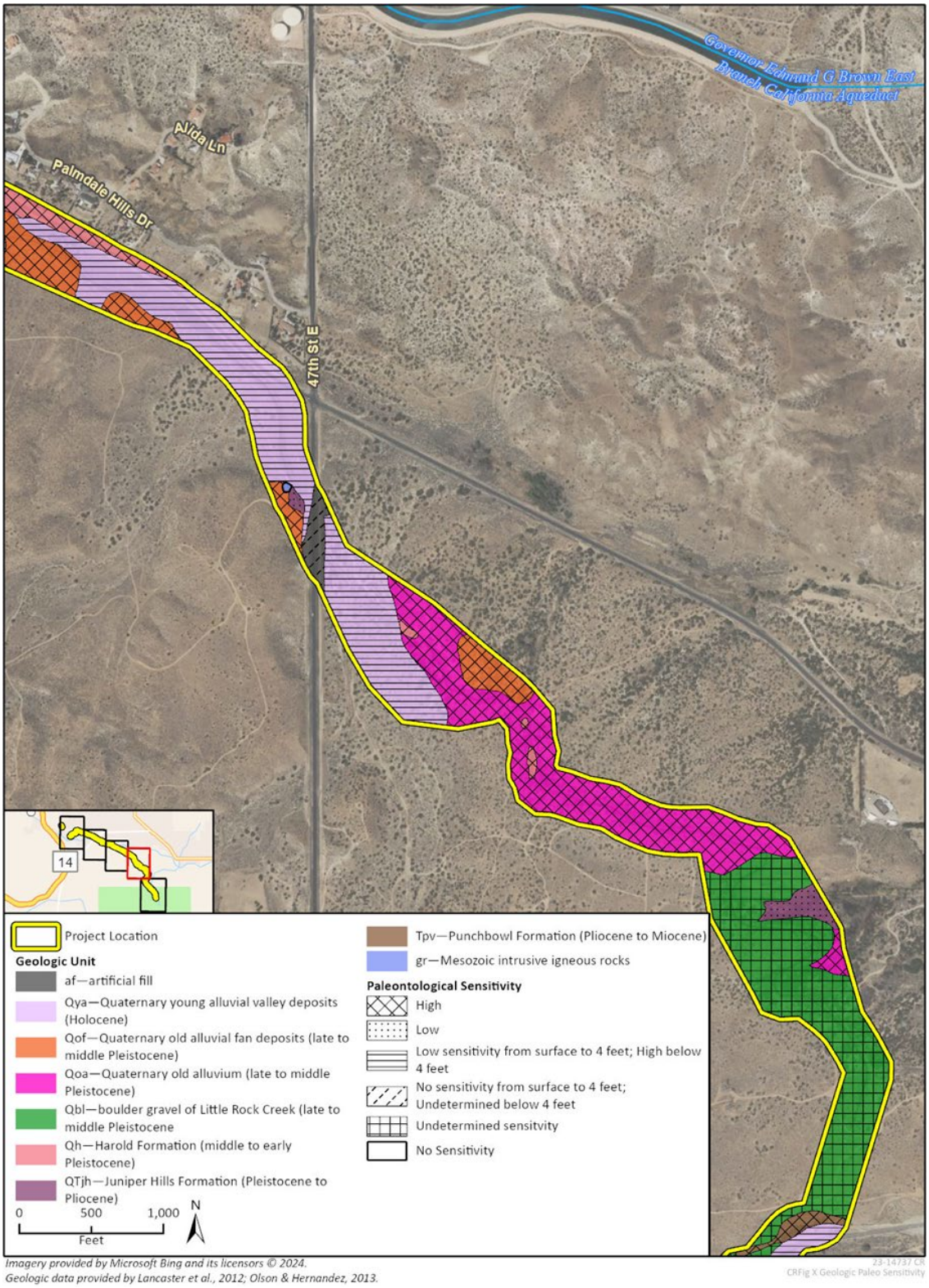
Uplift and erosion of the San Gabriel Mountains began much earlier than the Holocene epoch and older Pleistocene age fans and alluvium are predicted at depth below the younger alluvium. The actual depth has not been determined; however, outcrops of Pleistocene-aged alluvium are mapped at the surface approximately one mile south of the proposed Project (Olson and Hernandez 2013).

Figure 3.6-6: Geologic Map and Paleontological Sensitivity of the Palmdale Ditch Conversion Project – Southeastern Extent



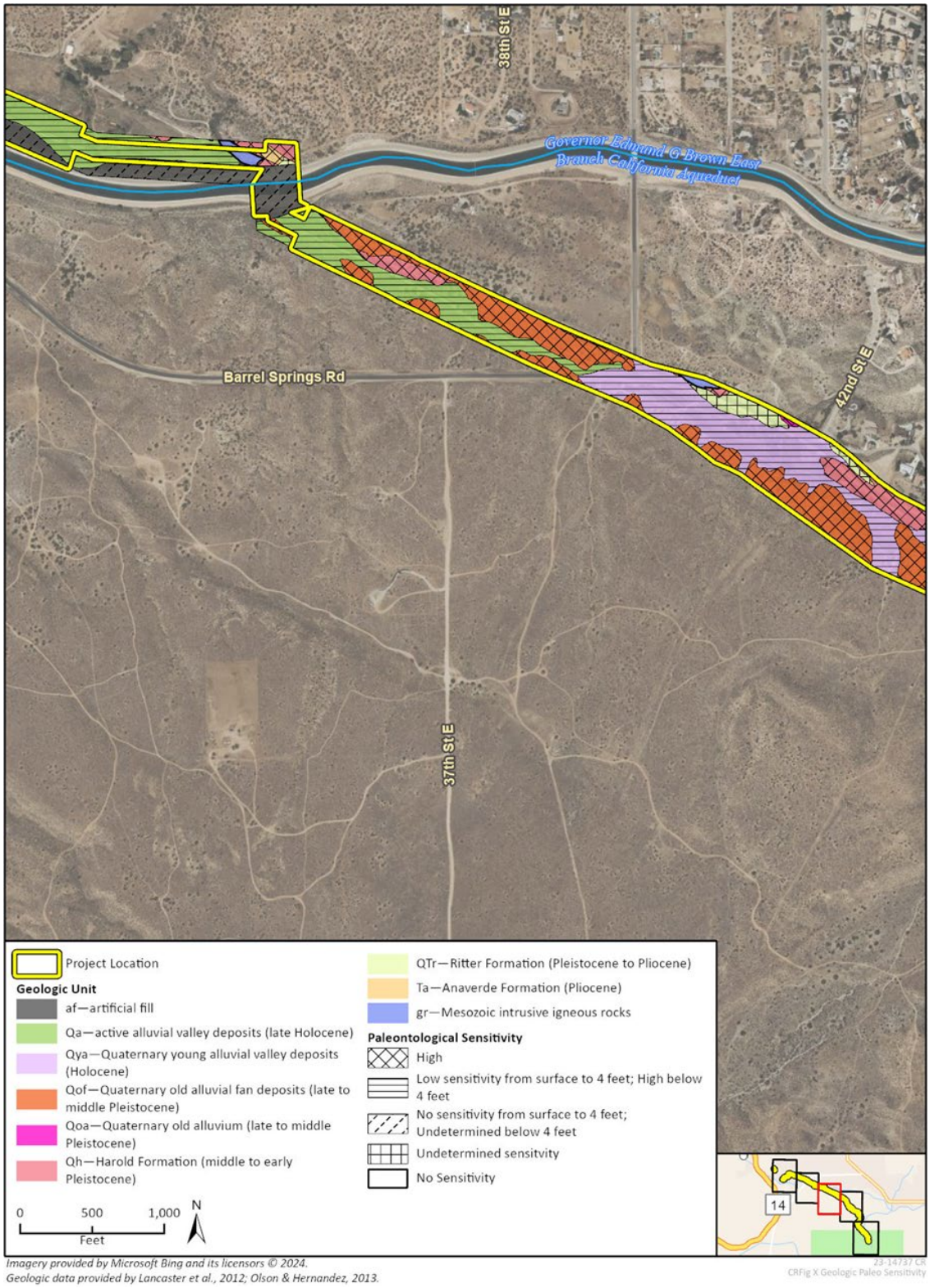
Source: Rincon 2024

Figure 3.6-7: Geologic Map and Paleontological Sensitivity of the Palmdale Ditch Conversion Project – Southcentral Extent



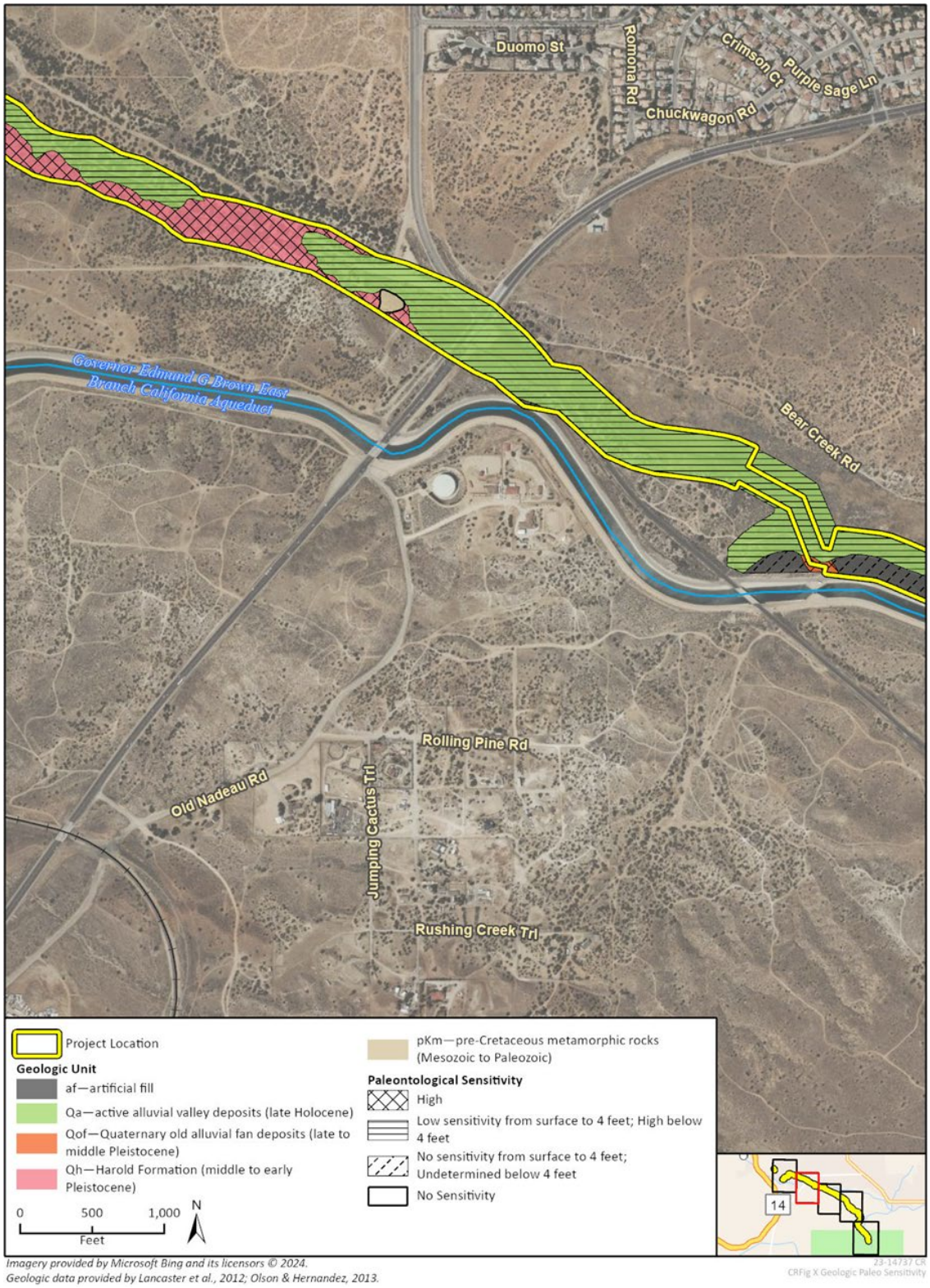
Source: Rincon 2024

Figure 3.6-8: Geologic Map and Paleontological Sensitivity of the Palmdale Ditch Conversion Project – Central Extent



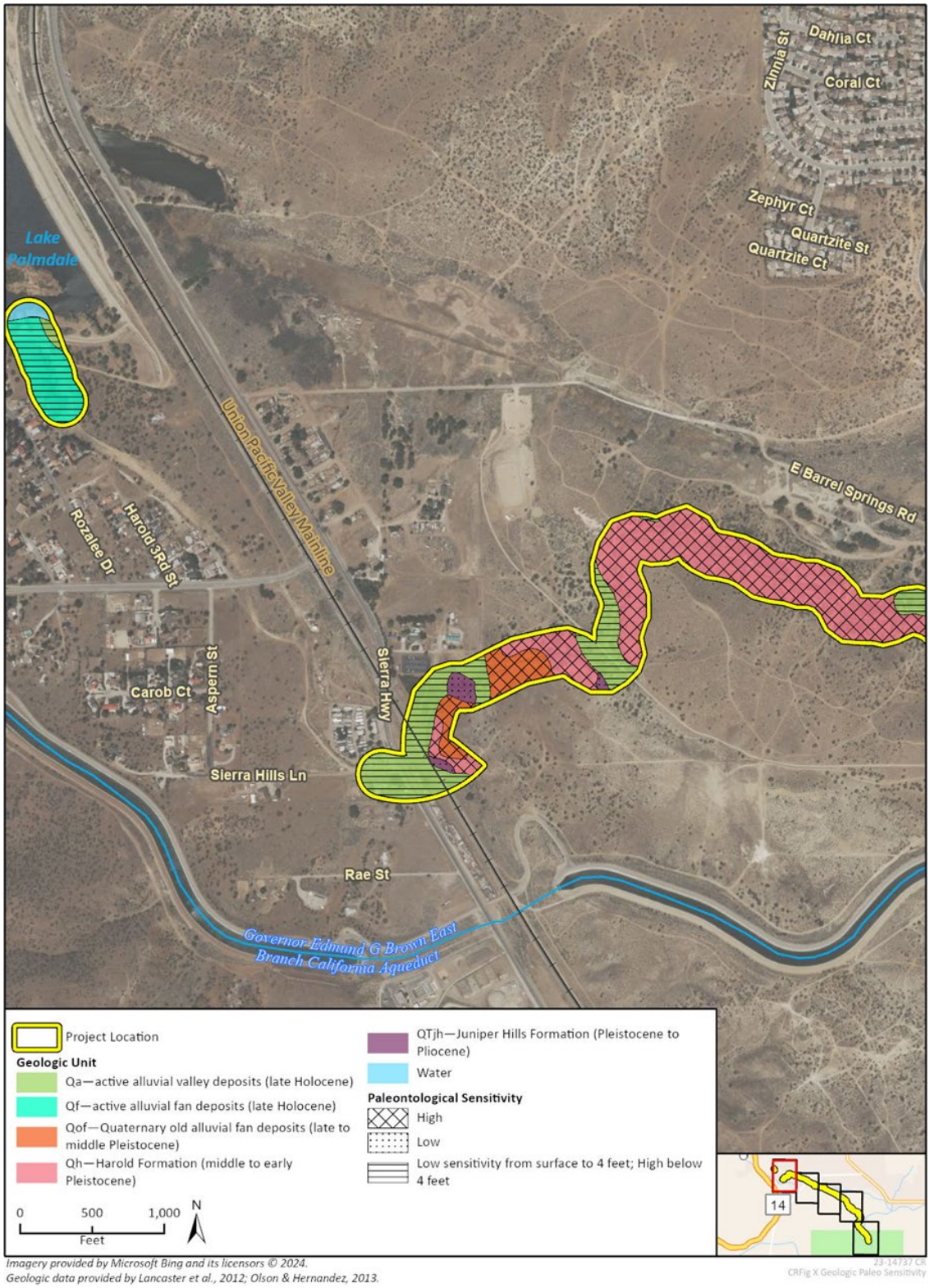
Source: Rincon 2024

Figure 3.6-9: Geologic Map and Paleontological Sensitivity of the Palmdale Ditch Conversion Project – Northcentral Extent



Source: Rincon 2024

Figure 3.6-10: Geologic Map and Paleontological Sensitivity of the Palmdale Ditch Conversion Project – Northwestern Extent



Source: Rincon 2024

MINERAL SOURCES

The California Geological Survey (CGS) classifies the regional significance of mineral resources in accordance with the California Surface Mining and Reclamation Act of 1975. Mineral Resource Zones (MRZ) have been designated to indicate the significance of mineral deposits. The MRZ categories area as follows:

> **MRZ-1:** Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.
>
> **MRZ-2:** Areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
>
> **MRZ-3:** Areas where available information is inadequate for assignment to any other MRZ.

Palmdale lies within the Palmdale Production Consumption region, which is an MRZ (Joseph et al. 1984). Mineral deposits within Palmdale are the Littlerock Fan and the Big Rock Fan (City of Palmdale 2022). Both mineral deposits are composed of about 60% fine to coarse sand and silt, overlain by about 40% pebbly gravel. Sand and gravel mining widely occurs throughout Littlerock Wash.

3.6.2 REGULATORY FRAMEWORK

This section describes local, State, and federal laws, policies and regulations that apply to the proposed Project.

3.6.2.1 Federal Policies and Regulations

AMERICAN WATER WORKS ASSOCIATION AND AMERICAN NATIONAL STANDARDS INSTITUTE

The American Water Works Association (AWWA) provides requirements for design, installation, performance, and manufacturing of products used in the water industry, including pipe, chemicals, storage facilities, valves, meters, and other appurtenances. Pipe installation, disinfection of facilities, lining application, and utility management practices are also covered. For pipelines, AWWA provides minimum requirements for design, materials and dimensions, fabrication, and manufacture, marking and delivery, installation, and verification/testing/inspection. AWWA is an American National Standards Institute (ANSI-) approved standards developing organization for the water industry. PWD requires that its contractors install pipelines in accordance with the AWWA/ANSI standards.

PALEONTOLOGICAL RESOURCES PRESERVATION ACT

The Paleontological Resources Preservation Act (PRPA) was a legislative component of the Omnibus Public Lands Act, Public Law 111-011, Title VI, Subtitle D. This legislation directs the

Secretaries of the US Department of Interior and US Department of Agriculture to manage and protect paleontological resources on federal land using "scientific principles and expertise." To formulate a consistent paleontological resources management framework, the PRPA incorporates most of the recommendations from the report of the Secretary of the Interior entitled Assessment of Fossil Management on Federal and Indian Lands. In passing the PRPA, Congress officially recognized the scientific importance of paleontological resources on some federal land by declaring that fossils from this land are federal property that must be preserved and protected. The PRPA codified existing policies of the BLM, National Park Service, US Forest Service, Bureau of Reclamation, and US Fish and Wildlife Service, and provides the following:

1. Uniform criminal and civil penalties for illegal sale and transport, and theft and vandalism of fossils from federal land;
2. Uniform minimum requirements for paleontological resource-use permit issuance (terms, conditions, and qualifications of applicants);
3. Uniform definitions for "paleontological resources" and "casual collecting;" and
4. Uniform requirements for curation of federal fossils in approved repositories.

FEDERAL LAND AND POLICY AND MANAGEMENT ACT

The Federal Land Policy and Management Act (FLPMA) of 1976 (43 USC 1712[c], 1732[b]); Section 2, Federal Land Management and Policy Act of 1962 [30 USC 611] Subpart 3631.0 et seq.; and Federal Register Vol. 47, No. 159, 1982), does not refer specifically to fossils. However, "significant fossils" are understood and recognized in policy as scientific resources. Permits, which authorize the collection of significant fossils for scientific purposes, are issued under the authority of FLPMA. Under FLPMA, federal agencies are charged to:

1. Manage public land in a manner that protects the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, archaeological, and water resources, and, where appropriate, preserve and protect certain public lands in their natural condition (Section 102 [a][8][11]);
2. Periodically inventory public land so that the data can be used to make informed land-use decisions (Section 102[a][2]); and
3. Regulate the use and development of public land and resources through easements, licenses, and permits (Section 302[b]).

3.6.2.2 State Policies and Regulations

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was passed in 1972 after the destructive 1971 San Francisco earthquake, to minimize losses and human harm from developments and structures during surface fault ruptures. The Alquist-Priolo Act defines an

active fault as a fault that has ruptured in the last 11,000 years and requires the State Geologist to determine earthquake fault zone for surface traces of active faults. The Alquist-Priolo Act prohibits construction of buildings for human occupancy within 50 feet of an identified fault.

SEISMIC HAZARDS MAPPING ACT

The Seismic Hazard Mapping Act was passed in 1990 (Public Resources Code, Chapter 7.8, Section 2690-2699.6) to address non-surface fault rupture earthquake hazards such as liquefaction and seismically induced landslides. The act also directs the California Geological Survey to identify and map areas susceptible to earthquake-induced landslides, liquefaction, and ground-shaking. The intent of the act is to reduce the risk to public safety and minimize the loss of life and property by providing information to help control and plan construction and development.

CALIFORNIA BUILDING CODE

The California Building Code has been codified in the CCR as Title 24, Part 2, which is a portion of the California Building Standards Code. The California Building Standards Commission is responsible for coordinating building standards under Title 24. Under State law, all building standards must be centralized in Title 24, or they are not enforceable. The purpose of the CBC is to provide minimum standards to safeguard property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of building and structures within its jurisdiction.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The CEQA Guidelines (Title 14, Chapter 3 of the California Code of Regulations, Section 15000 et seq.), are prescribed by the Secretary of Resources to be followed by state and local agencies in California in their implementation of the CEQA. Appendix G of the CEQA Guidelines includes an Environmental Checklist Form with questions that may be used by public agencies in their assessment of impacts on the environment. The question within Appendix G that relates to paleontological resources states: "Will the proposed project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" Palmdale Water District (PWD) uses this question as its threshold of significance for determining whether impacts of paleontological resources are significant. CEQA protects paleontological resources by requiring an assessment of a project's potential paleontological impacts.

PUBLIC RESOURCES CODE SECTION 5097.5 AND SECTION 30244

Other State requirements for paleontological resource management are included in PRC Section 5097.5 and Section 30244. These statutes prohibit the removal of any paleontological site or feature from public lands without permission of the jurisdictional agency, define the removal of paleontological sites or features as a misdemeanor, and require reasonable mitigation of adverse impacts to paleontological resources from developments on public (state, county, city, district) lands.

SURFACE MINING AND RECLAMATION ACT (SMARA)

The Surface Mining and Reclamation Act of 1975 (SMARA) requires the CGS to map areas throughout the State of California that contain regionally significant mineral resources. The primary objective of the SMARA is for each jurisdiction to develop policies that will conserve important mineral resources, where feasible, that might overwise be unavailable when needed. The SMARA requires that once policies are adopted, local agency land use decisions must be in accordance with its mineral resource management policies. These decisions must also balance the mineral value of the resource to the market region as a whole, not just their importance to the local jurisdiction.

In accordance with SMARA, the State has established a mineral land classification system that provides guidance for identifying MRZs, which designate the significance of mineral deposits as seen in the *Regional Setting*.

CALIFORNIA WELL STANDARDS

The Department of Water Resources (DWR) Bulletin 74 sets the minimum standards for water, monitoring, cathodic protection, and geothermal heat exchange wells, with the purpose of protecting California's groundwater quality (DWR n.d.) The well standards cover constructing, altering, maintaining, and destroying wells (DWR n.d.).

3.6.2.3 Local Policies and Regulations

COUNTY OF LOS ANGELES GENERAL PLAN

The County of Los Angeles General Plan updated its Safety Element in July 2022. The General Plan contains a Safety Element that identifies and assesses various threats to public health and safety, including geologic and seismic hazards. The section identifies goals and outlines corresponding policies and management actions to support the various goals, which are identified below.

Safety Element

GOAL S 1. An effective regulatory system that prevents or minimizes personal injury, loss of life and property damage due to seismic and geological technical hazards.

- **Policy S 1.1:** Discourage development in Seismic Hazard and Alquist-Priolo Earthquake Fault Zones.
- **Policy S 1.3:** Require developments to mitigate geotechnical hazards, such as soil instability and landslides, in Hillside Management Areas through siting and development standards.
- **Policy S 1.4:** Support the retrofitting of unreinforced masonry structures and soft-story buildings to help reduce the risk of structural and human loss due to seismic standards.

County of Los Angeles Well Permit

The County of Los Angeles Drinking Water Program requires completion of an application for both production (residential drinking water, public/municipal, irrigation) and non-production (monitoring, injection, water extraction) wells. The application requires submittal of a well site plan, pertinent geologic features, and drawing of sources contamination with 200 feet from the well site. According to permit requirements, all wells must comply with the California Well standards, and all fieldwork must be conducted under the supervision of a professional geologist.

City of Palmdale General Plan

The City General Plan contains a Safety Element that addresses seismic hazards, as well as an Environmental Resources element that addresses the conservation and protection of local resources, including mineral resources and paleontological resources. The relevant goals and policies from these elements are identified below.

Public Facilities, Services, and Infrastructure Element

PSFO-3.10 Mining and Construction Disposal Systems. Allow the use of private sewage disposal systems on nonresidential industrial aggregate mining and construction aggregate related uses with domestic discharge only within the MRE (Mineral Resource Extraction) General Plan Land Use designations. The maximum daily estimated discharge shall not exceed 500 gallons/acre/day wastewater flow within a total maximum of 5,000 gallons per day.

Safety Element

GOAL SE-1. A city with minimal public health, safety, and welfare impacts resulting from seismic hazards.

- **SE-1.1 Geologic Review.** Review development within or adjacent to geologic hazard zones and provide copies of geotechnical reports and studies to be reviewed by a qualified geologist and implement recommendations to ensure adequate provisions for public safety.
- **SE-1.2. California Building Code.** Require appropriate structural setbacks from active fault rupture traces in accordance with Alquist-Priolo standards and continue to follow California Building Code.
- **SE-1.3 Utility Lines Design.** Design utility lines crossing active fault traces to withstand the expected movement of the earth in these locations. Utility lines are defined here include, but are not to be limited to, electricity, water, internet, natural gas, and sewer.
- **SE-1.4 Essential Service Buildings Location.** As feasible, ensure that essential services buildings are not located in geologic hazard zones.
- **SE 1.5 Local Hazard Mitigation Plan.** Implement the policies and mitigation strategies outlined within the Palmdale Local Hazard Mitigation Plan.

Conservation Element

GOAL CON-3. Plan for safe operations of mineral resource extraction areas and reduce unreasonable impacts.

- **CON-3.1 Reduce mineral resource extraction impacts.** Reduce impacts to human and environmental health caused by mineral resource extraction including:
    - Groundwater contamination
    - Removal or demise of sensitive Ecological Areas of flora and fauna
    - Excessive noise or dust

Goal CON-4. Plan for mineral resource extraction site and remediation and end users.

- **CON-4.1 Mining reclamation plan**. Require mining operators to establish a reclamation plan that indicates end users when mining operations cease and how the transition to new uses shall be implemented.
- **CON-4.3 Plan remediation and restoration of sites.** Plan remediation and restoration of extraction sites after operations cease, including adequate areas for groundwater recharge.

Goal CON-8. Protect historical and culturally significant resources, which contribute to the community's sense of history.

- **CON-8.4 Preservation in new development.** Require that new development preserve significant historic, paleontological, or archaeological resources.

Furthermore, General Plan provides Mitigation Measure GEO-1 for the protection of paleontological resources:

> "If paleontological resources are encountered during ground-disturbing activities, work within 60 feet shall be halted and the project paleontologist shall immediately evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and paleontological testing. If the discovery proves to be significant under CEQA and cannot be avoided by the project, additional work may be warranted, such as data recovery excavation, to mitigate any significant impacts to historical resources. Any reports required to document and/or evaluate unanticipated discoveries shall be submitted to the City for review and approval. Recommendations contained therein shall be implemented throughout the remainder of ground disturbance activities."

The General Plan specifically notes the high paleontological potential of the Punchbowl, Ana Verde, Harold Formations, the Nadeau Gravels/Pleistocene Old Alluvium, and Pleistocene Lacustrine and Fluvial Sediments.

SOCIETY FOR VERTEBRATE PALEONTOLOGY

The SVP has established standard guidelines (SVP, 2010) that outline professional protocols and practices for conducting paleontological resource assessments and surveys, monitoring and

mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional vertebrate paleontologists adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most State regulatory agencies with paleontological resource-specific Laws, Ordinances, Regulations, and Standards (LORS) accept and use the professional standards set forth by the SVP.

As defined by the SVP (2010:11), significant nonrenewable paleontological resources are:

- Fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).

- Based on the significance definitions of the SVP (2010), all identifiable vertebrate fossils are considered to have significant scientific value. This position is adhered to because vertebrate fossils are relatively uncommon, and only rarely will a fossil locality yield a statistically significant number of specimens of the same genus. Therefore, every vertebrate fossil found has the potential to provide significant new information on the taxon it represents, its paleoenvironment, and/or its distribution. Furthermore, all geologic units in which vertebrate fossils have previously been found are considered to have high sensitivity. Identifiable plant and invertebrate fossils are considered significant if found in association with vertebrate fossils or if defined as significant by project paleontologists, specialists, or local government agencies.

- A geologic unit known to contain significant fossils is considered to be "sensitive" to adverse impacts if there is a high probability that earth-moving or ground-disturbing activities in that rock unit will either directly or indirectly disturb or destroy fossil remains. Paleontological sites indicate that the containing sedimentary rock unit or formation is fossiliferous. The limits of the entire rock formation, both areal and stratigraphic, therefore define the scope of the paleontological potential in each case (SVP, 2010).

- Fossils are contained within surficial sediments or bedrock, and are therefore not observable or detectable unless exposed by erosion or human activity. Therefore, without natural erosion or human-caused exposure, paleontologists cannot know either the quality or quantity of fossils. As a result, even in the absence of surface fossils, it is necessary to assess the sensitivity of rock units based on their known potential to produce significant fossils elsewhere within the same geologic unit (both within and outside of the study area), a similar geologic unit, or based on whether the unit in question was deposited in a type of environment that is known to be favorable for fossil preservation. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if

the fossils are significant, that successful mitigation and salvage efforts may be undertaken.

3.6.3 IMPACT ANALYSIS

3.6.3.1 Methodology for Analysis

This section evaluates whether construction and operation of the facilities associated with the proposed Project would result in significant impacts related to geological, paleontological, and mineral resources. Geological, paleontological, and mineral resources are based on information from geologic, seismic, and mineral databases and the City General Plan. This information was used to identify potential impacts on workers, the public, or the environment.

Paleontological sensitivity is defined as the potential for a geologic unit to produce scientifically significant fossils. This is determined by rock type, past history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. In its "Standard Guidelines for the Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontological Resources," the SVP (2010:1-2) defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential:

- High Potential. Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e. g., ashes or tephras), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e. g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.).
- Low Potential. Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e. g. basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.
- Undetermined Potential. Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically

determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

- No Potential. Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection nor impact mitigation measures relative to paleontological resources.

For geologic units with high potential, full-time monitoring is generally recommended during any proposed Project-related ground disturbance. For geologic units with low potential, protection or salvage efforts will not generally be required. For geologic units with undetermined potential, field surveys by a qualified vertebrate paleontologist should be conducted to specifically determine the paleontological potential of the rock units present within the study area.

The proposed Project would be regulated by various laws, regulations, and policies summarized in the Regulatory Framework (Section 3.6.2). Project compliance with applicable federal, State, and local laws and regulations is assumed in this analysis, and local and State agencies would be expected to continue to enforce applicable requirements to the extent that they do now.

3.6.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines,* as updated in December 2018, an impact on geology, soils, seismicity, and mineral resources would be considered significant if the proposed Project would:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42;
    - Strong seismic ground-shaking;
    - Seismic-related ground failure, including liquefaction; or
    - Landslides
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property;

- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal systems of wastewater;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state; and
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

3.6.3.3 Criteria Requiring No Further Evaluation

The proposed Project would not have significant impacts associated with the following criteria:

- **Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal systems of wastewater.** The proposed Project would not include the installation of septic tanks or alternative wastewater disposal systems. Therefore, there would be no impacts related to suitability of soils for septic tanks or alternative wastewater disposal system.

3.6.3.4 Impacts and Mitigation Measures

Impact GEO-1a Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving a rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.

IMPACT GEO-1A ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The advanced water purification facility would be located between Avenue Q and 25th Street East (PWD 2023), which is not within an Alquist-Priolo Earthquake Fault Zone (see **Figure 3.6-1**). Facilities would be constructed in accordance with the California Building Code, which includes seismic design provisions to reduce the negative effects of ground-shaking on structures. Recycled water injection wells would be constructed in accordance with DWR's well standards and all recycled water pipelines would be designed and constructed to comply with AWWA/ANSI standards. Therefore, construction impacts would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death. Impacts are less

than significant. Additionally, implementation of **Mitigation Measure GEO-1** would require the preparation of a geotechnical report that would include design features to incorporate into the proposed Project design to mitigate adverse impact of fault ruptures to people or structures. Therefore, construction impacts would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death. Impacts are less than significant with mitigation incorporated.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation of existing wells would be within existing well sites and replacement wells would be sited in the north and eastern parts of the Antelope Valley Groundwater Basin. As seen in **Figure 3.6-1**, the north and eastern parts of the Antelope Valley Groundwater Basin are not within an Alquist-Priolo Earthquake Fault Zone and only one existing well is within a fault zone. Per **Mitigation Measure GEO-1**, PWD would prepare a geotechnical report that would include design features to incorporate into proposed Project design to mitigate adverse impact of fault ruptures to people or structures. Therefore, impacts would be less than significant with mitigation incorporated.

Local Supplies

Palmdale Ditch Conversion Project

Most of the Project area is within an Alquist-Priolo Fault Zone and is at risk of rupture from a known earthquake fault (See **Figure 3.6-2**). As described in the Geotechnical Engineering Report prepared for the Palmdale Ditch Conversion project (**Appendix F**), seismic studies show a major break along the San Andreas Fault result in an earthquake event of approximately 8.4 on the Ritcher scale. The Palmdale Ditch Conversion project involves installation of an underground pipeline and appurtenant aboveground facilities and would not involve any habitable structures. The existing Ditch is subject to the same seismic risk, and the proposed Project would not change the potential for the water conveyance facilities to be impacted by rupture of a known earthquake fault.

Design and construction of the proposed Project would consider the seismic environment and would integrate the recommendations of the Project-specific geotechnical report into Project design (**Appendix F**). These recommendations include, but are not limited to, trench subgrade stabilization, use of free-draining sand as pipe bedding, and moisturizing or drying soil as necessary to achieve optimum moisture prior to use as fill (**Appendix F**). Therefore, impacts would be less than significant.

Conservation

Conservation measures would not require construction activities. Therefore, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project is not anticipated to involve a rupture of a known earthquake fault as it is anticipated that it would not be located within a Alquist-Priolo Fault Zone (see **Figure 3.6-1**). Additionally, facilities would be constructed in accordance with the California Building Code, which includes seismic design provisions to reduce effects of ground-shaking, and recycled water injection. Recycled water injection wells would be constructed in accordance with DWR's well standards and recycled water pipeline would be constructed in accordance with AWWA/ANSI standards. Thus, operation of recycled wells and recycled water pipelines would be able to withstand seismic activity associated with a rupture of an earthquake fault. Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of rehabilitated wells would not be within an Alquist-Priolo Fault Zone as wells would be located within the north and eastern parts of the Antelope Valley Groundwater Basin. Therefore, there would be no impact.

Local Supplies

Palmdale Ditch Conversion Project

A large seismic event, such as a fault rupture, could result in breakage of the proposed pipeline, failure of joints, and/or underground leakage from the pipeline. In the event an earthquake compromises the pipeline during operation, PWD would temporarily cease operations and conduct emergency repairs as soon as practicable. Therefore, while the proposed Project is located within a seismically active area and would place new infrastructure in an area that could be affected by rupture of a known earthquake fault, the Ditch would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault. Impacts would be less than significant.

Conservation

Implementation of conservation measures would not directly or indirectly cause the rupture of a known earthquake fault. Therefore, there would be no impacts.

IMPACT GEO-1A FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure GEO-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact GEO-1b Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground-shaking.

IMPACT GEO-1B ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley project is about 2.5 miles away from the San Andreas Fault Zone so the proposed Project would be subject to ground-shaking. Pure Water Antelope Valley project facilities would be constructed in accordance with the California Building Code, which includes seismic design provisions to reduce the negative effects of ground-shaking on structures. The recycled water injection wells would be designed and constructed in accordance with DWR's well standards, which includes provisions to secure the well in the event of ground-shaking. The pipelines would be designed in accordance with the AWWA/ANSI standards. Implementation of **Mitigation Measure GEO-1** would require the preparation of a geotechnical report that would include design features to incorporate into the proposed Project's design to minimize adverse effects of ground shaking. Thus, the proposed Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Impacts would be less than significant with mitigation incorporated.

Groundwater

Existing Wells Rehabilitation and/or Replacement

The Antelope Valley Groundwater Basin boundary is generally a seismically active area due to the San Andreas Fault, which means that groundwater wells could experience significant ground-shaking during an earthquake. All wells would be designed and constructed in accordance with DWR well standards, which includes provisions to secure wells in the event of ground-shaking. Additionally, **Mitigation Measure GEO-1** would include provisions to minimize the effects of ground-shaking. Thus, the proposed Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Impacts would be less than significant with mitigation incorporated. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

As discussed in *Impact GEO-1a,* most of the Palmdale Ditch Conversion project is within an Alquist-Priolo Fault Zone and is at risk of rupture and strong seismic ground-shaking. Design

and construction of the proposed Project would evaluate the seismic environment and would integrate the recommendations of the Project-specific geotechnical report into the proposed Project design (see **Appendix F**). Incorporation of these recommendations would reduce impact levels to a less than significant level.

Conservation

Conservation measures would be implemented throughout PWD's service area; however, construction would not be required. Therefore, there would be impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would be subject to ground-shaking due to its proximity to the San Andreas Fault Zone (see **Figure 3.6-1**). The proposed Project would operate all day, but PWD staff will be on site from 6:00 AM to 5:00 PM. All facilities, including recycled water injection wells and associated pipelines, would be designed in accordance with the recommendations of a site-specific geotechnical investigation as required by **Mitigation Measure GEO-1** and in compliance with the California Building Core requirements that have criteria to prevent loss, injury, or death. There, impacts would be less than significant with mitigation incorporated.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of wells would be subject to ground-shaking due to their proximity to the San Andreas Fault Zone. It is anticipated that operation of existing wells would not directly or indirectly cause potential substantial adverse effects involving strong seismic ground-shaking as the wells have been constructed in accordance with DWR well standards. Additionally, PWD staff would only be present at the well sites for operational and maintenance activities. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

As discussed in *Impact GEO-1a*, PWD would temporarily cease operations and conduct emergency repairs as soon as practicable in the event an earthquake compromises the pipeline during operation. Therefore, impacts would be less than significant.

Conservation

Implementation of conservation measures would not directly or indirectly cause potential substantial adverse effects involving strong seismic ground-shaking as no structures would be constructed. Therefore, there would be no impacts.

IMPACT GEO-1B FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure GEO-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact GEO-1c Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction.

IMPACT GEO-1C ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Based on **Figure 3.6-3**, the area between Avenue Q and 25th street is not located within a liquefaction zone. Therefore, the proposed Project would not be within a liquefaction zone. Therefore, there would be no impact.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation of existing wells would be within existing well sites and replacement wells would be within the north and eastern parts of the Antelope Valley Groundwater Basin. As seen in **Figure 3.6-3**, the north and eastern parts of the Antelope Valley Groundwater Basin are not within a liquefaction zone and only one existing well is within a liquefaction zone. Per **Mitigation Measure GEO-1**, a geotechnical report would assess liquefaction potential and provide structural mitigation recommendations. Additionally, existing wells would be rehabilitated or replaced in accordance with DWR's well standards, which would ensure structural resiliency. Therefore, impacts would be less than significant with mitigation incorporated.

Local Supplies

Palmdale Ditch Conversion Project

As discussed under *Impact GEO-1a*, the Palmdale Ditch Conversion project alignment runs generally parallel to the San Andreas Fault. As described in the Project-specific Geotechnical Engineering Report, the San Andreas Fault is bordered by areas identified as liquefaction zones, and the Ditch alignment would traverse several of these areas, as shown in **Figure 3.6-5**. The proposed Project involves installation of an underground pipeline and new future turnout as well as limited aboveground appurtenant facilities and would not involve any habitable structures. The existing Ditch is subject to the same liquefaction risk, and the proposed Project would reduce potential liquefaction risk as compared to existing conditions by eliminating the seepage of water from the mostly unlined Ditch into the surrounding areas. In addition, design and construction of the proposed Project would consider the seismic environment and would integrate the recommendations of the proposed Project-specific geotechnical report into proposed Project design, including design parameters that account for liquefaction zones in proximity to the pipeline alignment (**Appendix F**). Therefore, the proposed Project would not directly or indirectly cause potential adverse effects related to seismic ground failure, including liquefaction, and impacts would be less than significant.

Conservation

Conservation measures would not directly or indirectly cause potential substantial adverse effects involving seismic related ground failure, including liquefaction. Therefore, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation and maintenance of the Pure Water Antelope Valley project would not entail liquefaction risk because the proposed Project would be designed and managed for seismic prevention and in accordance with California Building Codes. Operation of recycled water injection wells are not anticipated to pose liquefaction risks as they expected to be located between 25th Street East and East Avenue Q, which is not located in a liquefaction zone. Additionally, recycled water injections wells would be designed and constructed in accordance with DWR well standards to ensure structural resilience to seismic events. Thus, impacts would be less than significant. Therefore, operational impacts would be less than significant.

Groundwater

Operation of the wells is not anticipated to entail liquefaction risk as they would be designed and constructed in accordance with DWR well standards and with the well site plan, ensuring

well structural stability to the maximum extent possible. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project would not be subject to high liquefaction risks as the proposed Project would reduce potential liquefaction risk by eliminating the seepage of water from the existing unlined Ditch. Therefore, impacts would be less than significant.

Conservation

Implementation of conservation measures would not be subject to liquefaction risks as conservation measures do not involve operational activities. Therefore, there would be no impacts.

IMPACT GEO-1C FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure GEO-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact GEO-1d Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides.

IMPACT GEO-1D ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Based on **Figure 3.6-4**, there are no landslides zones within Ave Q and 25th Street. Thus, the proposed Project would not directly or indirectly cause potential substantial adverse effects, including the risk loss, injury, or death involving landslides Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

As seen in **Figure 3.6-4**, there are no existing wells within a landslide zone. As mentioned, replacement wells would be sited within the north and eastern parts of the Antelope Valley

Groundwater Basin. While there is a landslide zone in the eastern part of the basin (see **Figure 3.6-4**), it is anticipated that new groundwater wells would be constructed within PWD's service area, ensuring they are situated away from the landslide zone. Additionally, construction of replacement wells would be in accordance with DWR well standards and recommendations of a site-specific geotechnical investigation as required **Mitigation Measure GEO-1**. Therefore, impacts would be less than significant with mitigation incorporated.

Local Supplies

Palmdale Ditch Conversion Project

The Ditch alignment would traverse designated landslide hazard zones along Cheseboro Road and Mt. Emma Road north of Angeles National Forest, as shown in **Figure 3.6-4**. However, according to the United States Geological Survey (USGS), there are no recorded landslides within or near the Project area. The nearest evidence of a landslide to the Project area is recorded approximately 1.7 miles southwest of the Project area's northern terminus at Lake Palmdale (USGS 2022). The existing Ditch is subject to the same risk of landslides, and the proposed Project would reduce potential for the water conveyance facilities to be impacted by landslides as compared to existing conditions by converting the open Ditch into an underground pipeline. Therefore, the proposed Project would not expose people or structures to potential substantial adverse effects involving landslides, and impacts would be less than significant.

Conservation

Conservation measures would not directly or indirectly cause potential substantial adverse effects involving landslides as conservation measures do not require construction. Therefore, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Pure Water Antelope Valley project would be designed and constructed in accordance with the California Building Code, mitigating adverse outcomes in the event of earthquake induced landslides. Recycled water injection wells would be constructed with DWR well standards and pipelines would be constructed in accordance with AWWA/ENSI standards. Therefore, operational activities with regard to landslides are considered less than significant.

Groundwater

Groundwater wells would be required to obtain well permits prior to construction from Los Angeles County, which ensured the well structural stability during seismic events, such as landslides. Therefore, operational activities with regard to landslides would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project would not directly or indirectly cause potential substantial adverse effects, including the risk loss, injury, or death involving landslides as the proposed Project would reduce the potential for the water conveyance facilities to be impacted by landslides by converting the open Ditch into an underground pipeline. Therefore, impacts would be less than significant.

Conservation

Implementation of conservation measures would not directly or indirectly cause potential substantial adverse effects because conservation measures do not require operational activities. Therefore, there would be impacts.

IMPACT GEO-1D FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure GEO-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact GEO-2 Result in substantial soil erosion or the loss of topsoil.

IMPACT GEO-2 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project, including recycled water injection wells and associated recycled water pipelines, is anticipated to include ground-disturbing activities such as excavation and grading. Earthwork that disturbs undeveloped soils has a greater potential to be exposed to wind or water erosion due to the unconsolidated soils. **Mitigation Measure GEO-2** would ensure topsoil materials excavated during construction are reused and maintained onsite to the extent feasible, and that all topsoil stockpiles are wetted, thereby minimizing topsoil loss. Because construction would disturb more than one acre, preparation of a SWPPP, which includes stormwater Best Management Practices (BMPs), would be required. BMPs would include measures that would reduce potential erosion impacts. Additionally, all disturbed areas for construction of recycled water pipelines would be restored to pre-existing conditions. Therefore, impacts would be less than significant with mitigation incorporated.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation and construction of wells would include site preparation, mobilization of equipment to the well site, well drilling, water quality testing, installation of the well casing, gravel packing and finishing with a cement seal. Although wells would be relatively small facilities, their construction disturbance footprint could amount to one acre or more. In accordance with Los Angeles County requirements, construction activities would require implementation of BMPs. Construction of conveyance pipelines would also require excavation and other ground-disturbing activities Implementation of **Mitigation Measure GEO-2** would ensure all excavated topsoil remains onsite and all stockpiled topsoil is wetted to avoid loss by wind erosion. Additionally, construction of conveyance pipelines would occur within existing roadways and all disturbed areas would be restored to their pre-construction conditions. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Proposed Project construction activities would be subject to the requirements of the statewide NPDES Construction General Permit, which includes preparation of a SWPPP, because the proposed Project disturbance area would be greater than one acre in size. The proposed Project contractor(s) would be required to implement the SWPPP, which would minimize the amount of sediment and other pollutants discharged in stormwater runoff through the use of BMPs to control erosion and sedimentation. Such BMPs typically include the use of stabilized construction entrances and exits, construction vehicle maintenance in staging areas to avoid leaks, watering exposed soils, limiting vehicle speeds on unpaved roads, and installation of silt fences and erosion control blankets. In addition, along segments of the Ditch where the pipeline is placed in the existing Ditch alignment, the Ditch would be backfilled, and minor site grading would be conducted to tie in drainage patterns above the pipeline to existing contours adjacent to the alignment. The remaining Ditch segments may either be left in place and continue to function as part of the drainage pattern of the immediate vicinity or be backfilled with the natural overland drainage courses restored to their natural state.

Conservation

Conservation measures would not result in substantial soil erosion or the loss of topsoil because construction activities are not required to implement conservation measures. Therefore, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project is not expected to result in increased soil erosion or loss of topsoil because operational activities would not be soil-disturbing. Therefore, operational impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Once construction is complete, operation of all facilities would not result in increased soil erosion or loss of topsoil because ongoing activities would be limited to the developed well site. Regularly scheduled maintenance visits would occur at each site but would not cause degradation to soils within the well site. Therefore, impacts from operation of the proposed Project would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The pipeline and new future turnout would not have the potential to result in substantial soil erosion or loss of soil during operation because the pipeline and new future turnout would be located primarily underground, and the limited aboveground appurtenant facilities would not result in a substantial increase in impervious surfaces or associated runoff. Therefore, impacts would be less than significant.

Conservation

Conservation measures would not result in substantial soil erosion or the loss of topsoil as conservation measures do not require operational activities. Therefore, there would be no impacts.

IMPACT GEO-2 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure GEO-2

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact GEO-3 Be located on a geological unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or-off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

IMPACT GEO-3 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Landslides: As mentioned, the location between Avenue Q and 25th Street East is not within any landslide zones. Based on **Figure 3.6-4,** this potential location is not within a landslide zone. Therefore, impacts would be less than significant.

Liquefaction and Lateral Spreading: As shown in **Figure 3.6-3**, the area between Avenue Q and 25th Street and the vicinity of Palmdale Water Reclamation Plant are not in a liquefaction zone. Therefore, impacts would be less than significant.

Subsidence and Soil Collapse: According to USGS's Areas of Land Subsidence mapping tool, the area between Avenue Q and 25th Street and the vicinity of Palmdale Water Reclamation Plant does not have any recorded instances of subsidence. **Mitigation Measure GEO-1** requires completion of a geotechnical report that includes an assessment of subsidence risk and recommendations to mitigate subsidence risks. Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Landslides: Based on **Figure 3.6-3**, there are no existing groundwater wells within a potential landslide zone. Therefore, impacts would be less than significant.

Liquefaction and Lateral Spreading: As mentioned, one existing well is within a liquefaction zone, while the remaining existing wells would be outside a liquefaction zone. Implementation of **Mitigation Measure GEO-1** would require the preparation of a geotechnical report which would assess liquefaction potential and provide structural mitigation recommendations. Therefore, impacts would be less than significant with mitigation incorporated.

Subsidence and Soil Collapse: As mentioned, the Antelope Valley Groundwater Basin has experienced subsidence in the past due to excessive groundwater extraction (PWD 2017). Construction activities are not anticipated to result in subsidence as existing well sites would be used. Additionally, **Mitigation Measure GEO-1** would include a geotechnical report that would assess the subsidence potential and provide structural mitigation recommendations. Therefore, impacts would be less than significant with mitigation incorporated.

Local Supplies

Palmdale Ditch Conversion Project

As discussed in *Impact GEO-1a* through *Impact GEO-1c,* the proposed Project alignment would traverse several identified liquefaction and landslide hazard zones. Due to the seismically active San Andreas Fault, the proposed Project alignment would be subject to soil instability resulting from landslides, lateral spreading, subsidence, liquefaction, or collapse. However, the existing Ditch is subject to the same risk, and there would be no change in the potential for the water conveyance facilities to directly or indirectly cause substantial adverse effects involving seismic soil instability. The proposed Project would also reduce lateral spreading and liquefaction risks as compared to existing conditions by converting the open Ditch into an underground pipeline and eliminating moisture seepage into surrounding soils. In addition, design and construction of the proposed Project would consider the seismic environment and would integrate the recommendations of the project-specific geotechnical report into proposed Project design. Therefore, the proposed Project would not significantly affect soil stability or increase the potential for on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse to occur. Impacts would be less than significant.

Conservation

Conservations measures would not require construction of new facilities. Therefore, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project does not involve groundwater extraction but involves advanced water treatment of recycled water and recycled water injection in the Antelope Valley. Operation of the proposed Project would replenish the Antelope Valley Groundwater Basin, and thus, prevent potential subsidence events. Therefore, operational impacts would not lead to subsidence.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of wells involves extracting groundwater from the Antelope Valley Groundwater Basin. The Antelope Valley Groundwater Basin has been adjudicated since December 2015. Per the Judgement, PWD has a native groundwater production right of 2,769.63 AFY based on safe yield, as well as a share of the unused federal reserved right, carry-over, and recharge rights. Operation of the existing wells is within PWD's groundwater production right and PWD has been in full compliance with the Judgement, pumping within its final adjudicated right since 2016. Additionally, per **Mitigation Measure HYD-1**, PWD would coordinate with the Antelope Valley

Watermaster Engineer and ensure operational criteria for the wells do not result in a new deficit in aquifer volume or lowering of the local groundwater table. Therefore, operational impacts would be less than significant with mitigation incorporated.

Local Supplies

Palmdale Ditch Conversion Project

As discussed in *Impact GEO-1a*, PWD would temporarily cease operations and conduct emergency repairs as soon as practicable in the event a seismic event, including landslides, lateral spreading, subsidence, liquefaction, or collapse occurs. Therefore, impacts would be less than significant.

Conservation

Implementation of conservation measures would have no impacts as they involve no operational activities.

IMPACT GEO-3 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure GEO-1 and Mitigation Measure HYD-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact GEO-4 Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

IMPACT GEO-4 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The majority of City's General Plan Planning Area consists of soils that have little (less than 50%) or new swelling potential (City of Palmdale 2022b). The USDA's Natural Resources Conservation Service (NRCS) was used to evaluate soil expansion hazards at the potential Pure Water Antelope Valley project area. The potential site of the Pure Water Antelope Valley project, including the site of recycled water injection wells, contains Adelanto coarse sandy loam (NRCS n.d.). The Adelanto series consists of very deep, well drained soils that formed in granitic parent material on alluvial fans and plains (USDA 2015). Expansive soils are generally fine-grained clay sediments that have a "shrink-swell" characteristic by which the sediment has a cyclic change in volume as the soil expands and contracts as it is alternatively wetted and dried out. Because the soils in the potential Pure Water Antelope Valley project area contain Adelanto coarse sandy loam, the potential of soil expansion is low.

Additionally, per **Mitigation Measure GEO-1,** all facilities would be designed in accordance with the recommendations of a site specific geotechnical investigation. The geotechnical reports would include preliminary evaluations for each site-specific project and the identification of expansive soils in the area. The geotechnical reports will provide recommendations to mitigate impacts associated with expansive soils, if necessary. Therefore, impacts related to risks associated with expansive soils would be reduced to a less than significant level.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation of existing wells would use the infrastructure of existing wells as much as possible and replacement wells would be designed and constructed in accordance with DWR Well Standards and rehabilitation or replacement of existing wells would be constructed in accordance with DWR Well Standards to ensure structural stability. Additionally, **Mitigation Measure GEO-1** would include provisions to mitigation any impacts from expansive soils. Therefore, impacts would be less than significant with mitigation incorporated.

Local Supplies

Palmdale Ditch Conversion Project

The proposed Project alignment is underlain by several soil types. As shown in the soil boring results described in **Appendix F**, soil types within the proposed Project alignment consist of poorly graded sand, clayey sand, sandy silt, and clay (**Appendix F**). The expansion index tests performed for soil borings along the proposed Project alignment indicated surficial soils (to a depth of 11 feet) are within the "very low" expansion category (**Appendix F**). The proposed Project would also reduce risks related to expansive soils as compared to existing conditions by converting the open Ditch into an underground pipeline and eliminating moisture seepage into surrounding soils. Furthermore, the proposed Project would integrate the recommendations of the proposed Project-specific geotechnical report into proposed Project design, such as fill and compaction requirements and the use of imported soils with an expansion index of less than 20 for backfill, if needed (**Appendix F).** Therefore, the proposed Project would not create substantial direct or indirect risks to life or property as a result of expansive soil, and impacts would be less than significant.

Conservation

Implementation of conservation measures does not require any construction. Therefore, there would be no impacts.

Operation Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley project's facilities would be designed in accordance with the California Building Code and with the site specific geotechnical investigation (**Mitigation**

Measure GEO-1), which include recommendations to mitigate impacts associated with expansive soils. Adherence to the geotechnical investigation would ensure the long-term safety of facilities and structure within the Pure Water Antelope Valley project. Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of existing wells involves the extraction of groundwater from the Antelope Valley Groundwater Basin. As mentioned, groundwater wells have been designed and constructed in accordance with DWR well standards and with the recommendations of the site specific geotechnical investigation. Adherence to the DWR well standards and the findings of the geotechnical investigation would ensure the long-term safety and stability of groundwater well facilities and structures.

Local Supplies

Palmdale Ditch Conversion Project

As mentioned, the Palmdale Ditch Conversion project would reduce risks related to expansive soils by converting the open Ditch into an underground pipeline and eliminating moisture seepage into surrounding soils and recommendations of the geotechnical report would be incorporated into the proposed Project. Therefore, operation of the proposed Project would not create substantial direct or indirect risks to life of property as a result of expansive soil, and impacts would be less than significant.

Conservation

Implementation of conservation measures does not require operational activities. Therefore, there would be no impacts.

IMPACT GEO-4 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure GEO-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact GEO-5 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

IMPACT GEO-5 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley project components are located in Pleistocene and older sedimentary units that have the potential to encounter paleontological resources due to prior discoveries in the area and the generally high sensitivity of the units. If excavation for the water purification facility extends below artificial fill or recent alluvium, there may be the potential for impacting significant paleontological resources. Implementation of **Mitigation Measures PALEO-1** and **PALEO-2** would reduce the impact to a less than significant level.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Construction of replacement wells in the Project footprint is likely to intersect sediments older than 10,000 years and may impact significant paleontological resources. Implementation of **Mitigation Measures PALEO-1** and **PALEO-2** would reduce the impact to a less than significant level.

Local Supplies

Palmdale Ditch Conversion Project

Development of the Palmdale Ditch Conversion is anticipated to impact geological formations that are recognized by the City to have high potential for paleontological significance. These include the Punchbowl, Ana Verde, and Harold Formations, as well as Pleistocene Old Alluvium.

Ground-disturbing construction activities at the Ditch site are anticipated to consist of open-cut trenching for the new pipeline, excavations within the existing Palmdale Ditch, and excavations for trenchless installation. Open-cut trenching is expected to reach an average of 8 feet and a maximum of 18 feet below the surface. Portions of the new pipeline would be placed within the existing Ditch alignment and would require approximately one foot of excavation within the existing Ditch. The construction of the Palmdale Ditch itself previously required substantial ground disturbing activities. However, sediments below the existing Ditch are anticipated to be largely undisturbed because substantial over-excavation is not likely to have occurred during construction of the Ditch in the 1880s. The Ditch traverses several areas mapped as high or undetermined paleontological sensitivity as well as areas mapped as Holocene-aged sediments or artificial fill at the surface, which have increased paleontological sensitivity below four feet in

depth. Proposed Project construction could result in excavation up to 18 feet below ground surface in select locations and would therefore have the potential to impact these geologic units. In addition, trenchless installation (i.e., auger bore/jack) that would be utilized to install the proposed pipeline below Pearblossom Highway could result in excavations greater than four feet below the surface of sediments mapped as active alluvial valley deposits. As stated above, active alluvial valley deposits have high paleontological sensitivity greater than four feet below the surface. Therefore, proposed Project construction in these areas has the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature directly or indirectly. Impacts would be potentially significant, and implementation of **Mitigation Measure PALEO-2** would be required.

Conservation

Conservation measures would not result in ground-disturbing impacts. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project do not involve new excavations. Therefore, there would be no potential for additional impacts associated with the operation of the proposed Project.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of rehabilitated or replacement wells would not involve new excavations. Therefore, there would be no potential for additional impacts associated with the operation of the proposed Project.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project would not lead to additional impacts to paleontological resources.

Conservation

Implementation of conservation measures does not require operation and maintenance activities. Therefore, there would be no impacts.

IMPACT GEO-5 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure PALEO-1 and Mitigation Measure PALEO-2

Significance after Mitigation: Less than Significant with Mitigation

Impact MIN-1 Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state.

IMPACT MIN-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The location between Avenue Q and 25th Street East is not within a state-designated MRZ (Joseph et al. 1984). Therefore, there would be no impacts.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Several of the existing wells for rehabilitation or replacement would be located within a State-designated MRZ. Rehabilitation or replacement of existing wells at their existing locations would not be expected to result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the State. However, Palmdale lies within the Palmdale Production Consumption MRZ (Joseph et al. 1984) and the PWD service area is underlain by mineral deposits, including at the Littlerock Fan and the Big Rock Fan (City of Palmdale 2022); sand and gravel mining widely occurs throughout Littlerock Wash. If well replacement occurs in a different location, than the existing well, construction activities could not disrupt mining activities. Implementation of **Mitigation Measure MIN-1** would require the construction of any facilities or structures to comply with the City policies associated with the continued access to known mineral resources. **Mitigation Measure MIN-1** would require development occurring in the vicinity of mining operations to be adequately buffered to ensure the potential impacts to existing or future mining operations would be less than significant. Pipelines associated with the replacement wells may pass through the Littlerock Wash MRZ-2; however, pipelines would be constructed in existing roadways such that there would be no impact on known mineral resources.

Local Supplies

Palmdale Ditch Conversion Project

According to Mineral Land Classification Maps prepared by the California Department of Conservation (2015), the Ditch site is not underlain by a known mineral resource. Therefore, no impacts to mineral resources would occur.

Conservation

Conservation measures do not require any construction. Therefore, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley project is not located within a State-designated MRZ or locally important mineral resource recovery site. Therefore, there would be no impact related to the loss of availability of a known mineral resource that would be of value to the state and local residents.

Groundwater

Existing Wells Rehabilitation and Replacement

While several existing wells are located in a State designated MRZ, operation of groundwater wells and conveyance pipelines is not expected to impede future mineral resource extraction in the region as they do not involve the extraction of minerals. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

As mentioned, the Palmdale Ditch Conversion project is not underlain by a known mineral source. Therefore, there would be no impact.

Conservation

Implementation of conservation measures does not require operational activities. Therefore, there would be no impacts.

IMPACT MIN-1 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure MIN-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact MIN-2 Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

IMPACT MIN-2 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley project is not located within a State-designated MRZ (Joseph et al. 1984). Therefore, there would be no impacts.

Groundwater

Existing Wells Rehabilitation and/or Replacement

As mentioned, several existing wells for rehabilitation or replacement could be within a State-designated MRZ. Construction activities for well rehabilitation or replacement could disrupt access to these zones or disrupt mining activities. Per **Mitigation Measure MIN-1**, PWD would be required to cite any replacement wells and structures to comply with the City policies associated with the continued access to known mineral resources. **Mitigation Measure MIN-1** would also require construction occurring in the vicinity of mining operations to be adequately buffered to ensure the potential impacts to existing or future mining operations would be less than significant. Pipelines associated with the replacement wells may pass through the Littlerock Wash MRZ-2; however, pipelines would be constructed in existing roadways such that there would be no impact on mineral resource recovery sites.

Local Supplies

Palmdale Ditch Conversion Project

As mentioned, the Ditch site is not underlain by a known mineral source. The proposed Project would not involve mineral extraction or changes in land use that could affect the availability of mineral resources. Therefore, no impacts to mineral resources would occur.

Conservation

Conservation measures do not require construction. Therefore, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would not require any extraction of minerals nor disrupt any mining activities. Therefore, operation of the proposed Project would not result in the loss availability of a local important mineral resource recovery site as delineated on a local general plan, specific plan, or other land use plan. Therefore, there would be no impacts.

Groundwater

While there may be groundwater wells in a State-designated MRZs, operation of groundwater wells would not involve the extraction of minerals nor disrupt any mining activities in the region. Therefore, there would be no impacts related to the loss of availability of a local important mineral resource recovery site as delineated on a local general plan, specific plan, or other land use plan.

Local Supplies

Palmdale Ditch Conversion Project

No operational impacts would occur as the Palmdale Ditch Conversion project does not involve mineral extraction or changes in land use that could affect the availability of mineral resources.

Conservation

Implementation of conservation measures does not involve any operational activities. Therefore, there would be no impacts.

IMPACT MIN-2 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure MIN-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

3.6.3.5 Mitigation Measures

MITIGATION MEASURE GEO-1: GEOTECHNICAL INVESTIGATION REPORT

Implementation of Mitigation Measure GEO-1 would require a licensed geologist or engineer to perform a design-level geotechnical investigation prior to construction, which shall include evaluation of fault ruptures and soil and slope stability hazards such as strong seismic ground-shaking, liquefaction, landslides, and soil expansion. Based on the results of the geotechnical investigations, appropriate support and protection measures shall be designed and implemented to maintain the stability of soils and slopes adjacent to work areas during and after construction. Therefore, impacts would be less than significant with mitigation incorporated.

MITIGATION MEASURE GEO-2: TOPSOIL MATERIALS

Implementation would require excavated topsoil materials to be reused and maintained on site to the extent possible, and that all topsoil stockpiles are wetted, thereby minimizing topsoil loss.

MITIGATION MEASURE PALEO-1: PALEONTOLOGICAL STUDY

For all proposed Project components that involve ground disturbance below the modern alluvium, PWD shall retain a Federally qualified paleontologist to determine the necessity of conducting a study of the Project area(s) based on the potential sensitivity of the Project site for paleontological resources. The qualified paleontologist should conduct a paleontological resources inventory designed to identify potentially significant resources consisting of: a thorough review of publicly available geological maps and literature pertaining to the sedimentology and paleontology of the Project area(s); a paleontological resources records search from the Natural History Museum of Los Angeles County; and a field survey of those geological units demonstrated to have either a high or unknown potential for containing significant paleontological resources as defined by the Society for Vertebrate Paleontology (2010). The paleontologist shall provide recommendations regarding monitoring of ground disturbance for the proposed Project.

MITIGATION MEASURE PALEO-2: PALEONTOLOGICAL RESOURCES AVOIDANCE AND MONITORING

PWD should avoid impacts, if feasible, on areas identified as having a high potential to contain significant paleontological resources. Methods of avoidance may include, but not be limited to, Project re-route or re-design, or identification of protection measures such as capping or fencing. For those high sensitivity paleontological areas identified by the qualified paleontologist that are planned for excavation, PWD should retain paleontological monitors during construction and follow the guidelines established in the City of Palmdale General Plan.

PWD shall implement the following measures during ground-disturbing construction activities in previously undisturbed sediments within the Palmdale Ditch Conversion project:

- **Qualified Professional Paleontologist.** Prior to the start of proposed Project construction activities, PWD shall retain a Qualified Professional Paleontologist, as defined by the Society of Vertebrate Paleontology (SVP; 2010). The Qualified Professional Paleontologist shall draft a Paleontological Resources Mitigation and Monitoring Plan, which shall direct all mitigation measures related to paleontological resources.

- **Paleontological Worker Environmental Awareness Program.** Prior to the start of ground-disturbing construction activities, the Qualified Professional Paleontologist or their designee shall conduct a paleontological Worker Environmental Awareness Program (WEAP) training for all construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction personnel.

- **Paleontological Monitoring.** Full-time paleontological monitoring shall be conducted during open-cut trenching and excavations within previously undisturbed geologic units assigned high paleontological sensitivity. This includes all excavations within Quaternary old alluvial fan deposits, Quaternary old alluvium, Harold Formation, Anaverde Formation, and Punchbowl Formation, and excavations reaching greater than four feet below the surface in areas mapped as active wash deposits, active alluvial valley deposits, active alluvial fan deposits, and Quaternary young alluvial valley deposits.

    - Initial part-time monitoring (i.e., spot-checking) shall be conducted for all ground-disturbing activities that impact geologic units assigned undetermined sensitivity. For excavations exceeding four feet in depth within areas mapped as artificial fill, the purpose of these spot checks shall be to determine whether previously undisturbed (i.e., non-fill) sediments with high paleontological sensitivity are (or will be) impacted by proposed Project excavations, in which case, full-time paleontological monitoring shall occur. For excavations within the boulder gravel of Littlerock Creek or the Ritter Formation, the goal of the spot checks shall be to determine whether these geologic units are conducive to fossil preservation, in which case full-time monitoring shall occur, or if they are not conducive to fossil preservation, in which case monitoring within these geologic units shall cease or continue as periodic spot checks.

    - Bulk matrix sampling may be necessary to recover microfossils (i.e., fossils too small to be easily recognized within the sediment matrix) from the Project area. If indicators of potential microfossils are encountered (e.g., fossil debris, carbonate-rich paleosols, or very fine-grained sedimentary deposits), then 'test samples' or 'standard samples' shall be collected and processed in accordance with SVP (2010) standards, as directed by the Qualified Professional Paleontologist.

    - Paleontological monitoring shall be conducted by a paleontological monitor with experience with collection and salvage of paleontological resources and who meets the minimum standards of the SVP (2010) for a Paleontological Resources Monitor. The Qualified Professional Paleontologist may recommend monitoring

be reduced in frequency or ceased entirely based on geologic observations. Such decisions shall be subject to review and approval by PWD.

- In the event of a fossil discovery by the paleontological monitor or construction personnel, all construction activity within 50 feet of the find shall cease, and the Qualified Professional Paleontologist shall evaluate the find. If the fossil(s) is (are) not scientifically significant, then construction activity may resume. If it is determined the fossil(s) is (are) scientifically significant, the following shall be completed:

    - **Fossil Salvage.** The paleontological monitor shall salvage (i.e., excavate and recover) the fossil to protect it from damage/destruction. Bulk matrix sampling may be necessary to recover small invertebrates or microvertebrates from within paleontologically sensitive deposits. After the fossil(s) is (are) salvaged, construction activity may resume.

    - **Fossil Preparation and Curation.** Fossils shall be identified to the lowest (i.e., most-specific) possible taxonomic level, prepared to a curation-ready condition, and curated in a scientific institution with a permanent paleontological collection along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the Qualified Professional Paleontologist.

    - **Final Paleontological Mitigation Report.** Upon completion of ground-disturbing activities (or laboratory preparation and curation of fossils, if necessary), the Qualified Professional Paleontologist shall prepare a final report describing the results of the paleontological monitoring efforts. The report shall include a summary of the field and laboratory methods employed; an overview of Project geology; and, if fossils were discovered, an analysis of the fossils, including physical description, taxonomic identification, and scientific significance. The report shall be submitted to PWD and, if fossil curation occurred, the designated scientific institution.

MITIGATION MEASURE MIN-1: MINERAL RESOURCES

Implementation of Mitigation Measure MIN-1 would require construction of any facilities or structures to comply with City of Palmdale policies associated with the continued access to known mineral resources. Mitigation Measure MIN-1 would require development occurring in the vicinity of mining operations to adequately buffered to ensure the potential impacts to existing or future mining operations. Therefore, impacts would be less than significant with mitigation incorporated.

MITIGATION MEASURE HYD-1: MATERIAL HARM REVIEW

Conduct a material harm review of the proposed groundwater wells and groundwater rights. The Antelope Valley Watermaster Engineer would ensure operational criteria for the wells do not result in a net deficit in aquifer volume or a lowering of the local groundwater table such that the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted.

3.6.3.6 Cumulative Impact Analysis

Cumulative impacts to geology, soil, and mineral resources are less than significant when mitigation measures are incorporated. The proposed Project is consistent with the 2024 General Plan and adheres to the City's policies and local, State, and federal geological, soils, and mineral resources regulations. The proposed Project's impacts would be less than significant and the Project's contribution to these impacts would not be cumulatively considerable. Therefore, the proposed Project would not considerably contribute to a cumulatively impact on geologic, soil, paleontological resources, and mineral resources.

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3.7 HAZARDS, HAZARDOUS MATERIALS, AND WILDFIRE

Potential hazards addressed in this section include the uses of hazardous materials during operation, hazardous in soil and groundwater, releases of hazardous materials during construction, and hazards related to aviation, emergency preparedness, and wildfires. Mitigation measures to reduce impacts to a less-than-significant level are identified.

3.7.1 ENVIRONMENTAL SETTING

3.7.1.1 Regional Setting

PROJECT AREA

The following sections describe the environmental setting for hazards and hazardous materials within the proposed Project area, which is located almost entirely within the City of Palmdale (City) but also includes portions of land within unincorporated Los Angeles County. The proposed Project area includes the PWD service area plus areas adjacent to the service area where proposed facilities are located.

HAZARDOUS MATERIALS IN SOIL AND GROUNDWATER

To assess the potential for contamination in soil and groundwater within the proposed Project area, an environmental database review was conducted to identify environmental cases[1], permitted hazardous materials uses[2], and spill sites[3] within the City and small portions of land within unincorporated Los Angeles County.

ENVIRONMENTAL DATABASE REVIEW

California Government Code Section 65962.5 requires State and local agencies to compile and update, at least annually, list of hazardous waste sites and facilities. Analysis for this proposed Project included a regulatory agency records search for the proposed Project area. The records search included the following database searches:

- State Water Resources Control Board (SWRCB) GeoTracker database, and;
- California Department of Toxic Substances Control (DTSC) EnviroStor database.

[1] Environmental cases are sites that are suspected of releasing hazardous substances or have had cause for hazardous substances investigations and are identified on regulatory agency lists.

[2] Permitted hazardous materials uses are facilities that are hazardous materials or handle hazardous wastes that operate under appropriate permits and comply with current hazardous materials and hazardous waste regulations.

[3] Spill sites are locations where a spill has been reported to the State or federal regulatory agencies. Such spills do not always involve a release of hazardous materials.

The lists are a compilation of information from various sources listing potential and confirmed hazardous waste and hazardous substances sites in California. The records search revealed multiple listed and active sites within the proposed Project area, including the United States Air Force Plant 42.

Sensitive Receptors

Preschools, schools, daycare centers, nursing homes, and hospitals are considered sensitive receptors for hazardous material issues because children and the elderly are more susceptible than adults to the effects of many hazardous materials. There are numerous sensitive receptors in the proposed Project area. Project components are generally sited away from sensitive receptors where feasible. The majority of known proposed Project components are not within 0.25 miles of sensitive receptors; however, some locations have yet to be determined. There is the potential for sensitive receptors to be within 0.25 miles of proposed Project facilities.

Hazardous Materials Sites

The proposed Project area is primarily located within the City, which contains a mix of residential, commercial, industrial, and public facilities as described further in Section 3.9, Land Use, Agricultural Resources, and Forestry. The United States Air Force Plant 42 site and Palmdale Regional Airport properties, which include industrial and aerospace uses, are located just north of the proposed Project area.

Active Sites

The SWRCB GeoTracker database notes that there are two open sites within the proposed Project area. However, none are listed on the Cortese List, so they are not currently subject to corrective action. The DTSC EnviroStor database lists one site, United States Air Force Plant 42, as an active site, but it is not in the Cortese List. Detailed information regarding this hazardous waste site is provided below.

United States Air Force Plant 42

Air Force Plant 42 is a government-owned, contractor operated research facility and development facility that is 5,832 acres in size and is located within the City, approximately 1.5 miles north of the PWD service area. The site has multiple contaminated areas, including 29 potentially contaminated areas and three areas of concern in the initial assessment phase. Contaminants that may be present on this site include fuels, oils, solvents, paint, soil sludges, acids, heavy metals, and polychlorinated biphenyls (PCBs). Potential contaminants of concern on the site include dioxin, metals, organochlorine pesticides, petroleum, PCBs, polynuclear aromatic hydrocarbons, semi-volatile organic compounds, and volatile organic compounds (VOCs).

The site contains a day care center, but no other sensitive receptors including schools, hospitals, nursing homes, or other day care facilities are located within a 0.5-mile radius of United States Air Force Plant 42 (U.S. Air Force 2004). In addition, the United States Air Force has included

substantial outreach efforts as part of their cleanup activities, including the creation of a Community Involvement Plan, which was approved by the DTSC in February 2008 (DTSC 2017).

Cleanup activities for the United States Air Force Plant 42 began in 1995, with the creation of a Public Participation Plan/Community Relations Plan for the entire site. Since that time, remedial activities have been performed from 1997 through 2008. The U.S. Air Force has determined that the objective of remedial actions at United States Air Force Plant 42 is to "prevent exposure through ingestion, inhalation, and direct contact with soil and groundwater that presents an unacceptable health risk while minimizing interference with operations at United States Air Force Plant 42.

Groundwater investigations have been conducted across the United States Air Force Plant 42 site, and have focused on VOCs, including trichloroethylene (TCE), which has been detected within groundwater at United States Air Force Plant 42. A thorough site investigation indicated that there is a plume of TCE affecting the northwestern portion of the Air Force Plant 42, portions of which are undergoing specific remediation action and being evaluated for a potential cumulative groundwater risk. U.S. Air Force reports indicate that testing results show that TCE remains within the vadose zone and could potentially impact local groundwater. However, this research also indicated that the plume is confined to an approximate 200-foot radius located entirely within Air Force Plant 42 property. In 2010, U.S. Air Force constructed and installed a groundwater treatment system to extract, treat, and inject impacted groundwater. These actions are anticipated to reduce the TCE plume located at Air Force Plant 42, which is expected to reduce in size and concentration over time (DTSC 2017).

HOUSEHOLD HAZARDOUS MATERIALS

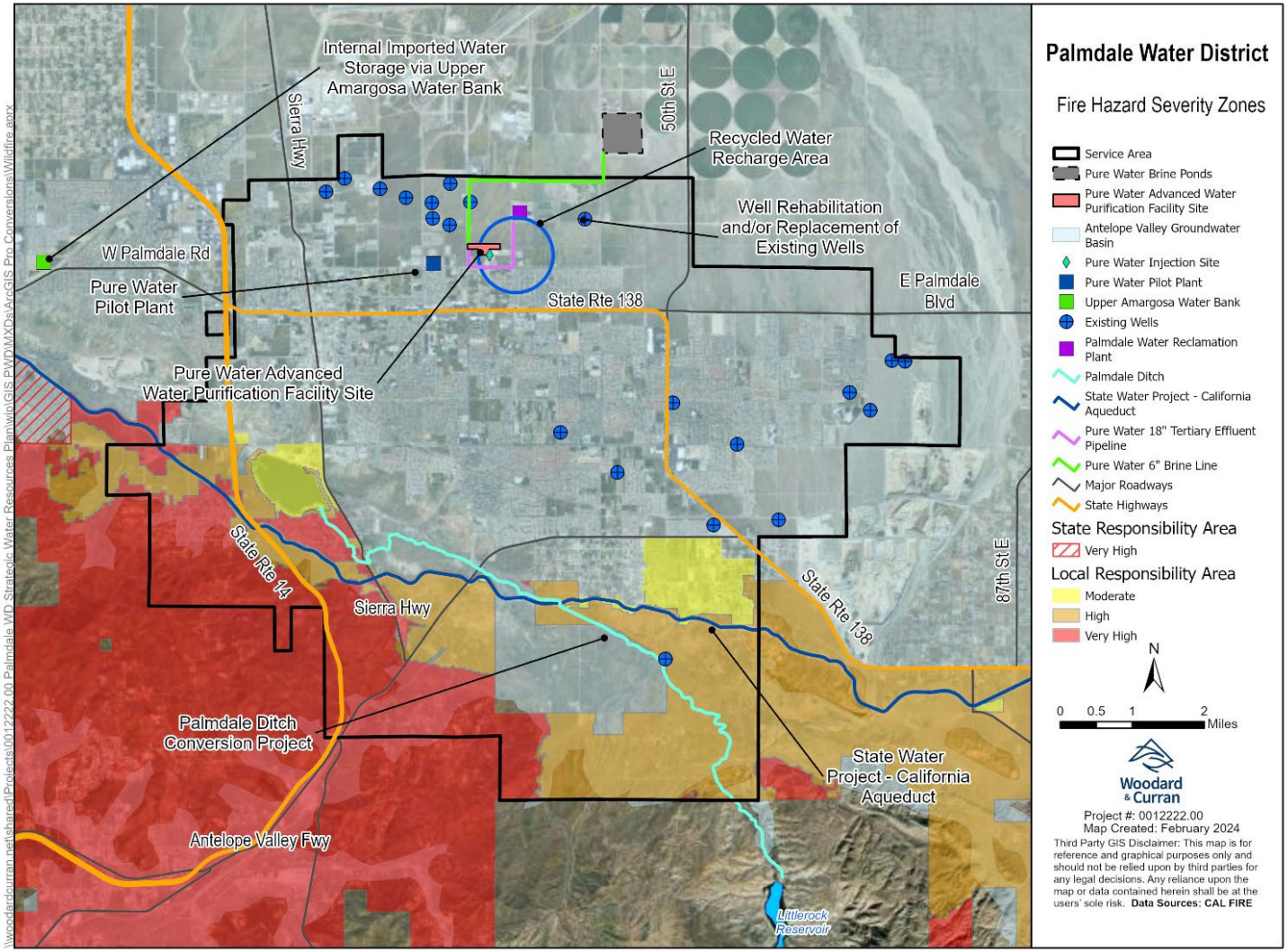
Household hazardous waste is hazardous waste generated incidental to owning or maintaining a place of residence as defined in Section 25218.1 (e) of the California Health and Safety Code. Household hazardous waste does not include waste generated in the course of operating a business concern at a residence. Examples of common household hazardous waste include antifreeze, household batteries, compressed gas cylinders, television/computer monitors, consumer electronic devices, home-generated sharps, oil-based paints, latex paints, motor oil, used oil filters, rodent poison, asbestos, gasoline, fluorescent lamps, partially used aerosol containers, and weed killers. A household hazardous waste collection facility is operated by a public agency or it's a contractor for the purposes of collecting, handling, treating, storing, recycling, or disposing of household hazardous wastes (Health and Safety Code 2518.1 (f)). A household hazardous waste collection facility may also accept waste from small businesses that are conditionally exempt generators, defined as a small business that generates no more than 100 kilograms of hazardous waste per month.

The Antelope Valley Environmental Collection Center is a permanent household hazardous waste collection center located at the Antelope Valley Public Landfill, which is approximately 1.5 miles northwest of Lake Palmdale. This facility accepts items such as paints, solvents, chemicals, computers, batteries, cell phones, fluorescent lights, and other household hazardous materials (Waste Management n.d.).

WILDFIRE FIRE HAZARDS

The County of Los Angeles Fire Department maps the Fire Hazard Severity Zones (FHSZ) within the City and throughout Los Angeles County. The FHSZ is based on an evaluation of fuels, topography, dwelling density, weather, infrastructure, building materials, brush clearance, and fire history (California Department of Forestry and Fire Protection [CAL FIRE] n.d.). The majority of the proposed Project area is in a Local Responsibility Area, while smaller portions are in the State Responsibility Area and in the Federal Responsibility Area (CAL FIRE n.d.). These maps dictate that the majority of the proposed Project area is in a low FHSZ, while smaller portions of the proposed Project are in a moderate FHSZ, high FHSZ, and a very high FHSZ (CAL FIRE n.d.).

Figure 3.7-1: Local and State Fire Hazard Severity Zones



3.7.2 REGULATORY FRAMEWORK

Hazards and hazardous materials are subject to numerous federal, State, and local laws and regulations intended to protect health, safety, and the environment. The U.S. Environmental Protection Agency (U.S. EPA), DTSC, RWQCB, and County of Los Angeles are the primary agencies enforcing these regulations. Local regulatory agencies enforce many federal and State regulations through the Certified Unified Program Agency program. The Los Angeles County Fire Department are the lead agencies for the investigation and cleanup of leaking underground storage tank sites. The Regional Water Quality Control Board is the lead agency for other groundwater cases. The DTSC can be the lead agency for cases with no groundwater issues and is the lead agency for investigation and remediation of the hazardous sites discussed above.

3.7.2.1 Federal Policies and Regulations

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

RCRA, which was enacted in 1976, is the principal law governing the disposal of hazardous materials. The purpose of the RCRA is to protect human health and the environment from the hazards posed by waste disposal; conserve energy and natural resources through waste recycling and recovery; reduce or eliminate the amount of waste generated, including hazardous waste; and ensure that wastes are managed in a manner that is protective to human health and the environment.

HAZARDOUS AND SOLID WASTE ACT

The Hazardous and Solid Waste Act amended RCRA in 1984, phased out land disposal of hazardous waste and focused on waste minimization. The Act also included increased enforcement authority for the U.S. EPA and more stringent hazardous waste management standards.

EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA)

EPCRA improved community access to information regarding chemical hazards and facilitated the development of business chemical inventories and emergency response plans. EPCRA also established reporting obligations for facilities that store or manage specified chemicals. EPCRA applies to this program because contractors use hazardous materials (e.g., fuels, paints and thinners, solvents, etc.) would be required to prepare and implement written emergency response plans to properly manage hazardous materials and respond to accidental.

TOXIC SUBSTANCE CONTROL ACT

The Toxic Substances Control Act of 1976 (TSCA) provides the U.S. EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. TSCA addresses the production, importation, use, and disposal of specific chemicals, including PCBs. Under TSCA, the U.S. EPA has the ability to track the 83,000

industrial chemicals currently produced or imported in the United States and can ban the manufacture and import of those chemicals currently produced or imported in the United States and can ban the manufacture and import of those chemicals that pose an unreasonable risk. The Frank R. Lautenberg Chemical Safety for the 21st Century Act was signed into law on June 22, 2016, which amended the TSCA.

HAZARDOUS MATERIALS TRANSPORTATION ACT

Transportation of hazardous materials is regulated by the Federal Hazardous Materials Transportation Act (HMTA) of 1974 and the Hazardous Materials Transportation Uniform Safety Act of 1990. The HMTA was established to provide adequate protection against the risks to life and property inherent in the transportation of hazardous materials. Carries of hazardous materials must follow Department of Transportation rules, maintain rapid response plans for emergencies, and undergo safety training.

HAZARDOUS MATERIALS WORKER SAFETY REQUIREMENTS

The federal Occupational Safety and Health Administration (OSHA) is the federal agency responsible for ensuring worker safety. The federal regulations for worker safety are contained in CFR Title 29, as authorized in the Occupational Safety and Health Act of 1970; these regulations provide standards for safe workplaces and work practices, including those relating to hazardous materials handling.

DISASTER MITIGATION ACT OF 2000

The Disaster Mitigation Act of 2000 amended the existing statues (the Stafford Act and the Public Works Act) to require local governments to prepare hazard mitigation plans as a condition of receiving funding from the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program. The general purpose of the Disaster Mitigation Act was to reduce preventable, repetitive disaster losses by encouraging States and local jurisdictions to plan more wisely through mitigation of natural hazards, vulnerability, and risk.

3.7.2.2 State Policies and Regulations

CALIFORNIA HEALTH AND SAFETY CODE

The California Health and Safety Code contains statewide regulations designed to protect public health and safety. Section 65962.5 of the California Government Code includes the Cortese List. The Cortese List is compiled and maintained by the DTSC under the California EPA. The Cortese List is a list of all sites identified as having hazardous waste releases.

Facilities that handle, store, use, treat, dispose of, or generate hazardous materials are required to create hazardous-waste management programs under Division 20, Chapter 6.5, section 25100 et seq under the California Hazardous Waste Control Act. Hazardous materials handling, reporting requirements, and local agency surveillance programs are regulated under the California Health and Safety Code, Section 25500 et seq.

California Health and Safety Code, Division 20, Chapter 6.8, Sections 25300 et seq. is the California Hazardous Substance Account Act or state Superfund law which allows DTSC to investigate and remediate hazardous substances pursuant to State law.

CALIFORNIA ACCIDENTAL RELEASE PREVENTION PROGRAM (CALARP)

The purpose of the CalARP is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws. This is accomplished by requiring businesses that handle more than a threshold quantity of a regulated substance listed in the regulations to develop a Risk Management Plan (RMP). An RMP is a detailed engineering analysis of the potential accident factors present at a business and the mitigation measures that can be implemented to reduce this accident potential. The RMP contains safety information, hazards review, operating procedures, training requirements, maintenance requirements, compliance audits, and incident investigation procedures.

CALIFORNIA HAZARDOUS MATERIALS RELEASE RESPONSE PLANS AND INVENTORY LAW OF 1985 (BUSINESS PLAN ACT)

The Business Plan Act requires preparation of hazardous materials business plans and disclosure of hazardous materials inventories, including an inventory of hazardous materials handled, plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95. Article 1). Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the State. Local agencies are responsible for administering these regulations.

Several state agencies regulate the transportation and use of hazardous materials to minimize potential risks to public health and safety, including the California Environmental Protection Agency (CalEPA) and the California Emergency Management Agency. The California Highway Patrol and Caltrans enforce regulations specifically related to the transport of hazardous materials. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roadways.

CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH (CAL/OSHA)

Cal/OSHA is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OHSA requires many entities to prepare injury and illness prevention plans and chemical hygiene plans and provides specific regulations to limit exposure of construction workers to lead. OSHA applies to this program because contractors will be required to comply with its handling and use requirements that would increase worker safety and reduce the possibility of spills, and to prepare and emergency response plan to respond to accidental spills.

CALIFORNIA FIRE CODE

The California Fire Code (Part 9 of Title 24 of the California Code of Regulations) includes provisions and standards for numerous aspects of fire prevention and response, including emergency planning and preparedness, fire service features, fire protection and life safety systems, means of egress, fire safety during construction and demolition, hazardous materials, fire flow and fire hydrant requirements, and vegetation clearance in wildfire hazard areas.

Among the California Fire Code's regulations for hazardous materials are specific requirements for the safe storage and handling of flammable and combustible liquids. The California Fire Code, Article 80, includes specific requirements for the safe storage and handling of hazardous materials. These requirements reduce the potential for a release of hazardous materials and for the mixing of incompatible chemicals and specify secondary containment, separation of incompatible materials and spill response procedures to reduce the potential for a release of hazardous materials that could affect public health or the environment.

CALIFORNIA PUBLIC RESOURCES CODE SECTION 4921

Section 4291 et seq. of the Public Resources Code includes requirements for defensible space in mountainous areas, forest-covered lands, shrub-covered lands, grass-covered lands, or land that is covered with flammable material. Property owners are required to remove flammable vegetation and brush within 100 feet of buildings, with more stringent fuel reductions required within 30 feet of a structure.

3.7.2.3 Local Policies and Regulations

COUNTY OF LOS ANGELES OPERATIONAL AREA EMERGENCY OPERATIONS PLAN

The County of Los Angeles Operational Area Emergency Operations Plan (EOP) addresses both the County's planned response to extraordinary emergency situations impacting unincorporated areas of the County as well as Operational Area coordination. The County's EOP provides guidance and procedure for the County to prepare for, respond to, and recover from the effects of large scale emergencies.

CITY OF PALMDALE EMERGENCY OPERATIONS PLAN

The City's Emergency Operations Plan outlines the City's planned responses to emergency situations, summarize operational plans related to disaster response and recovery, and identify protocols for multi-agency and multi-jurisdictional emergency response coordination.

CITY OF PALMDALE

The City General Plan Safety Element (City of Palmdale 2022) includes goals and objectives relevant to hazards and hazardous materials. The General Plan contains the following goals and policies addressing the aforementioned hazards.

- **GOAL SE-2**: Minimize public health, safety, and welfare impacts resulting from wildfire hazards.
    - **Policy SE-2.8 Los Angeles County Fire Department Coordination.** Continue to coordinate with the Los Angeles County Fire Department to provide emergency evacuation support and address fire hazards.
- **Goal SE-2:** Minimize risks associated with the transport, storage, use, and disposal of hazardous materials.
    - **SE-3.3 Soil and Groundwater Cleanup.** Require clean-up of soil and/or groundwater containing hazardous materials exceeding regulatory action levels to the satisfaction of the agency having jurisdiction prior to granting permits for new development.
    - **SE-3.4 Hazardous Materials Transport.** Require transport of hazardous materials along designated routes that minimize risks to the public and sensitive environmental areas and cooperate with regional agencies in developing and maintaining such routes.
    - **SE-3.5 Review Development Near Hazardous Materials.** Review proposed development in proximity to any existing or proposed facility that uses, stores, or transports large amounts of hazardous materials to ensure adequate mitigation of impacts related to hazardous materials (e.g. appropriate site design, setbacks, and buffering).
    - **SE-3.6 Hazardous Waste Facility Compliance.** Require all proposed hazardous waste facilities to comply with the City's hazardous waste management plan and the Hazardous and Waste Facilities Section of the Palmdale Municipal Code.

3.7.3 IMPACT ANALYSIS

3.7.3.1 Methodology for Analysis

This section evaluates whether construction and operation of the facilities associated with the proposed Project would result in significant impacts related to hazards, hazardous materials, and wildfires. To identify potential hazards or hazardous material impacts on workers, the public, or the environment, literature and database reviews were conducted to survey available information and identify sensitive receptors. The reviewed sources include databases and literature such as Google maps, the SWRCB GeoTracker database, the DTSC EnviroStor database, Cal Fire fire severity zone maps, and the City's 2045 General Plan.

3.7.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines,* as updated in December 2018, an impact on recreation would be considered significant if the proposed Project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plant.
- If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project:
    - Substantially impair an adopted emergency response plan or emergency evacuation plan.
    - Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.
    - Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.
    - Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

3.7.3.3 Criteria Requiring No Further Evaluation

The Project would not have significant impacts associated with the following criteria:

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area? The proposed Project

would require the implementation of actions within the vicinity of Palmdale Regional Airport and U.S. Air Force Plant 42. The actions include construction and operation of Pure Water Antelope Valley project, resulting in short-term airport safety and noise exposure concerns. However, the proposed Project would not result in new residences near any airports, nor would it create new long-term employment within those areas. In regard to the Palmdale Ditch Conversion project, the Ditch does not overlap an airport planning area. Therefore, the proposed Project would not expose residences or workers to excessive aircraft noise or airport-related safety hazards. There would be no impact.

3.7.3.4 Impacts and Mitigation Measures

Impact HAZ-1 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

IMPACT HAZ-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project is anticipated to involve drilling, trenching, excavation, grading, and other ground-disturbing activities. The anticipated construction activities described above would temporarily require the transport, use, and disposal of hazardous materials including gasoline, diesel fuel, hydraulic fluids, paint, and other similarly related materials. Construction activities would require the use of heavy equipment that would contain oil, gasoline, or other fluids, and would likely be stored on and transported during the construction period. Accidental release of these materials could occur during routine transport, disposal, or use and could potentially injure construction workers, contaminate soil, and/or affect nearby groundwater or surface water bodies. Impacts associated with accidental release, although likely localized, could potentially create a significant hazard to the public or the environment. Construction of recycled water injection wells and associated recycled water pipelines are anticipated to involve ground-disturbing activities as mentioned above that could temporarily require the transport, use, and disposal of hazardous materials including gasoline, diesel fuel, hydraulic fluids, paint, and other similarly related materials. As mentioned above, there is potential of an accidental release of materials that could occur during the routine transport, disposal, or use and could potentially injure construction workers, contaminate soil, and/or affect nearby groundwater and/or surface water bodies.

PWD is required to comply with all relevant and applicable federal, State, and local laws and regulations that pertain to the transport, storage, use, and disposal of hazardous materials and waste during construction of proposed facilities. Compliance with all applicable federal, State, and local regulations regarding the handling, storage, transportation, and disposal of hazardous materials would reduce potential impacts to the public or the environment related to the transport, use, or disposal of hazardous materials would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation and replacement of existing wells would involve the transport, use, or disposal of hazardous materials during the chemical treatment process and physical cleaning of existing wells. Accidental release of materials, as described above, could occur during routine transport, disposal, or use, and could potentially injure construction workers, contaminate soil, and/or affect nearby groundwater or surface water bodies. PWD will comply with all relevant and applicable federal, State, and local laws and regulations as mentioned above. Therefore, impacts would be less than significant.

PWD would comply to federal, State, and local regulations, as described above, which would limit the risk of exposure to hazardous materials from routine use or accident conditions by regulating hazardous material use, storage, transportation, and handling. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Construction related to the Palmdale Ditch Conversion Project would temporarily increase the transport and use of hazardous materials in the Project area through the operation of vehicles and equipment, including but not limited to diesel fuel and gasoline, oil, solvents, and other similar materials. These materials would be contained within vessels specifically engineered for safe storage and would not be transported, stored, or used in quantities that would pose a significant hazard to the public or construction workers themselves. The transport, use, and storage of hazardous materials during construction would be conducted in accordance with applicable federal and State laws, such as the Hazardous Materials Transportation Act, California Hazardous Material Management Act, and California Code of Regulations, Title 22. Therefore, impacts would be less than significant.

Conservation

Implementation of conservation measures does require construction of any new facilities. Therefore, there would be no impacts.

OPERATION

Recycled Water

Operation of the Pure Water Antelope Valley project and recycled water injection wells would require routine transport, use of new chemicals for purposes of treatment, and possible storage of diesel fuel for the emergency generator PWD shall be required to comply with all relevant and applicable federal, State, and local laws and regulations that pertain to the transport, and use of hazardous materials during operation of proposed facilities. Compliance with these laws would minimize the potential hazard to the public or environment due to transport, storage, and

use of hazardous materials. Therefore, construction of the proposed Project would not create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials. Impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of rehabilitated and/or replacement wells requires the routine transport and use of new chemicals for purposes of treating groundwater. As mentioned above, PWD would comply with all relevant and applicable federal, State, and local laws and regulations that pertain to transport, storage, and use of hazardous materials during operation of the groundwater wells. Compliance with these laws would minimize potential impacts to less than significant levels.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the proposed Project would involve the conveyance of raw water and would not require the use or storage of hazardous materials. Therefore, operation of the proposed Project would not create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials. Impacts would be less than significant.

Conservation

Conservation measures do not require operational activities. Therefore, there would be no impacts.

IMPACT HAZ-1 FINDINGS

Significance before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact HAZ-2	**Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.**

IMPACT HAZ-2 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project, including recycled water injection wells and associated pipelines, could create hazards to the public or the environment through

reasonably foreseeable upset and accident conditions involving the release of hazardous materials. The construction activities would involve the use of adhesives, solvents, paints, thinners, and other chemicals. Construction equipment necessary for facility implementation would require the use of fuels and lubricants. Cal/OSHA regulations provide for the proper labeling, storage, and handling of hazardous materials to reduce the potential harmful health effects that could result from worker exposure to hazardous materials. If not properly handled; however, accidental release of these substances could expose construction workers, degrade soils, or become entrained in stormwater runoff, resulting in adverse effects on the public or the environment. PWD is required to comply with all relevant and applicable federal, State, and local laws and regulations that pertain to the accidental release of hazardous materials during construction of proposed facilities. Additionally, PWD would implement **Mitigation Measure HAZ-1**, which would develop a Hazardous Materials Management and Spill Prevention and Control Plan to limit the risk of hazardous material through material use and accidents. Compliance with all applicable federal, State, and local regulations and implementation of the Hazardous Materials Management and Spill Prevention and Control Plan would reduce potential impacts to the public or the environment regarding accidental release of hazardous materials to less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation of existing wells would involve the use of adhesives, solvents, paints, thinners, and other chemicals that could create a hazard through leaks or if not properly handled. Construction of replacement wells would occur within the south and eastern parts of the Antelope Valley Groundwater Basin. Construction activities would require the use of construction machinery, equipment, and other chemicals that could create a hazard through leaks if not properly handled. PWD would implement **Mitigation Measure HAZ-1**, which would develop a Hazardous Materials Management and Spill Prevention and Control Plan, and would comply with all applicable federal, State, and local laws and regulations pertaining to the avoidance and, if necessary, mitigation of the accidental release of hazardous materials during construction. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The use, transport, and storage of hazardous materials during construction of the Ditch (e.g., diesel fuel, oil, solvents, and other similar materials) could introduce the potential for an accidental spill or release to occur. The presence of hazardous materials during Ditch construction activities, including but not limited to ground-disturbing activities, could result in an accidental upset or release of hazardous materials if they are not properly stored and secured. Hazardous materials used during construction would be disposed of off-site in accordance with all applicable laws and regulations, including but not limited to the California Building and Fire Codes as well as regulations of the federal and State Occupational Safety and Health Administrations. In addition, accidental leaks or spills of hazardous materials that may

occur during construction would be cleaned up and disposed of in accordance with applicable regulations. Furthermore, the proposed Project would adhere to the best management practices (BMPs) required by the Stormwater Pollution Prevention Plan prepared for the proposed Project, which would minimize the risk of leaks and spills of hazardous construction materials resulting in off-site impacts. Therefore, the proposed Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment during construction, and impacts would be less than significant.

Conservation

Conservation measures do not require construction of any facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project could pose a hazard to the environment through the accidental release of hazardous materials, such as chemical spills from storage tanks, leaks from piping systems, or malfunctioning dosing pumps. To mitigate these risks, PWD will implement rigorous maintenance protocols, including regular inspections and repairs of equipment, robust training programs for staff, and advanced monitoring systems to detect and address leaks or spills promptly. Additionally, operation of recycled water injection wells is anticipated to require the delivery of chemicals. As mentioned above, the transport of hazardous materials is regulated by Caltrans and would be tracked by Caltrans. Delivery vehicles would be required to utilize roadways approved for transportation of hazardous materials. Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/Replacement

During operation of groundwater wells, there is a low risk of an accidental chemical spill during transport or use of chemicals at the well facility. The proposed Project would be required to comply with various existing regulations that would limit the risk of accidental hazardous material release during operations. Safety measures would also be put in place to ensure proper storage containers, safety labeling, availability of materials needed to readily absorb spills, and training for site workers. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Similar to the discussion in *Impact HAZ-1*, operation and maintenance of the proposed Project would not involve transport, use, or disposal of hazardous materials. Therefore, operation of the proposed Project would not create a significant hazard to the public or the environment through foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Impacts would be less than significant.

Conservation

Implementation of conservation measures does not require any operational activities. Therefore, there would be no impact.

IMPACT HAZ-2 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure HAZ-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact HAZ-3	**Emit hazardous emissions or handle hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.**

IMPACT HAZ-3 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The closest school to the proposed Project is Palmdale SOAR High School, located 2270 E Ave Q), which is about 0.20 miles away from the proposed Project. During construction of proposed Project facilities, there may be emissions of toxic air pollutants, such as diesel, within Palmdale SOAR High School, and there is a risk of accidental release of hazardous materials during construction. Implementation of **Mitigation Measure HAZ-1** would reduce the risk of accidental hazardous material releases, and implementation of **Mitigation Measure HAZ-2** would minimize the impact of construction near schools by coordinating with schools to schedule construction activity when school is not in session. Therefore, impacts would be less than significant with mitigation incorporated.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Well rehabilitation would be restricted to existing well sites. Several of the existing well sites are within 0.25 mile of schools. The location of replacement wells and associated conveyance pipelines would be located within the Antelope Valley Groundwater Basin in areas with high groundwater production rates. However, their locations have not been officially sited, so there is a possibility that they may be within 0.25 mile of schools. During construction of replacement wells, there could be emissions of toxic air pollutants, such as diesel particulate matter, within 0.25 mile of schools. Similar to the discussion in *Impact HAZ-2,* there is a risk of accidental release of hazardous materials during construction. Implementation of **Mitigation Measure HAZ-1** would reduce impacts of an accidental release of hazardous materials. **Mitigation Measure HAZ-2** would reduce impacts of well construction at proposed well locations located near schools by requiring coordination with schools to schedule construction activity when school is not in session. Thus, construction of the proposed Project would have a less than significant impact.

Local Supplies

Palmdale Ditch Conversion Project

The nearest school to the Palmdale Ditch Conversion project site is Barrel Springs Elementary School, which is located approximately one mile northeast of the nearest portion of the Ditch. Therefore, the proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school during construction. No impact would occur.

Conservation

Conservation measures do not require construction of any new facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would be within 0.25 mile of Palmdale SOAR High School. The proposed Project would require routine transport, use of chemicals for treatment, and possible storage of diesel fuel. PWD would be required to comply with all local, regional, State, and federal regulations. Therefore, impacts would be less than significant with mitigation incorporated.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of groundwater wells would require storage of chemicals and transportation of hazardous chemicals to the facility once a month. Sodium hypochlorite, which may be used for disinfection, is considered a hazardous chemical. Additionally, PWD would comply with all local, regional, State, and federal regulations. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project would not occur within 0.25 mile of an existing school. Therefore, the proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school during operation, and no impact would occur.

Conservation

Implementation of conservation measures does not require operational activities. Therefore, there would be no impact.

IMPACT HAZ-3 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measures HAZ-1, HAZ-2

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact HAZ-4	**Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code 65962.5 and, as a result, create a significant hazard to the public or the environment.**

IMPACT HAZ-4 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Record searches on SWRCB GeoTracker and the DTSC EnviroStor databases revealed that the Pure Water Antelope Valley project property is not within any active sites. The closest active site is Air Force Plant 42 – Basewide, which is approximately one mile away. Therefore, there would be no impacts.

Recycled water pipelines are anticipated to be within the vicinity of the Palmdale Water Reclamation Plant. Record searches on SWRCB GeoTracker and DTSC EnviroStor databases revealed that the vicinity of the Palmdale Water Reclamation Plant revealed no active sites. Therefore, there would be no impact.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Record searches on SWRCB GeoTracker and DTSC EnviroStor databases indicate that no existing wells that may undergo rehabilitation are within any active sites. Therefore, there would be no impacts.

Local Supplies

Palmdale Ditch Conversion Project

The portion of the Ditch site near the intersection of Sierra Hills Lane and Sierra Highway overlaps with a Leaking Underground Storage Tank (LUST) cleanup site. This site involved gasoline contamination of soil, and this site is designated as "completed – case closed," which indicates that required site remediation occurred (SWRCB 2023). In addition, this LUST cleanup site is not adjacent to the Ditch, and Project-related excavation would not disturb the LUST cleanup site. Therefore, construction of the proposed Project would not create a significant hazard to the public or the environment related to location on a hazardous materials site. No impact would occur.

Conservation

Implementation of conservation measures does not require construction of any new facilities. Therefore, impacts would be less than significant.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would not be within any active hazardous sites. Therefore, no impact would occur.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of existing wells that have been rehabilitated would not have any impact as existing wells are not located within any active hazardous sites. **Mitigation Measure HAZ-3** ensured replacement wells would not be located within any active hazardous sites. Therefore, there would be no impact.

Local Supplies

Palmdale Ditch Conversion Project

The Ditch is not within any hazardous materials sites compiled pursuant to Government Code 65962.5. Therefore, operation of the Palmdale Ditch Conversion project would not create a significant hazard to the public or the environment related to a location on a hazardous material site. No impact would occur.

Conservation

Implementation of conservation measures does not require any operational activities. No impact would occur.

IMPACT HAZ-4 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure HAZ-3

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact HAZ-5 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

IMPACT HAZ-5 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valey project would temporarily block access to roadways and driveways for emergency vehicles. Construction of recycled water injection wells and associated pipelines would temporarily block access to roadways and driveways for emergency vehicles, which could conflict with the County and City's EOPs. **Mitigation Measure TRA-1** would involve PWD to prepare and implement a Traffic Control Plan that would establish appropriate traffic control measures and preserve emergency access within the Project area. Impacts would be reduced to less than significant levels with mitigation incorporated.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation of existing wells would be confined within existing well buildings and would not result in any road closures nor significantly impact emergency response vehicles. Construction of replacement wells would occur in the south and eastern parts of the Antelope Valley Groundwater Basin. Construction may result in the temporary closures of roads, which would impact emergency response vehicles. With the implementation of **Mitigation Measure TRA-1**, PWD would prepare a Traffic Control Plan that would establish appropriate traffic control measures and preserve emergency access within the Project area. Potential significant impacts would be reduced to a less than significant level.

Local Supplies

Palmdale Ditch Conversion Project

In the area of the Palmdale Ditch Conversion project, the County's EOP recognizes State Route 14 and Mt. Emma Road as disaster evacuation routes (County of Los Angeles 2023).

Construction may require partial lane or full road closures during activities such as the demolition of culverts, headwalls at bridges and tunnels, and stormwater overcrossings. Trenchless installation methods would be utilized for the crossing of Pearblossom Highway to minimize disruption to traffic; however, the proposed pipeline may be installed via open-cut excavation through other existing roadways (unless otherwise required by the City/County), which would also require lane or road closures. Traffic control plans (**Mitigation Measure TRA-1)** would be prepared for work within the City, County, and Los Angeles County Metropolitan Transportation Authority/Metrolink/Southern California Regional Rail Authority rights-of-way as well as within Angeles National Forest. These traffic control plans would establish appropriate traffic control measures and preserve emergency access within the Project area. Therefore, construction impacts to emergency response or evacuation plans would be less than significant with mitigation incorporated.

Conservation

Conservation measures do not require construction of any facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Pure Water Antelope Valley project would require PWD staff to remain on site for operation and maintenance. However, operation of the proposed Project would not result in any road closures, and thus, would not interfere with an adopted emergency response plan or emergency

evacuation plan. Operation of groundwater wells would require regular visits from PWD staff for maintenance. However, these operational activities are minimal, and thus, would not interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, there would be no impact.

Groundwater

During operation, groundwater wells would require regular visits from PWD staff for well maintenance. These minimal operational activities would not interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, proposed Project operations related to groundwater would have no impact.

Local Supplies

Palmdale Ditch Conversion Project

During operation, the Palmdale Ditch Conversion pipeline and new future turnout would be entirely belowground with limited aboveground appurtenant facilities and would not interfere with roadway access. Therefore, the proposed Project would not impede roadway access and would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. There would be no Impact.

Conservation

Implementation of conservation measures does not require any operational activities. Therefore, no impact would occur.

IMPACT HAZ-5 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure TRA-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact WILD-1	**Substantially impair an adopted emergency response plan or emergency evacuation plan.**

IMPACT WILD-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley project is not anticipated to be located in or near State responsibility areas or lands classified as very high fire hazard severity zones. As discussed in

Impact HAZ-6, construction of the Pure Water Antelope Valley project could temporarily result in road closures, which would disrupt emergency vehicle access and could impair an adopted emergency response plan or an emergency evacuation plan. Implementation of **Mitigation Measure TRA-1** would reduce potential significant impacts to less than significant levels as it includes strategies to maintain emergency vehicle access, and thus, would not impart an adopted emergency response plan.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation of existing wells would be confined within existing well buildings and would not result in any road closures nor significantly impact emergency response vehicles.

Construction of replacement wells would occur within the south and eastern parts of the Antelope Valley Groundwater Basin. As discussed in *Impact HAZ-6*, construction of replacement wells, and associated conveyance pipelines would temporarily result in road closures, which would disrupt emergency vehicle access, and thus, impair on an adopted emergency response plan or an emergency evacuation plan. **Mitigation Measure TRA-1** would reduce this potential significant impact to a less than significant level as the mitigation includes preparation of a Traffic Control Plan.

Local Supplies

Palmdale Ditch Conversion Project

In the area of the Palmdale Ditch Conversion project, the County's EOP recognizes State Route 14 and Mt. Emma Road as disaster evacuation routes (County of Los Angeles 2023). Proposed Project construction may require partial lane or full road closures during activities such as the demolition of culverts, headwalls at bridges and tunnels, and stormwater overcrossings. Additionally, although trenchless installation methods would be utilized for the crossing of Pearblossom Highway to minimize disruption to traffic, the proposed pipeline would be installed via open-cut excavation through existing roadways for the remaining road crossings (unless otherwise required by the City/County), which would also require lane or road closures. Traffic control plans (**Mitigation Measure TRA-1**) would be prepared for work within the City, County, and Los Angeles County Metropolitan Transportation Authority/ Metrolink/ Southern California Regional Rail Authority rights-of-way as well as within Angeles National Forest. These traffic control plans would establish appropriate traffic control measures and preserve emergency access within the Project area. Therefore, the Project would not substantially impair an emergency response plan or emergency evacuation plan. Impacts would be less than significant.

Conservation

Conservation measures do not require construction of any new facilities, and thus, would not substantially impair an adopted emergency response plan or emergency evacuation plan. No impact would occur.

OPERATION

Operation of the proposed Project would not modify ongoing operational activities of existing facilities. Therefore, there would be no impacts.

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would not impair an adopted emergency response plan or an emergency evacuation plan as operational activities would not disrupt or prevent emergency vehicle access to the Project area. Therefore, there would be no impact.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of wells would not impair an adopted emergency response plan or an emergency evacuation plan as operational activities would not disrupt or prevent emergency vehicle access to the Project area. Therefore, there would be no impacts.

Local Supplies

Palmdale Ditch Conversion Project

During operation, the Palmdale Ditch Conversion project facilities would be entirely belowground with limited aboveground appurtenant components and would not interfere with roadway access. Therefore, operation of the proposed Project would not impede roadway access and would not substantially impair an adopted emergency response plan or an emergency evacuation plan. No impact would occur.

Conservation

Implementation of conservation measures does not require any operational activities. Therefore, no impact would occur.

IMPACT WILD-1 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure TRA-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact WILD-2 Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire if located in or near State responsibility areas or lands classified as very high fire hazard severity zones.

IMPACT WILD-2 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

As seen in **Figure 3.7-1** the potential location of the Pure Water Antelope Valley project is not within or near any State responsibility areas or lands classified as very high fire hazard severity zones, thus, would not expose occupants to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire. The location of recycled water injection wells and associated pipelines have not been determined but they are anticipated to be within the vicinity of the Palmdale Water Reclamation Plant. As seen in **Figure 3.7-1**, the vicinity of Palmdale Water Reclamation Plant is not within any lands classified as very high fire hazard severity zones, and thus, would not expose the proposed Project occupants to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire. No impact would occur.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Wells intended for rehabilitation would not be located in or near State responsibility areas or lands classified as very high hazard severity zones. Therefore, the proposed Project would not expose occupants to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire. No impact would occur. The replacement wells and associated conveyance pipelines are anticipated to be constructed in the south and eastern parts of the Antelope Valley outside of designated fire severity zones. However, because the exact locations have not yet been sited, these wells may be within or near State responsibility areas or lands classified as very high fire hazard severity zones and **Mitigation Measure WILD-1** would be required to ensure a less than significant impact would occur. **Mitigation Measure WILD-1** would ensure fire hazard reduction measures are conducted during construction in areas designated as very high fire hazard severity zones to reduce the potential for wildfire impacts on people or structures to less than significant levels.

Local Supplies

Palmdale Ditch Conversion Project

During construction, the use of spark-producing construction equipment along the Ditch alignment within high FHSZs or adjacent to very high FHSZs could potentially create hazardous

fire conditions and expose construction workers and nearby residents to wildfire risks. However, pursuant to California Public Resources Code Section 4442, earthmoving and portable equipment with internal combustion engines would be equipped with a spark arrestor to reduce the potential for igniting a wildfire, which would minimize this risk. Additionally, **Mitigation Measure WILD-1** would ensure fire hazard reduction measures are conducted during construction in areas designated as very high FHSZs to reduce the potential for wildfire impacts on people or structures. Therefore, impacts would be less than significant levels with mitigation incorporated.

Conservation

Conservation measures do not require construction of any facilities. Therefore, no impact would occur.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley project would not be located within or near State responsibility areas or lands classified as very high fire hazard severity zones. The vicinity of Palmdale Water Reclamation Plant is not located within or near State responsibility areas or lands classified as very high fire hazard severity zones. Therefore, operation of the proposed Project would not exacerbate wildfire risks and thereby expose proposed Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. No impact would occur.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Existing groundwater wells are not located within or near State responsibility areas or lands classified as very high hazard severity zones. Therefore, operation of existing groundwater wells would not exacerbate wildfire risks and thereby expose proposed Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. No impact would occur.

Local Supplies

Palmdale Ditch Conversion Project

During operation, the underground pipeline and its appurtenant aboveground facilities would not include ignition sources, habitable structures, or other components with the potential to exacerbate fire risk in the area. Therefore, the proposed Project would not exacerbate wildfire risks and would not expose the proposed Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would be less than significant.

Conservation

Implementation of conservation measures would not require any operational activities. No impact would occur.

IMPACT WILD-2 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure WILD-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact WILD-3 Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment if located in or near State responsibility areas or lands classified as very high fire hazard severity zones.

IMPACT WILD-3 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The potential location of the Pure Water Antelope Valley project would not be located within or near State responsibility areas or lands classified as very high fire hazard severity zones. The vicinity of Palmdale Water Reclamation Plant is not located within or near State responsibility areas or lands classified as very high hazard severity zones. Additionally, the proposed Project would not require installation of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. No impact would occur.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Existing wells are not located within or near State responsibility areas or lands classified as very high fire hazard severity zones. Additionally, the proposed Project would not require the installation of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. No impact would occur. The location of replacement wells would be in the south and eastern part of the Antelope Valley Basin. There may be a possibility that they would be located in or near State responsibility areas or lands classified as very high fire hazard severity zones. However, the proposed Project would not require installation of associated infrastructure that may exacerbate fire risk or that may result in temporary ongoing impacts to the environment. Impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The Palmdale Ditch Conversion project would not require the installation or maintenance of infrastructure, such as roads, fuel breaks, emergency water sources, or power lines, which may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. No impact would occur.

Conservation

Conservation measures do not require construction of any new facilities. Therefore, no impacts would occur.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would not require the maintenance of infrastructure that may exacerbate fire risk that may result in temporary or ongoing impacts to the environment. No impact would occur.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of wells would not require maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. No impact would occur.

Local Supplies

Palmdale Ditch Conversion Project

The Palmdale Ditch Conversion project would not require maintenance of infrastructure that exacerbates fire risk or that may result in temporary or ongoing impacts to the environment. No impact would occur.

Conservation

Implementation of conservation measures does not require any operational activities. No impact would occur.

IMPACT WILD-3 FINDINGS

Significance before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact WILD-4 Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

IMPACT WILD-4 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

As seen in **Figure 3.7-1**, the proposed Pure Water Antelope Valley project area is not located within or near State responsibility areas or lands classified as very high fire hazard severity zones. Additionally, the vicinity of Palmdale Water Reclamation Plant is not within or near State responsibility areas or lands classified as very high fire hazard severity zones. Therefore, there would be no impact.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation of existing wells would not be located in or near State responsibility areas or lands classified as very high fire hazard severity zones. Additionally, rehabilitation of existing wells is not anticipated to add new impervious surfaces as the existing well structures would be used. Therefore, the proposed Project would not expose people or structures to significant risks, including downslopes or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes. Impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The conversion of the Ditch to a pipeline and potential installation of a new future turnout on the California Aqueduct would not have the potential to expose people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. As detailed further in Section 3.8, *Hydrology, Groundwater, and Water Quality,* drainage changes to the Palmdale Ditch Conversion project area would be minimal and would not result in excess runoff that could result in post-fire flooding or landslides as compared to existing conditions. As shown in **Figure 3.6-5** in Section 3.6, *Geology, Soils, and Mineral Resources,* the Palmdale Ditch Conversion project area overlaps with landslide hazard areas; however, there are no recorded

landslides within or near the Palmdale Ditch Conversion project area. The nearest evidence of a landslide to the Ditch site is located approximately 1.7 miles southwest of the Palmdale Ditch Conversion project's terminus at Lake Palmdale (United States Geological Survey 2022). Therefore, construction of the proposed Project would not result in increased risk of post-fire slope instability, and construction of the proposed Project would not expose people or structures to flooding or landslides as a result of post-fire runoff, slope instability, or drainage changes. Impacts would be less than significant.

Conservation

Conservation measures do not require construction of any new facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of Pure Water Antelope Valley project would not expose people or structures to significant risks, including downslopes or downstream flooding or landslides as a result of runoff, post-fire slope instability or drainage changes as the proposed Project is not located in or near State responsibility areas or lands classified as very high fire hazard severity zones. No impact would occur.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of groundwater wells would not have the potential to expose people or structures to significant risks as a result of runoff, post-fire instability, or drainage changes because drainage changes would be minimal and would not result in excess runoff that could result in post-fire flooding or landslides as compared to existing conditions.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project would not have the potential to expose people or structures to significant risks as a result of runoff, post-fire slope instability or drainage changes because 1) drainage changes to the Palmdale Ditch Conversion project area would be minimal and would not result in excess runoff that could result in post-fire flooding or landslides as compared to existing conditions (as detailed further in Section 3.8, *Hydrology and Water Quality*), and 2) there are no recorded landslides within or near the Palmdale Ditch Conversion project area (United States Geological Survey 2022). Therefore, operation of the proposed Project would not result in increased risk of post-fire slope instability, and operation of the proposed Project would not expose people or structures to flooding or landslides as a result of post-fire runoff, slope instability, or drainage changes. Impacts would be less than significant.

Conservation

Conservation measures do not require operational activities. Therefore, there would be no impact.

IMPACT WILD-4 FINDINGS

Significance before Mitigation: Less than Significant

Mitigation Measures: None required.

3.7.3.5 Mitigation Measures

MITIGATION MEASURE HAZ-1: HAZARDOUS MATERIALS MANAGEMENT SPILL PREVENTION AND CONTROL PLAN

Before commencement of construction, PWD shall require its construction contractor(s) to prepare a Hazardous Materials Management Spill Prevention and Control Plan that includes a Project-specific contingency plan for hazardous materials and waste operations. The Plan shall be applicable to all construction activities and shall establish policies and procedures according to federal and California OSHA regulations for hazardous materials. Elements of the Plan shall include, but not be limited to the following:

- A discussion of hazardous materials management, including delineation of hazardous material storage areas, access and egress routes, waterways, emergency assembly areas, and temporary hazardous waste storage areas;
- Notification and documentation of procedures; and
- Spill control and countermeasures, including employee spill prevention/response training.

MITIGATION MEASURE HAZ-2: CONSTRUCTION AND CHEMICAL DELIVERIES AT SCHOOLS

PWD will coordinate with school officials for proposed Project areas located near schools to schedule construction when school is not in session.

MITIGATION MEASURE HAZ-3: ENVIRONMENTAL SITE ASSESSMENT AND REMEDIATION OR WELL RELOCATION

After exploratory drilling and before construction begins, a Phase 1 Environmental Site Assessment will be conducted for each proposed municipal well site to identify contaminated sites at or near each proposed well site that poses a hazard for construction or to PWD's potable water supply. In the event that a recognized environmental concern exists, additional investigation would be conducted, typically under a Phase II Environmental Site Assessment, to identify the presence and extent of any contamination that would need remediation, or a Well Relocation Plan would be developed to determine if the well location could be moved to a location that is not affected by contaminant releases. Remediation, if needed, would be conducted in accordance with federal and State requirements for remediation of soil and/or groundwater contamination with oversight by the appropriate local and/or State agency, such as the County of Los Angeles, Regional Water Quality Control Board, and/or DTSC.

MITIGATION MEASURE TRA-1: TRAFFIC CONTROL PLAN

Prior to construction, PWD shall require its construction contractor(s) to prepare and implement a Traffic Control Plan, to be approved by the City and/or the County of Los Angeles, based on jurisdiction. The plan shall include traffic counts at intersections near the proposed Project facilities to determine existing traffic conditions. Based on these traffic counts, the plan shall recommend mitigation to minimize impacts to existing traffic conditions. These mitigation measures shall include but shall not be limited to:

- Identification of hours of construction and hours for deliveries, potentially avoiding the A.M. and P.M. peak hours to minimize disturbance to traffic flow
- Specification of both construction-related vehicle and oversize haul routes; alternative routes shall be proposed to avoid traffic disruption
- Identification of limits on the length of open trench, work area delineation, traffic control, flagging, and signage requirements
- Identification of all access and parking restrictions
- Identification of staging locations to be used during construction
- Identification of potential road or lane closures
- Establishment of haul routes for construction-related vehicle traffic
- Identification of alternative safe routes to maintain pedestrian bicyclist safety during construction

At least three days prior to initiation of construction activities, PWD shall coordinate with emergency services (police, fire, and others) to notify these entities regarding construction schedule, proposed Project alignment and siting, and potential delays due to construction. PWD shall identify roadways and access points for emergency services and minimize disruptions to or closures of these locations.

The plan shall include provisions for traffic control measures including barricades, warning signs, cones, lights, and flag persons, to allow safe circulation of vehicle, bicycle, pedestrian, and emergency response traffic.

MITIGATION MEASURE WILD-1: FIRE HAZARD REDUCTION MEASURES

During construction of Project facilities located in areas designated as moderate, high, or very high fire hazard severity zones by CAL FIRE, PWD shall require that all staging areas and welding areas intended for use of spark-producing equipment shall be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. During construction of Project facilities, construction contractor(s) shall require all vehicles and crews to have access to functional fire extinguishers at all times. In addition, construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.

3.7.3.6 Cumulative Impact Analysis

The proposed Project when considered with future projects allotted by planning documents in the area such as the City's General Plan would not be cumulatively considerable because the Project would not incrementally increase potential hazards, hazardous materials or wildfire risk that could be exacerbated by future conditions. Therefore, the proposed Project would have a cumulatively less than significant impact related to hazards, hazardous materials, and wildfire.

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3.8 HYDROLOGY, GROUNDWATER, AND WATER QUALITY

This section describes local surface water and groundwater resources and discusses regional water quality issues. This section also evaluates the proposed Project's potential impacts on water resources in the Project area and describes mitigation measures that would reduce impacts to a less-than-significant level.

3.8.1 ENVIRONMENTAL SETTING

3.8.1.1 Regional Setting

PROJECT AREA

The Project area is located in the southwestern corner of the Lahontan Regional Water Quality (LRWQCB) region, which is located within the Antelope Valley. The Antelope Valley is characterized as an arid desert region, receiving less than 4 inches on the valley floor and over 20 inches in the mountains.

SURFACE WATER

The Project area is located in the South Lahontan Hydrologic Region, which contains three major surface water systems: the Mono Lake, Owens River, and Mojave River watersheds. The Project area is located within the Antelope Hydrologic Unit, one of 29 such drainage areas designated for the South Lahontan Hydrologic Basin in the 1005 (as amended) Lahontan RWQCB Water Quality Control Plan (Basin Plan). The Basin Plan names six surface water features within the Antelope Hydrologic Unit that are potentially relevant to the Project area: Littlerock Creek, Big Rock Creek, Littlerock Dam Reservoir, Harold Reservoir commonly known as Lake Palmdale (Lake Palmdale), minor surface waters, and minor wetlands.

The Project area includes several key surface water features, including Littlerock Creek and Big Rock Creek, and lies along the eastern border of the PWD service area; Amargosa Creek, just outside of the western border; Anaverde Creek along the northwestern border; Lake Palmdale in the southwestern corner; and the California Aqueduct traversing the southern portion of the Project area (see **Figure 1-1** in the Introduction).

Due to low rainfall in the region, PWD's potable water supply is primarily supplied by imported State Water Project (SWP) supplies, and secondarily supplied by surface runoff that is captured behind Littlerock Dam Reservoir and gravity-fed into Lake Palmdale through the Palmdale Ditch (Ditch). Water supply for the region is held in Lake Palmdale, which is a raw water reservoir with a surface area of 234 acres and a volume of approximately 4,200 acre-feet (AF). Water from Lake Palmdale is treated at the Leslie O. Carter Water Treatment Plant before being distributed to PWD customers. In addition to its use as a water supply source, under a lease agreement with a recreation club, Lake Palmdale also provides controlled recreational uses in the form of boating, fishing, and hunting, although it is designated as a "no body contact" water body.

The Basin Plan designates Littlerock Creek and Big Rock Creek as intermittent and perennial streams, respectively, with Antelope Valley Groundwater Basin as the receiving water.

SURFACE WATER QUALITY

The Project area is located within the Antelope Valley/Other Southern Watersheds Management Area (WMA) delineated by the LRWQCB. In the WMA, land development issues (urban runoff and septic systems) and agricultural production (pesticide management and irrigation return flows) contribute to nonpoint source pollution. The Basin Plan specifies water quality objectives for all surface waters within the Lahontan region. This plan also notes specific water quality objectives for two water bodies within the Antelope Hydrologic Unit: Lake Palmdale and Littlerock Reservoir. Water quality objectives specified for Lake Palmdale and Littlerock Dam Reservoir include total dissolved solids (TDS), chloride, sulfate, fluoride, boron, and nitrogen (as nitrate).

According to PWD's *Watershed Sanitary Survey and Source Water Assessment Update*, Lake Palmdale is supplied by high-nutrient water from the California Aqueduct and has a history of algae blooms (PWD 2017a). PWD has taken steps to reduce algae production through applying cooper sulfate in Lake Palmdale six to eight times a year (PWD 2017a). The *Watershed Sanitary Survey and Source Water Assessment* also states that multiple watershed activities, such as illegal dumping, recreational activities, and open access to the Ditch may contribute to surface water quality degradation (PWD 2017a). Both total and fecal coliform concentrations in Lake Palmdale have historically been relatively low, and historically, the pH in Lake Palmdale has been slightly basic with levels generally between 7.5 and 8.5 (PWD 2017a).

The LRWQCB Basin Plan designates beneficial uses for water bodies within the region that must be maintained, as well as water quality objectives (or characteristics/pollutant limits) designed to protect those beneficial uses (LRWQCB 2021). The beneficial uses for the receiving surface waters and groundwater in the Project area are included in **Table 3.8-1.**

The State of California develops the Integrated Report to comply with the federal Clean Water Act. The Integrated Report consists of Clean Water Act section 303(d) list of impaired waters and 305(b) condition report. The State of California's Integrated Report is developed in cycles with submittal to the United States Environmental Protection Agency (U.S. EPA) every two years. U.S. EPA approved the 2020-2022 on May 11, 2022. According to California's 2020-2022 Integrated Report, Lake Palmdale is listed on the 303(d) list for dieldrin, and Littlerock Dam Reservoir is listed on the 303(d) list for manganese, mercury, and polychlorinated biphenyls (PCBs) (SWRCB 2022).

Table 3.8-1: Beneficial Uses

Beneficial Uses	Inland Surface Waters						Groundwater
	Big Rock Creek	Littlerock Creek	Lake Palmdale[1]	Littlerock Dam Reservoir[1]	Minor Surface Waters	Minor Wetlands	Antelope Valley
Municipal and Domestic Supply (MUN)	X	X	X	X	X	X	X
Agricultural Supply (AGR)	X				X	X	X
Industrial Service Supply (IND)	X			X			
Ground Water Recharge (GWR)	X	X	X	X	X	X	
Freshwater Replenishment (FRSH)						X	X
Water Contact Recreation (REC-1)	X	X	X	X	X	X	
Noncontact Water Recreation (REC-2)	X	X	X	X	X	X	
Commercial and Sportfishing (COMM)		X	X	X	X		
Warm Freshwater Habitat (WARM)					X	X	
Cold Freshwater Habitat (COLD)	X	X	X	X	X		
Wildlife Habitat (WILD)	X	X	X	X	X	X	
Spawning, Reproduction, and Development (SPWN)	X						
Water Quality Enhancement (WQE)						X	
Flood Peak Attenuation/Flood Water Storage (FLD)						X	

Source: Lahontan Region RWQCB 1995; Amended 2021

[1] The LRWQCB Basin Plan indicated AGR as beneficial use for Lake Palmdale and Littlerock Dam Reservoir in Chapter 2. Currently, Lake Palmdale and Littlerock Dam Reservoir do not provide a beneficial use for AGR.

GROUNDWATER

The proposed Project area is located within the Antelope Valley Groundwater Basin, which includes an extent of approximately 1,580 square miles and a storage capacity of between approximately 68 to 70 million AF (DWR 2004). Antelope Valley Groundwater Basin is bounded by the Garlock fault zone at the base of the Tehachapi Mountains and by the San Andreas Fault zone at the base of the San Gabriel Mountains. The two main aquifers of the basin – the upper confined aquifer and lower confined aquifer – are separated by a clay layer of ancient lakebed deposits up to 400 feet thick (DWR 2004). The primary water-bearing materials are Pleistocene and Holocene age unconsolidated alluvial and lacustrine deposits that consists of compact

gravels, sand, silt, and clay. These deposits are coarse and rich in gravel near mountains and hills but become finer grained and better sorted toward the central parts of the Valley (DWR 2004).

The Antelope Valley Groundwater Basin is composed of three large sediment-filled structural basins separated by extensively faulted, elevated bedrock. In addition to the Garlock and San Andreas Fault zones, numerous other faults within the basin impede groundwater flow. Three unnamed faults displace the local water table in the southeastern part of the basin, where PWD is located.

Groundwater extractions have exceeded the Basin's natural recharge because the 1920s causing the Basin to be in a state of overdraft and declining groundwater levels by more than 200 feet in some areas. In response to overdraft conditions, the Basin underwent an adjudication process to define groundwater rights for the Basin's users to equal the safe or sustainable yield of the Basin (PWD 2021a). On December 23, 2015, a Stipulated Judgement was approved by the judge presiding on the Antelope Valley Groundwater Adjudication cases. This Judgement includes the creation of a five-member Watermaster Board of Directors and appointment of the Antelope Valley Watermaster Engineer. The Antelope Valley Watermaster Engineer is responsible for monitoring the groundwater basin to ensure groundwater pumping is appropriately sustained by groundwater recharge and the Antelope Valley Groundwater Basin does not go back into a state of overdraft. Per the Judgement, PWD has a native groundwater production right of 2,769 acre-feet per year (AFY). PWD has been in full compliance with the Judgement, pumping within its final adjudication right since 2016. In addition to its groundwater production right, PWD is also entitled to a share of the unused federal reserved right, which averages to 1,450 AFY, and return flow credit of 39% of all imported water served to its customers. Return flow credits are calculated on a five-year rolling average and are available to PWD following imported water delivery or after banked imported water has been pumped. Return flow credits are projected to decrease from 4,220 AFY in 2025 and 4,100 AFY in 2050 (PWD 2023a).

GROUNDWATER QUALITY

Groundwater from the Antelope Valley Groundwater Basin is treated with chlorine at the wellhead and pumped directly into the distribution system (PWD 2021a). PWD monitors drinking water constituents consistent with federal and State laws. PWD annually provides a Consumer Confidence Report (CCR) detailing the water quality of its sources to all of its customers, which includes details about the source water, quality of the water, and how it compares to Drinking Water standards (PWD 2021a). In 2022, PWD completed more than 18,000 tests for over 80 regulated contaminants, and only 10 primary standard contaminants were detected in 2022, and all were levels below the Maximum Contaminant Level (MCL) allowed by the State of California (PWD 2022).

Groundwater quality is assessed through the Groundwater Ambient Monitoring and Assessment Priority Basin Project (PBP), which consists of analyzing raw groundwater that provides drinking public water supply in the region. PBP sampled a large distribution of wells in the area and analyzed organic constituents as well as chromium, lead, molybdenum, sulfate, and chloride. All were detected at moderate concentrations, and volatile organic compounds were detected at

low concentrations (PWD 2021a). Total dissolved solids (TDS) and nitrate present concerns for groundwater quality in the Antelope Valley. Past groundwater sampling data has shown TDS concentrations that range from 75 to 363 milligrams per liter (mg/L) (PWD 2021a). Nitrate levels have ranged from non-detection to 14.4 mg/L. Arsenic has also emerged as a potential concern but is still well under the MCL of 0.01 mg/L. Water quality data is regularly reported on in the annual CCR. The most recent is the 2022 CCR.

FLOODING

The Federal Emergency Management Agency (FEMA) identifies areas throughout the United States that are at risk of flooding. The FEMA Flood Insurance Rate Map identifies areas that have a 1% or greater (100-year flood area) or 0.2 % (500-year flood area) of being inundated by a flood event in a given year. **Figure 3.8-1** shows the replacement or rehabilitation of existing groundwater production wells and injection wells are in an a 500-year old flood area, while Littlerock Dam Reservoir and a small portion of the Ditch just downstream of Littlerock Dam Reservoir are in a 100-year flood area.

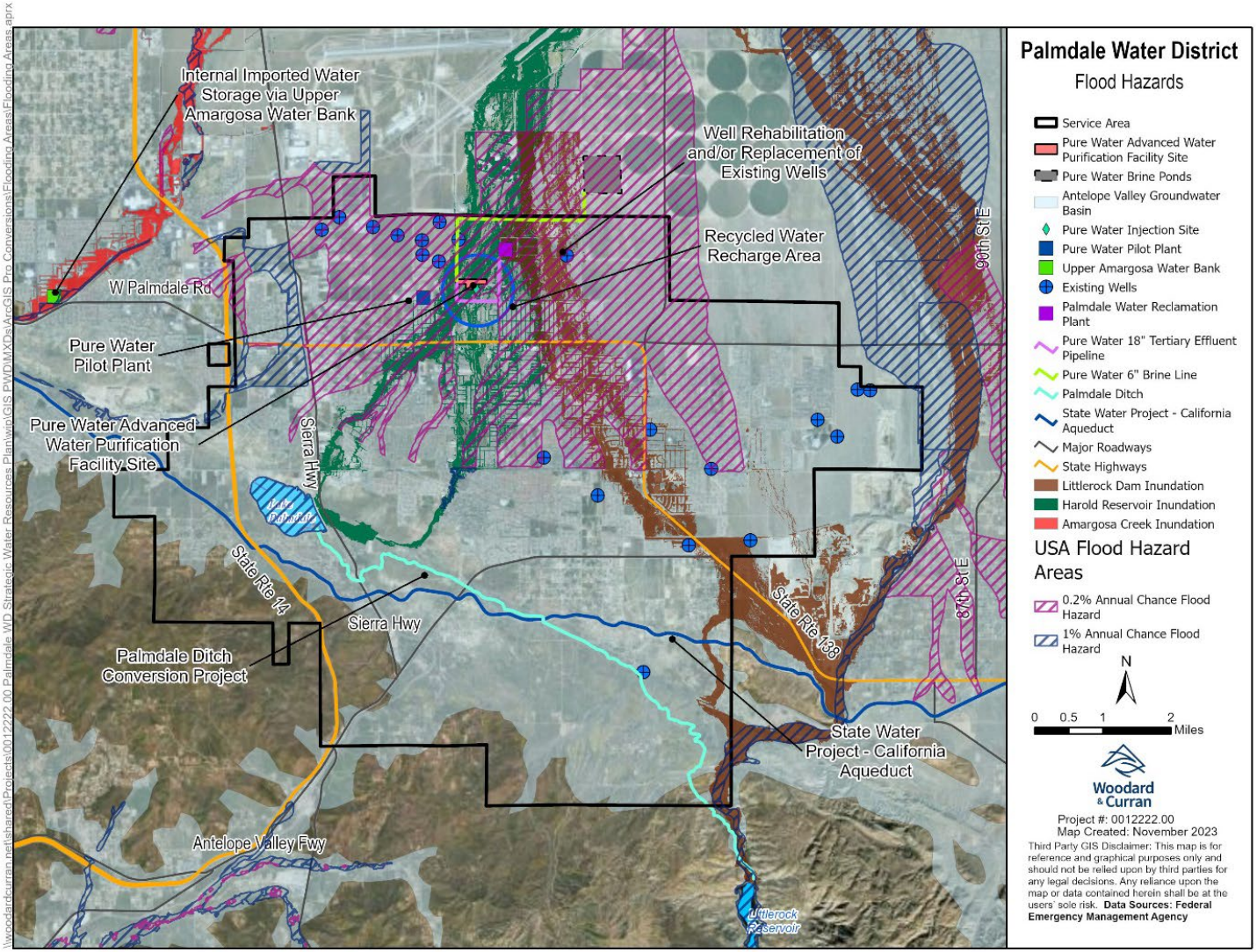
DAMS AND LEVEES

Construction of the Palmdale (Harold) Dam in 1895 formed Palmdale Lake (formerly known as Harold Reservoir); the Littlerock Dam and Reservoir were completed in 1924. Areas that are expected to be inundated in the event of dam failure have been reviewed and approved by the Department of Water Resources and Division of Safey of Dams as required by California Water Code Section 6161. **Figure 3.8-1** depicts the general inundation area of Palmdale Dam and Littlerock Dam relative to the Project (DWR and DSOD n.d.). Replacement or rehabilitation of groundwater production wells, injection wells, Pure Water Antelope Valley project, and portions of the Palmdale Ditch Conversion project area are within dam inundation areas.

TSUNAMIS AND SEICHES

PWD is not located within a tsunami (a large ocean wave caused by earthquakes or major ground movement) zone. However, a seismic event could cause a water wave, or seiche, to occur at Lake Palmdale, which could potentially overtop the dam (City of Palmdale 2021). The design report for the dam at Lake Palmdale considers a reflection of the wave on return unlikely and the wave volume above the dam would not be substantial and would not result in damaging floods (City of Palmdale 2021). Additionally, overpour on the downstream side of the dam will not cause any damage by erosion because the existing rockfill was designed to withstand it (City of Palmdale 2021). The Palmdale Local Hazard Mitigation Plan (City of Palmdale 2021) did not identify a water wave at Littlerock Reservoir to be a vulnerability.

Figure 3.8-1: Flooding Areas



3.8.2 REGULATORY FRAMEWORK

This section describes local, State, and federal laws, policies and regulations that apply to the proposed Project.

3.8.2.1 Federal Policies and Regulations

CLEAN WATER ACT

The Clean Water Act (CWA) is administered in California by the U.S. EPA, the State Water Resources Control Board (SWRCB), and the RWQCBs. The CWA serves as the primary federal law protecting the quality of waters of the United States (U.S.), including lakes, rivers, and coastal wetlands.

Waters of the U.S. are defined as "All waters which are currently used, or were used in the past, or may be susceptible to use in the interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide." Amargosa Creek, Littlerock Creek, Big Rock Creek, and other dry washes in the Antelope Valley are not considered waters of the U.S. because they flow to a closed internal dry lake basin that is wholly within the State of California. Because implementation of the Preferred Strategy would not affect waters of the U.S., CWA Sections 401 (requiring water quality certification) and 404 (addressing dredge and fill activities) are not triggered and are therefore not addressed further below.

The CWA includes the National Pollutant Discharge Elimination System (NPDES) Program (Section 402), which regulates storm water discharges to surface waters. In California, the U.S. EPA authorizes the SWRCB to oversee the NPDES program through the RWQCBs. The RWQCBs, under the guidance of U.S. EPA, issue NPDES permits to any construction project over one acre that are not covered by an individual NPDES permit.

FEDERAL ANTIDEGRADATION POLICY

The Federal Antidegradation Policy, established in 1968 under Section 303 of the CWA, is designed to protect existing uses, water quality, and national water resources. Implementation of antidegradation by the States is based on a set of procedures to be followed when evaluating activities that my impact the quality of the Waters of the U.S. Antidegradation implementation is an integral component of a comprehensive approach to protecting and enhancing water quality of both surface and groundwater.

NATIONAL FLOOD INSURANCE PROGRAM

The National Flood Insurance Program is implemented by FEMA and aims to reduce flooding impacts on private and public structures. This is achieved by encouraging adoption and enforcement of floodplain management regulations in communities and providing affordable insurance to property owners. As shown in **Figure 3.8-1**, replacement or rehabilitation of existing groundwater productions wells and potential locations of injections wells are in a 500-year old flood area, while Littlerock Dam Reservoir

and a small portion of the Ditch downstream of Littlerock Dam Reservoir are in a 100-year flood area (FEMA 2022).

3.8.2.2 State Policies and Regulations

PORTER-COLOGNE WATER QUALITY ACT

The Porter-Cologne Water Quality Control Act, also known as the California Water Code, is California's statutory authority for the protection of water quality. Under this act, the State must adopt water quality policies, plans, and objectives that protect the State's waters. The act sets forth the obligations of the SWRCB and RWQCBs pertaining to the adoption of Basin Plans and establishment of water quality objectives. Unlike the federal CWA, which regulates only surface water, the Porter-Cologne Act regulates both surface water and groundwater.

The Porter-Cologne Act requires the development and periodic review of water quality control plans (basin plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters, provide the technical basis for determining waste discharge requirements, identify enforcement actions, and evaluate clean water grant proposals. The basin plans are updated every three years. Compliance with basin plans is primarily achieved through implementation of the NPDES, which regulates waste discharges as discussed above.

The Porter-Cologne Water Quality Control Act requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the "waters of the State," file a report of waste discharge. Absent a potential effect on the quality of "waters of the State," no notification is required. However, the RWQCB encourages implementation of best management practices (BMPs) similar to those required for NPDES storm water permits to protect the water quality objectives and beneficial uses of local surface waters as provided in the Basin Plan.

CONSTRUCTION GENERAL PERMIT INAPPLICABILITY

The Construction General Permit represents the State of California's compliance with the federal NPDES stormwater program, which requires permits for discharges from construction activities that disturb one or more acres. The Construction General Permit applies to projects within the State that disturb more than an acre of ground during construction and requires preparation of a Stormwater Pollution Prevention Plan (SWPPP) that includes best management practices (BMPs) to avoid or minimize impacts to stormwater quality.

MS4 PERMIT INAPPLICABILITY (CITY OF PALMDALE AND NON-COASTAL LOS ANGELES COUNTY)

Many jurisdictions have general permits that pertain to municipal separate storm sewer systems (MS4s), which are facilities that commonly convey and discharge stormwater runoff to local water bodies. Lahontan Regional Water Quality Control Board does not have a Municipal

Separate Storm Sewer System (MS4) permit pertaining to stormwater discharges within the Antelope Valley Watershed (LRWQCB 2016). The Los Angeles Regional Water Quality Control Board does not have an MS4 Permit pertaining to unincorporated areas of Los Angeles County (County); however, this Los Angeles Regional Water Quality Control Board MS4 Permit only applies to Los Angeles's coastal watersheds. Because portions of the County in the Project area are not coastal, they are not covered under this permit.

California Stormwater Quality Association Construction BMP Online Handbook

The California Stormwater Quality Association (CASQA) Construction BMP Online Handbook provides information needed to stay in compliance with California stormwater regulations for construction. The BMP Handbook includes detailed information about specific BMPs implemented on construction sites to protect water quality. The Handbook was last updated in 2023 (CASQA 2023).

Lahontan Regional Water Quality Control Board Basin Plan

The Water Quality Control Plan for the Lahontan Region: North and South Basins (Basin Plan) provides the framework for the RWQCB's regulatory program, Specifically, it:

1. Sets forth surface and groundwater quality standards for the Lahontan Region;
2. Identifies beneficial uses of water and discusses objectives that shall be maintained or attained to protect those uses;
3. Provide an overview of types of water quality issues, and discusses them in the context of potential threats to beneficial uses;
4. Denotes recommended or required control measures to address the aforementioned water quality issues;
5. Prohibits certain types of discharge in particular areas of the Region;
6. Summarizes relevant State Board and Regional Board planning and policy documents, and discusses other relevant water quality management plans adopted by federal, state, and regional agencies; and
7. Identifies past and present water quality monitoring programs and discusses monitoring activities that could be implemented in future Basin Plan updates.

Overall, the Basin Plan functions as the regulatory authority for water quality standards established in local NPDES permits and other RWQCB decisions.

LAHONTAN REGIONAL WATER QUALITY CONTROL BOARD LIMITED THREAT DISCHARGES PERMIT

The LRWQCB issued an update in 2014 to their Waste Discharge Requirements and General Permit for Limited Threat Discharges to Surface Waters (Limited Threat Discharges General Permit) for discharges like dewatering and well construction that are expected to be low-level threats to water quality. Despite being considered low-level threats, constituents of concern for discharges from well construction include sediments and total dissolved solids, and constituents of concern for construction dewater include sediments, turbidity, construction materials, total petroleum hydrocarbons. The Permit requires that discharges do not violate any water quality objectives or affect beneficial uses for water as specified in the Basin Plan. To be covered under this Permit, the discharger must designate a disposal site, prepare a BMP Plan to control the discharge, and conduct monitoring and reporting. In the event the discharge violates the Permit requirements, the discharger must notify the LRWQCB and cease the discharge until permission is given to resume from the LRWQCB (LRWQCB 2014).

LAKE AND STREAMBED ALTERATION PROGRAM

The California Department of Fish and Wildlife (CDFW) oversees the Lake and Streambed Alteration Program, which is governed under Section 1602 of the Fish and Wildlife Gode (CDFW 2010). This program applies in instances where an activity may substantially adversely affect fish and wildlife resources. In those instances, the CDFW will require preparation of a Lake or Streambed Alteration Agreement, which contains a reasonable assessment of necessary conditions to protect those resources during construction and operation of proposed activities.

3.8.2.3 Local Policies and Regulations

ANTELOPE VALLEY SALT AND NUTRIENT MANAGEMENT PLAN

As part of compliance with the SWRCB's statewide Recycled Water Policy, a Salt and Nutrient Management Plan (SNMP) was prepared for the Antelope Valley Groundwater Basin to manage salts and nutrients from sources to sustain water quality objectives and protect beneficial uses of the Basin. The SNMP provides a summary of existing Basin groundwater quality, examines various scenarios of future groundwater quality based on actions taken, and proposes a monitoring plan to measure groundwater quality that determines whether measures must be implemented to protect water quality. Water quality management goals for the Basin were based on water quality standards included in the Basin Plan. The SNMP's overall conclusion was that overall groundwater quality in the Basin is stable and below the water quality management goals. Some sub-basins have water quality exceedances of naturally occurring substances (i.e., arsenic, boron, fluoride, and TDS) where there are no current or projected projects in these areas (LADPW et al. 2014).

CITY OF PALMDALE EMERGENCY OPERATIONS PLAN:

This City of Palmdale Emergency Operations Plan (EOP) addresses the City of Palmdale's (City) response and short-term recovery to extraordinary emergency/disaster situations associated with natural disasters (such as flooding and severe weather conditions), technological incidents, and national security emergencies. The EOP provides basic planning information from which City departments prepare standard operating procedures related to internal operations under emergency and disaster conditions. The goals of the EOP are to provide effective life safety measures, reduce property loss and protect the environment, provide for the rapid resumption of impacted businesses and community services and provide accurate documentation and records required for cost recovery efforts (City of Palmdale 2012).

CITY OF PALMDALE GENERAL PLAN

The City recently updated its General Plan. The 2045 General Plan has been effective since October 2022 and amended in March 2023. The 2045 General Plan includes the following goals and policies addressing water quality, water supply, and flooding:

- **Goal CON-5:** Protect the quality and quantity of local water resources.
    - **CON-5.1 Ground water recharge.** Ensure that ground water supplies are recharged and protect natural recharge areas such as the Littlerock and Big Rock Washes, and Amargosa and Anaverde Creeks from pollutants or other materials, which might degrade groundwater supplies.
    - **CON-5.2 Groundwater protection.** Ensure that no mineral resource recovery activities extend below the groundwater table.
    - **CON-5.3 Regional monitoring cooperation**. Cooperate with Los Angeles County Health Department and the Regional Water Quality Control Board in monitoring industrial and commercial uses utilizing hazardous or potentially polluting materials and fluids, to prevent their discharge into the groundwater aquifer.
    - **CON-5.4 Flood control measures.** Maximize groundwater recharge capabilities with flood control measures.
- **Goal CON-6:** Minimize the impacts of urban development on groundwater supplies.
    - **CON-6.1 Encourage natural recharge.** Restrict building coverage and total impervious area in the vicinity of natural recharge areas.
    - **CON-6.2 Reduce landscaping irrigation needs.** Require the use of water conserving native or drought resistant plants and drip irrigation systems where feasible.

  - **CON-6.3 Reduce street runoff.** Design streets to incorporate vegetation, soil, filter, and cleanse stormwater runoff.
  - **CON-6.4 New construction water conservation.** Require water conserving appliances and plumping fixtures in all new construction.
  - **CON-6.5 Monitoring and coordination.** Coordinate with local water agencies to monitor groundwater levels, State water allocations and development approvals, to assure that development does not outpace long-term water availability.

- **Goal CON-7:** Maintain and further the City's commitment to long-term water management within the Antelope Valley by planning for the conservation and managed use of water resources, including groundwater, imported water, and reclaimed water.
  - **CON-7.1 Reclaimed water irrigation:** Assess and implement, when and where feasible, reclaimed water for landscape irrigation.
  - **CON-7.2 Water run-off capture:** Work with local water purveyors to assess the potential for capturing local run-off and utilization of imported water (water banking) for groundwater recharge within the Planning Area.
  - **CON-7.3 Retain recharge areas**: Through the land use planning process, ensure that important recharge areas are retained.
  - **CON-7.4: Water management.** Continue to seek out long-range water management techniques as new technology is developed.
  - **CON-7.5 Implementation:** Promote implementation of water reduction and recycling systems that are feasible and appropriate to the Planning Area.
  - **CON-7.6 Water recycling.** Encourage residents and businesses to recycle water where feasible, and where water recycling does not result in health and safety concerns.
  - **CON-7.7 Water sources.** Participate in regional efforts to retain imported water allocations and seek out other sources as they become available.

- **Goal PSFI-3:** Ensure that all development in Palmdale is served by adequate water distribution and sewage facilities.
  - **PFSI-3.1 Water Supply and Delivery:** Support water suppliers and other jurisdictions within the Antelope Valley in studying status and projected needs for water supply and delivery.
  - **PFSI-3.3 Retention Facilities**: Where feasible, plan for detention or retention facilities in areas where groundwater recharge can be accomplished.

- **PFSI- 3.4 Drainage Facilities:** Through the development review process, reserve land in appropriate locations for construction or drainage facilities.
- **PFSI-3.11 New Development Fees:** Require new development to pay necessary fees for expansion and ongoing maintenance of the sewage disposal system to the appropriate agencies, to handle the increased load, which it will generate.
- **PFSI - 3.12 Water and Wastewater BMPs**: Utilize best management practices (BMPs) in the purveyance of water resources and management of wastewater.
- **PFSI - 3.14 Water and Wastewater:** Ensure the provisions of adequate water and wastewater services to all new development.
- **PFSI – 3.15: Diversify Water Supplies:** Coordinate with water purveyors to facilitate the commitment to diversifying the region's water supply through water banking projects and expanded recycled water projects.
- **PFSI – 3.16: Service Levels:** Provide sufficient levels of water, sewer, and storm drain services throughout the City.
- **PFSI – 3.17: Adequate Systems:** Identify and correct issues within the City's sewer and storm drain systems to prevent system failures.
- **PFSI-3.18: Water Conservation.** Support and promote water conservation across all facets of City water infrastructure.

LOCAL STORMWATER POLLUTION PREVENTION PLAN

Regardless of whether construction projects qualify for coverage under the Construction General Permit, the County requires the preparation of a Local SWPPP for all projects disturbing greater than an acre. SWPPPs include year-round BMPs that must be incorporated into construction activities. All BMPs must be detailed on the SWPPP or reference standard details found in the "California Storm Water BMP Construction Handbook." The SWPPP plan must include appropriate BMPs for general site management, construction materials and waste management, and erosion and sediment controls.

COUNTY OF LOS ANGELES GENERAL PLAN

The County of Los Angeles General Plan (County of Los Angeles 2015) underwent a comprehensive update; the latest General Plan version was approved in October 2015. The General Plan includes a Conservation and Natural Resources Element, which includes goals and policies related to local water resources, as well as a Safety Element, which includes goals and policies related to flood hazards.

Goal C/NR: Protected and usable local surface water resources.

- **Policy C/NR 5.1:** Support the LID philosophy, which seeks to plan and design public and private development with hydrologic sensitivity, including limits to straightening and channelizing natural flow paths, removal of vegetative cover, compaction of soils, and distribution of naturalistic BMPs at regional, neighborhood, and parcel-level scales.
- **Policy C/NR 5.6:** Minimize point and non-point source water pollution.

Goal C/NR 6: Protected and usable local groundwater resources.

- **Policy C/NR 6.2:** Protect natural groundwater recharge areas and regional spreading grounds.

Goal S 2: An effective regulatory system that prevents or minimizes personal injury, loss of life, and property damage due to flood and inundation hazards.

- **Policy S 2.1:** Discourage development in the County's Flood Hazard Zones.
- **Policy S 2.4:** Ensure that developments located within the County's Flood Hazard Zones are sited and designed to avoid isolation from essential services and facilities in the event of flooding.
- **Policy S 2.6:** Work cooperatively with public agencies with responsibility for flood protection, and with stakeholders in planning for flood and inundation hazards.
- **Policy S 2.7:** Locate essential public facilities, such as hospitals and fire stations, outside of Flood Hazard Zones, where feasible.

3.8.3 IMPACT ANALYSIS

3.8.3.1 Methodology for Analysis

Impacts to hydrology and water quality are assessed based on the proposed Project's level of physical impacts on hydrology and water quality in the proposed Project's vicinity. Information for the assessment of impacts on hydrology and water quality is based on available data from site specific plans, water quality measures required by the SWRCB and LRWQCB, and additional guidance provided in local plans and regulations related to hydrology and water quality.

3.8.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines,* as updated in January 2023, an impact on recreation would be considered significant if the proposed Project would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - Result in a substantial erosion or siltation on- or off-site;
    - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
    - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    - Impede or redirect flood flows;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; and
- Conflict with or obstruct implementation of water quality control plan or sustainable groundwater management plan.

3.8.3.3 Criteria Requiring No Further Evaluation

All criteria require further evaluation.

3.8.3.4 Impacts and Mitigation Measures

Impact HYD-1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

IMPACT HYD-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Anticipated construction activities would require grading, excavation, and other soil disturbing activities, which could result in soil erosion and the migration of soil and sediment in stormwater runoff to downstream surface waters and storm drains. Construction of recycled water injection wells would involve ground-disturbing activities, such as drilling and excavation, and construction of proposed pipelines would involve trenching using a conventional cut and cover technique, jack-and-bore or directional drilling techniques where necessary to avoid sensitive land features or roadway intersections. Dewatering may be required depending on the location. These construction activities could introduce sediment and chemicals to runoff, which could violate water quality. Fuels, lubricants, and other hazardous materials associated with construction equipment could adversely impact water quality if spilled or stored improperly. The County requires that a local SWPPP be prepared for all construction disturbing greater than one acre, which includes year-round BMPs designed to prevent impacts to water quality. With the

implementation of a local SWPPP, water quality impacts from construction of pipelines would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation or replacement of existing wells would include cleaning the well screen, gravel pack, and other activities that could introduce chemicals runoff and degrade water quality. Because the wells disturbance footprint could be greater than one acre or more, a SWPPP is required, which includes year-round BMPs to prevent impacts to water quality. Thus, the impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

As stormwater flows over a construction site, it can pick up sediment, debris, and chemicals, and transport them to receiving water bodies. Temporary site preparation and grading activities associated with the proposed Project may result in soil erosion, which may enter adjacent water bodies. Construction activities could also impact adjacent water bodies in the event of an accidental fuel or hazardous materials leak or spill. However, as detailed in **Section 3.6*, Geology and Soils***, the proposed Project would be required to comply with erosion BMPs outlined in the SWPPP for the proposed Project. In addition, as described in **Section 3.8, *Hazards, Hazardous Materials, and Wildfire,*** hazardous materials would be transported and stored in accordance with applicable regulations and manufacturer instructions, and accidental leaks or spills of hazardous materials that may occur during Project construction would be cleaned up and disposed of in accordance with applicable regulations. Furthermore, the disposal of groundwater produced during minor dewatering activities during construction would be required to adhere to water quality standards outlined in the applicable NPDES permit and/or Waste Discharge Requirements prior to discharge, and disposal to surface water bodies (with the exception of the existing Ditch) would not be allowed. Therefore, proposed Project construction would not violate water quality standards or waste discharge requirements or substantially degrade surface or groundwater quality. Impacts would be less than significant.

Conservation

Under the proposed Project, PWD would implement conservation measures to reduce potable water demand. There is no construction impacts associated with this component. Therefore, there would be no impacts.

OPERATION

Imported Water

Recycled Water

Pure Water Antelope Valley Project

All recycled water produced and used for groundwater recharge would meet the indirect potable reuse standards per Title 22 of the California Code of Regulations (PWD 2023b). It is expected that recycled water produced by the Pure Water Antelope Valley project could be of higher quality than existing groundwater sources (PWD 2023b). Additionally, PWD would be required to obtain an Industrial Wastewater Discharge Permit and a Truck Sewer Connection Permit if the proposed Project were to discharge brine into Los Angeles County District 20's sewerage system and/or connect directly into Los Angeles County District 20's trunk sewer. Compliance with these standards and permits would ensure impacts would be less than significant.

Additionally, recycled water will be directly injected into the Antelope Valley Groundwater Basin, which will dilute any existing contaminants and move them further from drinking water extraction wells (PWD 2023b). PWD monitors drinking water constituents consistent with federal and State laws and treats groundwater with chlorine before being pumped into the distribution systems, ensuring that drinking water meets State and federal water quality standards (PWD 2021a; PWD 2022). Therefore, operation impacts are less than significant.

Groundwater

Operation of the proposed Project would consist of extracting stored groundwater from the Antelope Valley Groundwater Basin to meet potable demands. As stated, PWD monitors drinking water constituents consistent with federal and State laws and treats groundwater with chlorine before being pumped into distribution systems. In addition, maintenance activities associated with the groundwater wells could require the use of substances that would degrade surface water quality if found in stormwater runoff. PWD shall implement source control BMPs during well operation and maintenance activities. Source control BMPs shall be designed to prevent chemicals associated with operation and maintenance activities from coming into contact with stormwater. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

During operation, the proposed pipeline and new future turnout would be located belowground with limited aboveground appurtenant facilities and would not have the potential to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality. Operation of the proposed pipeline would not require acquisition of a Waste Discharge Requirement, and the quality of water conveyed from Littlerock Dam Reservoir to Lake Palmdale would be monitored in compliance with these facilities' permits

to ensure it continues to meet water quality standards, as under existing conditions. Additionally, the proposed Project would reduce the amount of trash and debris that currently enters the Ditch and thereby improve the quality of water transported to Lake Palmdale as compared to existing conditions. Therefore, proposed Project operation would not violate any water quality standards or waste discharge requirements or substantially degrade surface or groundwater quality. Impacts would be less than significant.

Conservation

Implementation of conservation measures does not require any operational activities. Therefore, there would be no impact.

IMPACT HYD-1 FINDINGS

Significance before Mitigation: Less than Significant

Mitigation Measures: None required.

Impact HYD-2 Substantially decrease groundwater supplies or interfere with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

IMPACT HYD-2 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

It is anticipated that construction of Pure Water Antelope Valley project would have the potential to affect groundwater if excavation associated with construction is deep enough to reach the local groundwater table. When this occurs, groundwater dewatering is required to allow for installation of facilities or foundations. All construction dewatering activities would comply with the LRWQCB Limited Threat Discharges Permit, including groundwater discharge associated with well drilling and testing. Compliance includes designation of a discharge disposal site and implementation of BMPs to control discharges. Drainage systems in the City either drain to earthen channels or retention basins, and thus any discharged groundwater would either evaporate or eventually percolate into the Antelope Valley Groundwater Basin. Impacts associated with construction dewatering or groundwater discharges during well drilling would be less than significant.

Drilling of recycled water injection wells would result in negligible amount of groundwater withdrawal, but it is not expected to significantly interfere with groundwater recharge or affect sustainable groundwater management. The construction of recycled water injection wells would slightly increase the impervious area for some sites that are not already paved, but effects on groundwater recharge would be negligible.

Construction of recycled water pipelines would be constructed in existing roadways, which already contain impervious surfaces. All disturbed areas would be restored to pre-construction additions, and thus, would not affect recharge of the basin. Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation of existing wells would not decrease groundwater supplies or interfere substantially with groundwater recharge such that the proposed Project may impede sustainable groundwater management of the basin because no new impervious surfaces would be constructed. The replacement of wells would ensure existing wells that need to be replaced are abandoned properly and would not interfere with groundwater recharge or sustainable groundwater management of the Antelope Valley Groundwater Basin. Prior to well rehabilitation and/or replacement, PWD would be required to obtain a Los Angeles County Health permit and submit a well application to the Antelope Valley Watermaster Engineer. PWD would implement **Mitigation Measure HYD-1**, which would involve conducting a material harm review of the proposed groundwater wells as well as the available groundwater rights. The Antelope Valley Watermaster Engineer would ensure operational criteria for the wells do not result in a net deficit in aquifer volume or a lowering of the local groundwater table such that the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted. Thus, the proposed Project would not have an impact on decreasing groundwater supplies or interfering with groundwater recharge.

Local Supplies

Palmdale Ditch Conversion Project

Construction of the Palmdale Ditch Conversion project may require temporary dewatering activities at two locations with high groundwater levels where the groundwater table was found to be near the planned depth of excavations during the site-specific geotechnical field investigation (Bruin Geotechnical Services, Inc. 2023). The amount of groundwater that may be produced during temporary dewatering activities would be minor. Therefore, proposed Project construction would not affect groundwater supplies and would not interfere substantially with groundwater recharge such that the proposed Project may impede sustainable groundwater management of the Antelope Valley Groundwater Basin. No impact would occur.

Conservation

Conservation measures are not anticipated to significantly impact groundwater recharge nor impede in substantially managing the Antelope Valley Groundwater Basin because conservation

measures result in water savings that would decrease the amount of water extracted from the Antelope Valley Groundwater Basin.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would generate purified recycled water that would meet the indirect potable reuse standards per Title 22 of the California Code of Regulations. Recycled water generated from the Pure Water Antelope Valley project would be injected purified recycled water into the Antelope Valley Groundwater Basin. Because the proposed Project would involve artificially recharging the Antelope Valley Groundwater Basin, the Project is not anticipated to substantially decrease groundwater supplies or interfere substantially with groundwater recharge nor impede the sustainable groundwater management of the Antelope Valley Groundwater Basin.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of the long-term groundwater production wells has the potential to affect the groundwater table level and groundwater supplies. The wells would directly extract groundwater from the Antelope Valley Groundwater Basin, and their operation could have a localized impact on groundwater levels due to temporary pumping depressions. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The proposed Project would not require modifications to PWD's existing water rights and would not result in additional water supplies beyond those afforded to PWD under its existing water rights and SWP allocation. The anticipated water savings of approximately 1,450 AF per year associated with the proposed Project would consist of water currently lost to evaporation and seepage into the soil. Along the proposed Project alignment, groundwater is approximately 25 feet below the ground surface in most locations (PWD 2021a); thus, the seepage from the Ditch does not represent a substantial source of groundwater recharge. Furthermore, the proposed Project would result in a net decrease in impervious surface area compared to existing conditions due to the conversion and backfill of the Ditch, some portions of which are lined with concrete. Therefore, operation of the proposed Project would not affect groundwater supplies and would not interfere substantially with groundwater recharge such that the proposed Project may impede sustainable groundwater management of the Antelope Valley Groundwater Basin. No impact would occur.

Conservation

Implementation of conservation measures are not anticipated to significantly impact groundwater recharge nor impede in the management of the basin because conservation measures would result in water savings that would decrease groundwater pumping in Antelope Valley Groundwater Basin.

IMPACT HYD-2 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure HYD-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact HYD-3a Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in a substantial erosion or siltation on- or off-site.

IMPACT HYD-3A ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project is anticipated to involve alterations to the drainage patterns on the proposed Project vicinity to accommodate new structures and impervious surfaces. It is anticipated that the Pure Water Antelope Valley project would include soil-disturbing activities, such as excavation and site clearing, which could result in substantial erosion and siltation on and off site. The construction of recycled water injection wells would include site preparation, mobilization of equipment to the well site, well drilling, installation of the well casing, gravel packing, and finishing with a cement seal. Construction of the recycled water pipelines would involve trenching and dewatering may be required. Because construction activities would disturb an area greater than one acre, a development of a SWPPP that includes year-round erosion and sediment control BMPs is required, which would reduce erosion and sedimentation. Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation or replacement of existing wells would occur in existing well sites, which already have existing impervious surfaces. Rehabilitation of existing wells is not anticipated to add new impervious surfaces, and thus, would not substantially alter the existing drainage pattern of the site in manner which would result in a substantial erosion on-or off-site. New and replacement

wells would create new impervious surfaces; however, implementation of BMPs as required by the SWPP would limit erosion and sedimentation and well footprints would be minimal and would have negligible effect on surface runoff. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The proposed Project would involve conversion of the Ditch into a pipeline and potential installation of a new future turnout from the California Aqueduct. Because the pipeline and potential turnout would be located belowground with limited aboveground appurtenant facilities and would result in the removal of some concrete-lined portions of the Ditch, the proposed Project would increase the amount of pervious surfaces within the Project area compared to existing conditions. Along segments of the Ditch where the pipeline is placed in the existing Ditch alignment, the Ditch would be backfilled, and minor site grading would be conducted to tie in drainage patterns above the pipeline to existing natural contours adjacent to the alignment. The remaining Ditch segments may either be left in place and continue to function as part of the drainage pattern of the immediate vicinity or be backfilled with the natural overland drainage courses restored to their natural state. Therefore, construction of the proposed Project would not substantially alter the existing drainage pattern in a manner which would result in substantial erosion or siltation on- or off-site. Impacts would be less than significant.

Conservation

Implementation of conservation measures would not alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in erosion of siltation on or off site. Therefore, there would be no impacts.

OPERATION

Imported Water

Recycled Water

Pure Water Antelope Valley Project

The design of the proposed Project is still conceptual, but it is anticipated that new impervious surfaces would be constructed to accommodate the facility and associated proposed Project components, which would increase surface runoff. The proposed Project could incorporate infrastructure that reduces surface runoff and the possibility of erosion or siltation, such as permeable pavements and detention basins. Additionally, Operation of recycled water injection wells would not disturb the topsoil in the area as facilities are relatively minor above ground surfaces. Pipeline operations would not disturb any soil as they would be operated below ground. Therefore, operation of the proposed Project would have less than significant impacts.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Project facilities would have relatively minor above ground surface profiles that are sited to blend in with existing buildings or located so as to not interfere with current land uses. The proposed well sites would be entirely unoccupied other than occasional short-term visits by PWD maintenance staff. Well operation would not disturb topsoil as the extracted groundwater would be conveyed into PWD's distribution system. Therefore, operation of groundwater wells would have less than significant impacts related to erosion and topsoil loss.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project includes the conveyance of water via an underground pipeline from Littlerock Dam Reservoir to Lake Palmdale for storage. Because the proposed Project would not add impervious surfaces and the pipeline would be located underground, operation of the proposed Project would reduce erosion along the Ditch alignment as compared to current conditions in which approximately 70 percent of the existing Ditch is an unlined, open earthen ditch. Along segments of the Ditch where the pipeline is placed in the existing Ditch alignment, the Ditch would be backfilled, and minor site grading would be conducted to tie in drainage patterns above the pipeline to existing natural contours adjacent to the alignment. The remaining Ditch segments may either be left in place and continue to function as part of the drainage pattern of the immediate vicinity or be backfilled with the natural overland drainage courses restored to their natural state. Therefore, operation of the proposed Project would not substantially alter the existing drainage pattern in a manner which would result in substantial erosion or siltation on- or off-site. Impacts would be less than significant.

Conservation

Implementation of conservation measures would not alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in erosion of siltation on or off site. Therefore, there would be no impacts.

IMPACT HYD-3A FINDINGS

Significance before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact HYD-3b Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of

impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.

IMPACT HYD-3B ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Because Pure Water Antelope Valley project is a large facility, it could have potentially significant impacts to the alteration of existing site drainage patterns. Based on **Figure 3.8-1**, the Pure Water Antelope Valley project is anticipated to be within a 500-year floodplain, meaning there is a 0.2% chance of a flood of that magnitude occurring. As mentioned, the Pure Water Antelope Valley project could incorporate infrastructure that would capture, which would reduce surface water runoff and flooding. Implementation of **Mitigation Measure HYD-2** would require PWD to complete a drainage study and develop a drainage plan that would be submitted as necessary to the appropriate jurisdiction, to verify that drainage would not contribute to runoff that would result in flooding. **Mitigation Measure HYD-2** would ensure that any alteration to site drainage would not result in onsite or offsite flooding. Therefore, impacts would be less than significant with mitigation incorporated.

Construction of recycled water injection wells generally have small footprints and only very minor increase in impervious surfaces and runoff is expected. The result of onsite or offsite flooding would be less than significant. Construction of the recycled water pipelines would be located within existing roadway, which already consist of impervious surfaces. Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

As mentioned in *Impact HYD-3a*, rehabilitation of existing wells would occur in existing well sites, which already have existing impervious surfaces. While replacement wells would add new impervious surfaces, well footprints would be minimal and would not result in flooding on- or off-site. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

As mentioned in *Impact HYD-3a*, the Palmdale Ditch Conversion project would increase the amount of pervious surfaces within the Project area compared to existing conditions. Along segments of the Ditch where the pipeline is placed in the existing Ditch alignment, the Ditch would be backfilled, and minor site grading would be conducted to tie in drainage patterns above the pipeline to existing natural contours adjacent to the alignment. The remaining Ditch

segments may either be left in place and continue to function as part of the drainage pattern of the immediate vicinity or be backfilled with the natural overland drainage courses restored to their natural state. The existing Ditch has a conveyance capacity of approximately 20 cubic-feet-per-second, which is approximately 23 percent of the two-year design storm and approximately 0.2 percent of the 100-year design storm for the approximately eight-square-mile area that drains towards the Ditch. Conversion of the Ditch to an underground pipeline is expected to increase surface flows of stormwater to downstream tributaries (which currently receive runoff during storm events) by approximately 1.6 percent, which would be minimal and would not substantially increase flooding on- or off-site (Hazen & Sawyer 2024). Therefore, construction of the proposed Project would not substantially alter the existing drainage pattern in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. Therefore, impacts would be less than significant.

Conservation

Conservation measures would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite. Therefore, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation activities associated with the Pure Water Antelope Valley project are not anticipated to substantially increase the rate or amount of surface run-off and result in flooding on or off site. The design of the Pure Water Antelope Valley project could incorporate infrastructure that reduced runoff as mentioned in Impact HYD-3a, reducing surface runoff and flooding. Therefore, impacts would be less than significant.

Recycled water injection wells would have relatively minor above ground surface profiles and would marginally increase impervious surfaces, which would result in minor surface runoff. Onsite or off-site flooding would be less than significant. Operation of recycled water pipelines would occur below ground. Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Groundwater wells also have relatively minor above ground surface profiles. The rehabilitation of groundwater wells would be in the same vicinity as existing wells and would not create new impervious areas nor increase flood flows. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project would occur belowground with limited aboveground appurtenant facilities. Because the proposed Project would not add new impervious surfaces, operation of the proposed Project would not result in on- or off-site flooding. Impacts would be less than significant.

Conservation

Implementation of conservation measures, such as turf landscape conversions, decrease surface runoff, reducing the possibility of a flood. Therefore, there would be no impacts.

Impact HYD-3b Findings

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure HYD-2

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact HYD-3c Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Impact HYD-3c Analysis

Construction

Recycled Water

Pure Water Antelope Valley Project

It is anticipated that construction activities would include grading, excavation, and other soil disturbing activities. Removal of vegetation at excavation areas would expose bare soil that could be eroded during rainfall events. If runoff from rainfall flows over construction sites, the runoff can transport sediment and other pollutants such as building materials, concrete washout, paint, fuel, oil, and solvents into the stormwater system. Fuels, lubricants, and hazardous materials associated with construction equipment could adversely affect water quality if spilled our store improperly. As discussed in *Impact HYD-3a*, construction of recycled water injection wells would result in a very minor net increase in runoff due to alterations to the site drainage. The resulting onsite or offsite flooding would be less than significant. Construction of the recycled water pipelines would be located within existing roadway, which already consist of impervious surfaces. Because the proposed Project would disturb more than one acre,

implementation of BMPs required by the SWPPP would limit erosion and sedimentation, which would reduce the substantial additional sources of polluted runoff, and thus, the impact would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation and/or replacement of groundwater wells is not anticipated to increase impervious surfaces permanently as construction would occur in existing well sites that already have impervious surfaces, which would result in minor surface runoff. However, the replacement of groundwater wells could result in erosion and sedimentation due to soil-disturbing construction activities. Implementation of BMPs as required by the SWPPP would reduce erosion and sedimentation. Thus, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Because the proposed Project would result in a net decrease in impervious surfaces, the proposed Project would not add impervious surfaces that could create or contribute runoff that would exceed the capacity of stormwater drainage systems or provide substantial additional sources of polluted runoff. Along segments of the Ditch where the pipeline is placed in the existing Ditch alignment, the Ditch would be backfilled, and minor site grading would be conducted to tie in drainage patterns above the pipeline to existing natural contours adjacent to the alignment. The remaining Ditch segments may either be left in place and continue to function as part of the surrounding drainage pattern or backfilled with the natural overland drainage courses restored to their natural state. As discussed in *Impact HYD-3b,* conversion of the Ditch to an underground pipeline is expected to increase surface flows of stormwater to downstream tributaries (which currently receive runoff during storm events) by approximately 1.6 percent, which would be minimal (Hazen & Sawyer 2024). Therefore, construction of the proposed Project would not substantially alter the existing drainage pattern in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Impacts would be less than significant.

Conservation

Conservation measures are not expected to substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Pure Water Antelope Valley project would permanently increase the total impervious areas to accommodate for facilities, resulting in surface runoff that can carry pollutants. However, the design of the proposed Project could incorporate infrastructure the reduces runoff, which would reduce the amount of polluted runoff. Therefore, impacts would be less than significant.

The above-ground structures of recycled water injections generally have a small footprint, which would result in minor surface runoff. Minor maintenance activities, such as equipment washing, would not increase stormwater runoff. Impacts would be less than significant. Operation of recycled pipelines would occur below-ground so surface runoff would not be generated, and thus, there would be no impacts.

Groundwater

Operation of the groundwater wells would not discharge any runoff to stormwater drainage systems. Minor maintenance activities, such as equipment washing, would not increase stormwater runoff. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project includes the conveyance of water via an underground pipeline from Littlerock Dam Reservoir to Lake Palmdale for storage and would not create or contribute runoff. Along segments of the Ditch where the pipeline is placed in the existing Ditch alignment, the Ditch would be backfilled, and minor site grading would be conducted to tie in drainage patterns above the pipeline to existing natural contours adjacent to the alignment. The remaining Ditch segments may either be left in place and continue to function as part of the surrounding drainage pattern or backfilled with the natural overland drainage courses restored to their natural state. As discussed previously, conversion of the Ditch to an underground pipeline is expected to increase surface flows of stormwater to downstream tributaries (which currently receive runoff during storm events) by approximately 1.6 percent, which would be minimal (Hazen & Sawyer 2024). Therefore, impacts would be less than significant.

Conservation

Implementation of conservation measures would result in water savings, which would reduce the amount of surface runoff, and thus, would not provide substantial additional sources of polluted runoff.

IMPACT HYD-3C FINDINGS

Significance: Less than significant

Mitigation Measures: none

Impact HYD-3d Substantially alter the existing drainage pattern of the site or area, including through the alteration of a stream or river's course or the addition of impervious surfaces, in a way which would impede or redirect flood flows.

IMPACT HYD-3D ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project would include impervious surfaces to accommodate new facilities, which could increase surface runoff. Proposed Project construction may result in disturbance or exposure of soil that could be subject to erosion and sedimentation during a rain event. However, implementation of BMPs as required by the SWPPP would limit erosion and sedimentation. Additionally, Pure Water Antelope Valley project could incorporate infrastructure that captures stormwater runoff, which would reduce the possibility of flooding. As a result, the proposed Project facilities would not impede or redirect flood flows in a manner that impedes or redirects flood flows. Therefore, impacts would be less than significant.

Construction of recycled water injection wells would include new impervious surfaces, but it would not impede or redirect flood flows as only minor runoff would be generated. Construction of recycled water pipelines would occur within existing roadways and would be restored to pre-construction conditions, and thus would not permanently increase the total impervious area. Construction activities may result in the disturbance or exposure of soil that could lead to erosion and sedimentation during a rain event. However, implementation of BMPs as required by the SWPPP would limit erosion and sedimentation. As a result, the proposed Project would not impede or redirect flood flows. Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation of wells would occur within existing well sites, and it is not anticipated that they would significantly increase the total impervious area. The destruction of existing wells may result in the disturbance or exposure of soil that could lead to erosion and sedimentation during a rain event. Additionally, replacement would increase the total amount of impervious areas;

however, groundwater wells generally have a small footprint. Thus, only minor surface runoff would be generated. Implementation of BMPs as required by the SWPPP would limit erosion and sedimentation. As a result, the proposed Project would not impede or redirect flood flows. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

As mentioned previously, a small portion of the proposed Project alignment downstream of Littlerock Dam Reservoir is within a one percent annual chance flood hazard zone. However, the existing Ditch is subject to the same flood hazard risk. As discussed in *Impact HYD-3a*, the proposed Project would increase the amount of pervious surfaces within the Project area compared to existing conditions. Along segments of the Ditch where the pipeline is placed in the existing Ditch alignment, the Ditch would be backfilled, and minor site grading would be conducted to tie in drainage patterns above the pipeline to existing natural contours adjacent to the alignment. The remaining Ditch segments may either be left in place and continue to function as part of the drainage pattern of the immediate vicinity or be backfilled with the natural overland drainage courses restored to their natural state. As discussed in *Impact HYD-3b*, conversion of the Ditch to an underground pipeline is expected to increase surface flows of stormwater to downstream tributaries (which currently receive runoff during storm events) by approximately 1.6 percent, which would be minimal (Hazen & Sawyer 2024). Therefore, construction of the proposed Project would not substantially alter the existing drainage pattern in a manner which impedes or redirects flood flows. Impacts would be less than significant.

Conservation

Conservation measures would not alter the existing drainage pattern of the site in a manner that would impede or redirect flood flows. Therefore, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley project would increase the total impervious areas. However, the design of the Pure Water Antelope Valley project could incorporate infrastructure that captures and reduces surface runoff. Therefore, proposed Project operations would not impede or redirect flood flows. Impacts would be less than significant.

Operation of recycled water injection wells would generate minor surface runoff due and pipeline operations would occur below ground, and thus, would not result in any runoff. Therefore, impacts would be less than significant.

Groundwater

Operation of groundwater wells would not impede or redirect flood flows as only minor surface runoff is generated during a rain event. Therefore, impacts would be less that significant.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project includes the conveyance of water via an underground pipeline from Littlerock Dam Reservoir to Lake Palmdale for storage. Operation of the proposed Project would not increase the potential to impede or redirect flood flows due to the limited number of aboveground blow-offs and air release assemblies and flumes in the portion of the proposed Project alignment within a one percent annual chance flood hazard zone. Additionally, conversion of the Ditch into a pipeline would reduce the potential for flood waters to enter the conveyance system because the pipeline would be underground. Along segments of the Ditch where the pipeline is placed in the existing Ditch alignment, the Ditch would be backfilled, and minor site grading would be conducted to tie in drainage patterns above the pipeline to existing natural contours adjacent to the alignment. The remaining Ditch segments may either be left in place and continue to function as part of the drainage pattern of the immediate vicinity or be backfilled with the natural overland drainage courses restored to their natural state. As discussed previously, conversion of the Ditch to an underground pipeline is expected to increase surface flows of stormwater to downstream tributaries (which currently receive runoff during storm events) by approximately 1.6 percent, which would be minimal (Hazen & Sawyer 2024). Therefore, operation of the proposed Project would not substantially alter the existing drainage pattern in a manner which would not impede or redirect flood flows. Impacts would be less than significant.

Conservation

Implementation of conservation measures would result in water savings, reducing the amount of surface runoff, and thus, would not impede or redirect flood flows. There would be no impacts.

IMPACT HYD-3D FINDINGS

Significance before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact HYD-4 Risk release of pollutants due to project inundation in flood, hazard, tsunami, or seiche zones.

IMPACT HYD-4 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Based on **Figure 3.8-1**, the Pure Water Antelope Valley project would be in a 500-year flood zone. Construction of the Pure Water Antelope Valley project would generate new impervious surfaces to accommodate facilities. The Pure Water Antelope Valley project could incorporate infrastructure that would capture, which would reduce flood risk. Pure Water Antelope Valley project would not be located in a tsunami or seiche based on the CDOC's Tsunami Hazard Area Map (CDOC n.d.). The proposed Project would be in the zone of possible inundation due to dam failure at the Littlerock Dam and Palmdale Dam (see **Figure 3.8-1**). However, construction of the Pure Water Antelope Valley project would not increase the risk of pollutant release due to inundation as construction would comply to seismic standards set forth by the American Water Works Association and the California Building Code, which include required safety factors to prevent catastrophic failures. Thus, impacts would be less than significant.

The location of the recycled water injection wells would be within the property of the Pure Water Antelope Valley project. Based on **Figure 3.8-1**, the recycled water injection wells would be in a 500-year flood zone. Construction of recycled water injection wells would include new impervious surfaces, but they are not expected to generate a significant amount of runoff due to their small footprint. Additionally, recycled water injection wells would not be located within a tsunami or seiche zone, but they would be in the zone of possible inundation due to dam failure at the Littlerock Dam and the Palmdale Dam (see **Figure 3.8-1**). However, construction of recycled water injection wells would not increase the risk of pollutant release due to inundation because they would comply with seismic standards set forth by the American Water Works Association and the California Building Code. Thus, construction impacts would be less than significant.

The locations of recycled water pipelines are anticipated to be near Palmdale Water Reclamation Plant. As indicated by **Figure 3.8-1**, recycled water pipelines may be within a 500-year flood zone. However, construction of the recycled water pipelines would occur in existing impervious surfaces and would be restored to pre-existing conditions after construction. Thus, no new runoff would be generated. Recycled water pipelines may also be located within a zone of possible inundation due to dam failure at the Littlerock Dam and the Palmdale Dam. However, the recycled water pipelines would comply with seismic standards as mentioned above. Therefore, construction of recycled water pipelines would not increase the risk of pollutant release due to inundation. Recycled water pipelines would not be located in a tsunami or seiche zones. Impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

As seen in **Figure 3.8-1**, several of existing wells that would be rehabilitated or replaced are located in a 500-year flood zone. The rehabilitation or replacement of existing wells are not anticipated to create a significant amount of new impervious surfaces because construction would occur in existing impervious surfaces. Therefore, construction activities would result in minor runoff. Several of existing wells are located within or adjacent to a zone of possible inundation due to dam failure at Littlerock Dam or the Palmdale Dam. However, rehabilitation or replacement of existing wells would not increase the risk of pollutant to inundation as existing facilities already comply with seismic standards as mentioned above. Impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The proposed Project area is located approximately 40 miles northeast of the Pacific Ocean and is therefore not located in a tsunami inundation zone. As stated previously, the portion of the proposed pipeline alignment immediately north of Littlerock Dam Reservoir and along Little Rock Wash is within a one percent annual chance flood hazard zone (FEMA 2022). The Project area is adjacent to Littlerock Dam Reservoir at its southeastern terminus and adjacent to Lake Palmdale at its northwestern terminus. These water bodies have the potential to be subject to risk of seiche. However, the design report for the Lake Palmdale dam considers a reflection of the wave on return unlikely and the wave volume above the dam would not be substantial and would not result in damaging floods (City of Palmdale 2021).

Potential sources of pollution during construction of the proposed Project would include soil stockpiles and fuels and hazardous materials associated with construction equipment. However, as detailed in *Impact HYD-3a*, the proposed Project would be required to comply with erosion BMPs outlined in the SWPPP for the proposed Project, and hazardous materials would be transported and stored in accordance with applicable regulations and manufacturer instructions, and accidental leaks or spills of hazardous materials that may occur during proposed Project construction would be cleaned up and disposed of in accordance with applicable regulations.

Therefore, construction of the proposed Project would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones. Impacts would be less than significant.

Conservation

Conservation measures would not alter the existing drainage pattern of the site or area in a manner that would impede or redirect flood flows. Therefore, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

The design of the Pure Water Antelope Valley project could incorporate infrastructure that captures and reduces runoff stormwater. With this infrastructure incorporated, operation of the Pure Water Antelope Valley project is not expected to generate a significant amount of runoff, and thus will not increase flood risk. Additionally, operation of the Pure Water Antelope Valley project would not increase the risk of pollutant release due to inundation from Littlerock Dam or Palmdale Dam. Pure Water Antelope Valley project's infrastructure would comply with seismic standards as mentioned above that would reduce the risk of catastrophic failure. Therefore, impacts would be less than significant.

Above-ground facilities of recycled water injection wells would not generate a significant amount of runoff, and thus, would only result in minor flooding. Operation of recycled water pipelines would be below-ground and would not result in runoff. Therefore, impacts would be less than significant. Recycled water injection facilities would not increase the risk of risk of pollutant release due to inundation from Littlerock Dam or Palmdale Dam as recycled water would comply with Title 22 regulations. Additionally, recycled water facilities would comply with seismic standards as mentioned above which would reduce the risk of catastrophic failure. Therefore, impacts would be less than significant.

Groundwater

Above-ground facilities of recycled water injection wells would not generate a significant amount of runoff, and thus would only result in minor flooding. Operation of groundwater wells is assumed to meet all drinking water standards with only chlorine before being pumped directly into the distribution system. All groundwater facilities would comply with seismic standards, which would reduce the risk of catastrophic failure. Therefore, groundwater wells operations would not increase the risk of pollutant release due to inundation from Littlerock Dam or Palmdale Dam.

Local Supplies

Palmdale Ditch Conversion Project

As discussed previously, the proposed Project area is not in a tsunami inundation zone, but portions of the proposed pipeline alignment are within a one percent annual chance flood hazard zone and an area potentially subject to seiche from Littlerock Dam Reservoir.

Operation of the proposed Project would convey water via an underground pipeline from Littlerock Dam Reservoir to Lake Palmdale for storage. The existing Ditch is subject to the same flood hazard risk, and the proposed Project would not increase the risk of project inundation. Based on the 2021 *Palmdale Ditch Conversion Feasibility Study*, conversion of the Ditch to an

underground pipeline would reduce downstream flooding that occurs when Littlerock Dam is spilling over. Additionally, conversion of the Ditch into a pipeline would reduce the potential for flood waters to enter the conveyance system during operation as compared to the existing Ditch because the pipeline would be enclosed. Furthermore, operation of the proposed Project would not include sources of pollution that could result in polluted runoff if the ground surface is inundated during flooding events. Therefore, operation of the proposed Project would not increase the risk of pollutants due to inundation. Impacts would be less than significant.

Conservation

Implementation of conservation measures would result in water savings, which would reduce the amount of surface runoff. Therefore, there would be no impacts.

IMPACT HYD-4 FINDINGS

Significance: Less than significant

Mitigation Measures: None

Impact HYD-5 Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

IMPACT HYD-5 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project would not require groundwater supplies or involve the construction of groundwater wells. However, construction-related activities involving soil disturbance, such as grading and excavation, could result in erosion, siltation, and/or delivery of sediments to surface waters. If precautions are not taken to contain contaminants, construction could contribute to water quality degradation including stormwater runoff. In addition, as construction equipment would require the use of fuels, lubricants, and other hazardous materials, if these materials are stored improperly during construction, water quality violations could occur. However, construction of the Pure Water Antelope Valley project would disturb more than one acre, implementation of BMPs, as required by the SWPPP, would control sediment and other potential contaminants in stormwater discharges from the Project area.

As mentioned above, the Antelope Valley Groundwater Basin has been adjudicated since 2015 and is exempt from the requirements of SGMA. Construction of the Pure Water Antelope Valley project is not anticipated to use groundwater nor construct groundwater wells. The proposed Project would not alter or conflict with the Judgement and would comply with the Judgement set forth in 2015. Therefore, the impacts would be less than significant.

Construction of recycled water injection wells and recycled water pipelines would involve soil disturbing activities, such as grading and excavation, which could result in erosion, siltation, and/or delivery of sediments to surface waters. Because construction would disturb more than one acre, implementation of BMPs, as required by the SWPPP, would control sediment and other potential contaminants in stormwater discharges from the Project area. Impacts would be less than significant.

Construction activities are not anticipated to require groundwater supplies or involve the construction of groundwater wells. Construction of recycled water pipelines would occur in existing roadways that already have impervious surfaces. All disturbed surfaces would be restored to pre-construction conditions, so surface runoff and groundwater recharge would not be affected. However, recycled injection wells would involve drilling, but effects would be negligible and would not interfere with groundwater recharge or impede sustainable groundwater management. Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation of groundwater wells would occur in existing well sites, which already have existing impervious surfaces, and are not expected to add new impervious surfaces. Thus, rehabilitation activities are not expected to impact groundwater recharge. However, construction activities would include cleaning the well screen, gravel pack, and other activities that could introduce chemical runoff and degrade water quality. Replacement wells would create minor impervious surfaces and would include site preparation, mobilization of equipment to the well site, well drilling, water quality testing, installation of well casing, gravel packing, finishing with cement seal, which could introduce sediment and chemicals runoff and consequently degrade water quality. Because the wells disturbance footprint would be greater than one acre or more, implementation of BMPs, as required by the SWPPP, would prevent impacts to water quality.

As mentioned above, the proposed Project overlies the Antelope Valley Groundwater Basin, which is adjudicated. As a result, the basin is not subject to the Sustainable Groundwater Management Act, and no groundwater sustainability plan has been prepared. Therefore, the proposed Project would not conflict with or obstruct implementation of a sustainable groundwater management plan. Prior to well rehabilitation and/or replacement, PWD would be required to obtain a Los Angeles County Health permit and submit a well application to the Antelope Valley Watermaster Engineer. PWD would implement **Mitigation Measure HYD-1**, which would involve conducting a material harm review of the proposed groundwater wells as well as the available groundwater rights. The Antelope Valley Watermaster Engineer would ensure operational criteria for the wells do not result in a net deficit in aquifer volume or a lowering of the local groundwater table such that the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted. Impacts would be less than significant with mitigation.

Local Supplies

Palmdale Ditch Conversion Project

As mentioned in **Impact HYD-1**, the Palmdale Ditch Conversion project would not result in substantial soil erosion, and accidental leaks or spills of hazardous materials that may occur during construction would be contained and cleaned up in accordance with applicable regulations. As such, construction of the proposed Project would not conflict with or obstruct implementation of the Basin Plan, and no impact would occur.

The proposed Project area overlies the Antelope Valley Groundwater Basin, which is adjudicated. As a result, the basin is not subject to the Sustainable Groundwater Management Act, and no groundwater sustainability plan has been prepared. Therefore, construction of the proposed Project would not conflict with or obstruct implementation of a sustainable groundwater management plan. No impact would occur.

Conservation

Conservation measures would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would not conflict or obstruct implementation of a Water Quality Plan or a GSP. The Pure Water Antelope Valley project would produce and inject purified recycled water that meets Title 22 Standards, complying with State regulations. As mentioned, the Antelope Valley Groundwater Basin is exempt from SGMA requirements because it is adjudicated. Pure Water Antelope Valley project does not involve groundwater extraction. However, Pure Water Antelope Valley project would provide purified recycled water for artificial injection. The purified recycled water would meet Title 22 standards, and thus, would not degrade groundwater quality. Therefore, impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of wells would not conflict with or obstruct implementation of a Water Quality Plan or GSP. Groundwater extracted from these wells would be treated to acceptable drinking water standards before it gets distributed into PWD's water system. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the proposed Project would improve the quality of water conveyed to Lake Palmdale ~~as~~ because the proposed Project would reduce the amount of trash and debris that currently enters the Ditch, which would be in furtherance of the beneficial uses of Lake Palmdale established in the Basin Plan. Additionally, the Antelope Valley Groundwater Basin is adjudicated, and no groundwater sustainability plan has been prepared. Therefore, operation of the proposed Project would not conflict with or obstruct implementation of the Basin Plan or a sustainable groundwater management plan. Therefore, no impact would occur.

Conservation

Implementation of conservation measures would not obstruct or conflict with the implementation of a Water Quality Control Plan or a GSP. Conservation measures would result in water savings, which would reduce surface runoff and reduce groundwater extract. Therefore, there would be no impact.

IMPACT HYD-5 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure HYD-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

3.8.3.5 Mitigation Measures

MITIGATION MEASURE HYD-1: MATERIAL HARM REVIEW

Coordinate with the Antelope Valley Watermaster Engineer and conduct a material harm review of the proposed groundwater wells and groundwater rights. The Antelope Valley Watermaster Engineer would ensure operational criteria for the wells do not result in a net deficit in aquifer volume or a lowering of the local groundwater table such that the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted. This analysis will be completed as part of a groundwater storage agreement application process through the Antelope Valley Watermaster.

MITIGATION MEASURE HYD-2: DRAINAGE PLAN

PWD shall complete drainage assessment and design in accordance with all applicable laws, regulations, and best management practices. The assessment and design shall be submitted as a drainage plan to appropriate jurisdiction to verify that drainage would not contribute to runoff that would result in flooding.

3.8.3.6 Cumulative Impact Analysis

Cumulative impacts to hydrology, groundwater, and water quality are less than significant when mitigation measures are incorporated. The proposed Project is consistent with the 2045 General Plan and adheres to the City's policies. The Antelope Valley Groundwater Basin is exempted from SGMA requirements because the basin has been adjudicated since 2015. Construction and operational activities for the proposed Project and other projects in the area would comply with the Judgement. Therefore, the proposed Project would not considerably contribute to a cumulative impact on hydrology, groundwater, and water quality.

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3.9 LAND USE, AGRICULTURE, AND FORESTRY RESOURCES

This section describes the environmental and regulatory setting for land use, agriculture, and forestry resources, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts on land use, agriculture, and forestry resources that could result from implementation of the proposed Project.

3.9.1 ENVIRONMENTAL SETTING

3.9.1.1 Regional Setting

PROJECT AREA

PALMDALE WATER DISTRICT SERVICE AREA

Palmdale Water District's (PWD's) existing water service area is located almost entirely within the City limits of the City of Palmdale (City) and extends on its southern and eastern boundaries into the unincorporated areas of Los Angeles County (County) that are within the City's sphere of influence. PWD is bordered to the south and west by the San Gabriel Mountain Range, the north by the City of Lancaster, and the east by the unincorporated community of Littlerock. The County of San Bernardino is located immediately to the east. PWD's existing water service area encompasses 47 square miles of mostly developed areas of the City and surrounding spheres of influence, with agricultural uses around its perimeter. The remainder of PWD's 187 square mile boundaries do not currently have water service from PWD.

The proposed Project area includes the PWD service area and outlying areas where facilities are proposed (see **Figure 2-1** in **Chapter 2 Project Description**). The City and County have independent planning documents that guide the development of urban, agricultural, commercial, and other land uses.

CITY OF PALMDALE

The City of Palmdale (City) Planning Area encompasses 201.6 square miles within the Antelope Valley region of Southern California. The Planning Area, as defined in the City of Palmdale 2045 General Plan (General Plan) includes land within Palmdale City limits, Sphere of Influence (SOI), and several unincorporated Los Angeles County areas (City of Palmdale 2022).

PALMDALE REGIONAL AIRPORT

The Palmdale Regional Airport is located just north of the Project area. The Los Angeles County Airport Land Use Commission established an airport influence area (AIA) surrounding the airport (County of Los Angeles 2003). Palmdale Regional Airport began civilian operations in 1971 (City of Palmdale 2022). Commercial airlines operated out of the airport, but in late 2008, passenger service was suspended at the facility due to low volume (City of Palmdale 2022).

AGRICULTURE

The General Plan (City of Palmdale 2022) has no significant agricultural lands. However, agricultural lands exist to the east of Plant 42 on land which is almost entirely under Los Angeles County jurisdiction.

The California Department of Conservation (CDOC), under the Division of Land Resource Protection, developed the Farmland Mapping and Monitoring Program (FMMP) to monitor the conversion of the State's farmland to and from agricultural use. Based on data from the FMMP from 2018, the most recent year data are available, land classification within the PWD service area includes Urban and Built-Up Land, Grazing Land, Water, Other Land, and a small parcel of Prime Farmland in the southern corner of the PWD service area along State Route 14 and E. Carson Mesa Road (CDOC 2018) (See **Figure 3.9-1**). Other Land is land that does not meet any criteria of any category. The majority of proposed Project facilities would not be located on land identified as farmland by the FMMP or General Plan.

The California Land Conservation Act of 1965, Sections 51200 et seq. of the California Government Code, commonly known as the "Williamson Act," enables local governments to restrict the use of specific parcels of land to agricultural or related open space. In return, landowners receive property tax assessments which are much lower than normal because they are based on farming and open space uses as opposed to full market value. There are no Willamson Act lands in the Project area (CDOC 2022).

FORESTRY

The Angeles National Forest is located within the unincorporated areas of Los Angeles County, south of the City. The PWD service area encompasses a portion of the Angeles National Forest, including the area surrounding Littlerock Dam Reservoir (USDA 2023). There is no land designated as Forest or Timberland within the PWD service area (City of Palmdale 2022).

SIGNIFICANT ECOLOGICAL AREAS

The purpose of establishing a Significant Ecological Area is to maintain biological diversity by establishing boundaries which follow natural biological parameters, including habitats, linkages, and corridors, and have self-sustaining populations of their component species contained within each area. Currently, there are Significant Ecological Areas within the PWD service area, around the Palmdale Ditch (Ditch), and a Significant Ecological Area within Littlerock Dam Reservoir area (see **Figure 3.9-2**).

Figure 3.9-1: Agricultural Resources

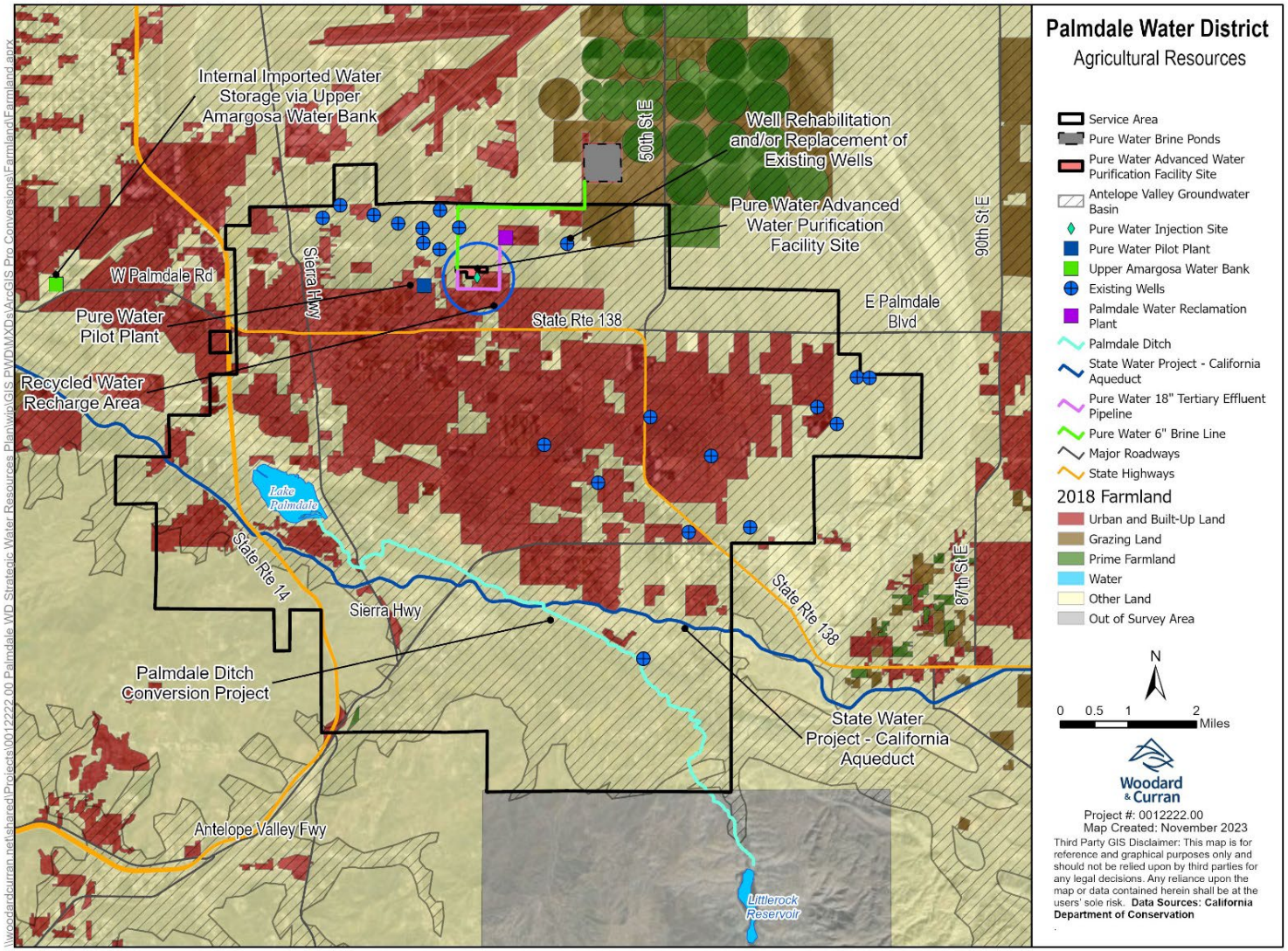
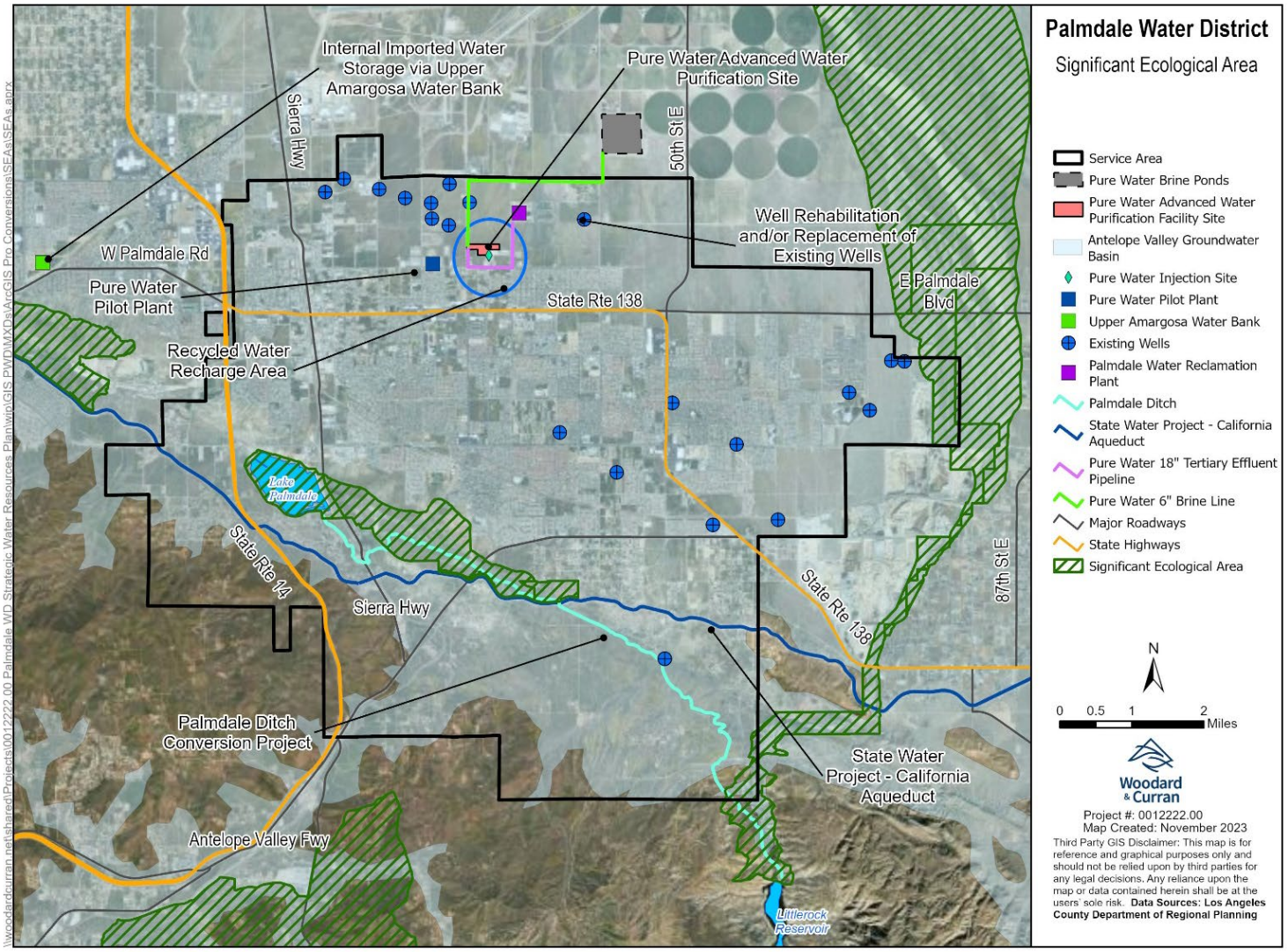


Figure 3.9-2: Significant Ecological Areas



3.9.1.2 Local Setting

The land use designations associated with the proposed Project are discussed in the subsections below.

IMPORTED WATER

The proposed Project would use the existing turnouts, conveyance, recharge, and treatment facilities of the State Water Project and Amargosa Creek Water Recharge Project to maximize imported water supplies.

RECYCLED WATER

The Pure Water Antelope Valley project's advanced water purification facility (AWPF) is planned to be constructed on vacant land near the intersection of 25th Street East and East Avenue Q, located near the existing Palmdale Water Reclamation Plant. Land use designations around the vicinity of the Palmdale Water Reclamation Plant (as see **Figure 2-1** in the Project Description) include public facility-civic, industrial, aerospace industrial and employment flex (City of Palmdale 2022). The demonstration facility will be constructed on property owned by PWD near the intersection of 20th Street East and East Avenue Q, on land designated as aerospace industrial and mixed use (City of Palmdale 2023). Recycled water injection wells would be constructed within the AWPF area on land designated as mixed use. The tertiary effluent pipeline would be constructed along easements, 30th Street East, East Avenue Q, East Avenue P-8, and 25th Street East. The brine line would be constructed along easements, 25th Street East, East Avenue P, East Avenue P-8, and 40th Street East to connect to the planned brine ponds.

GROUNDWATER

Land use designations in the north wellfield area of the existing well locations include aerospace industrial, industrial, and single family residential (City of Palmdale 2022). Replacement or rehabilitation groundwater wells and injection wells in the northern part of PWD's service area may be located within an AIA as designated by Airport Land Use Compatibility Plans.

LOCAL SUPPLIES

Sediment removal activities at Littlerock Dam Reservoir are within the boundaries of the Angeles National Forest. Public rights-of-way of existing roads serve as haul routes and PWD property on 47th Street East, just north of the California Aqueduct.

Portions of the Ditch are located within the Angeles National Forest and unincorporated Los Angeles County areas, while the majority of the Ditch is located within PWD's service area. Land use designation around the Ditch in the City of Palmdale includes water body/aqueduct, low density residential, single family residential, residential neighborhood, and neighborhood commercial (City of Palmdale 2022). The portion of the proposed Project area in unincorporated

Los Angeles County includes properties designated as rural land. The portion of the proposed Project area within the Angeles National Forest is designated as open space national forest.

CONSERVATION

Under the proposed Project, PWD's conservation efforts occur on a regular basis throughout all land use designations in its service area.

3.9.2 REGULATORY FRAMEWORK

This section describes local, state, and federal laws, policies and regulations that apply to the proposed Project.

3.9.2.1 Federal Policies and Regulations

FEDERAL AVIATION ADMINISTRATION

The Federal Aviation Administration (FAA) is the branch of the U.S. Department of Transportation with regulatory responsibility for civil aviation. The FAA is responsible for establishing policies and regulations to ensure the safety of the traveling public. FAA Advisory Circular 150/5200-33B addresses hazardous wildlife attractants on or near airports. This Advisory Circular recommends against "land use practices that attract or sustain populations of hazardous wildlife within the vicinity of airports or cause movement of hazardous wildlife onto, into, or across the approach or departure airspace, aircraft movement area, loading ramps, or aircraft parking area of airports." For airports serving piston-powered aircraft, it is recommended hazardous wildlife attractants be 5,000 feet from the nearest aircraft operations area. For airports serving turbine-powered aircraft, it is recommended hazardous wildlife attractants be 10,000 feet from the nearest aircraft operations area. For projects that are located within 5 miles of the airport's aircraft operations area, the FAA may review development plans, proposed land-use changes, operational changes, major federal actions, or wetland mitigation plans to determine if such changes increase risk to airport safety by attracting hazardous wildlife on and around airports. Proposed Project facilities may fall into this statutory five-mile radius of Palmdale Regional Airport.

A sponsor proposing any type of construction of, or alteration of, a structure that may affect the National Airspace System is required under the provisions of Title 14 Code of Federal Regulations (14 CFR Part 77) to notify the FAA by completing the Notice of Proposed Construction or Alteration (FAA Form 7470-1).

ANGELES NATIONAL FOREST

The City is bordered by the Angeles National Forest along its southern boundary. The U.S. Forest Service (USFS) publishes a Land Management Plan, also referred to as a Forest Plan, which guides forest managers in site-specific planning and decision-making for each forest. The Forest Plan for the Southern California National Forests, which includes the Angeles National Forest,

was most recently updated in 2005. While the Forest Plan acknowledges widespread urbanization adjacent to all four National Forests in southern California as a primary management challenge, it describes the goals and objectives for lands within the jurisdiction of the USFS only, and does not prescribe actions applicable to surrounding municipalities, such as the City (USFS 2005).

3.9.2.2 State Policies and Regulations

CALTRANS DIVISION OF AERONAUTICS

The State Aeronautics Act, Public Utilities Code (PUC) section 21001 et seq., provides the foundation for the California Department of Transportation's (Caltrans) aviation policies. The State Aeronautics Act requires local jurisdictions that operate public airports to establish Airport Land Use Commissions (ALUCs) or an equivalent designated body to protect the public health, safety, and welfare. The ALUCs or equivalent are responsible for promoting the orderly expansion of airports and adoption of land use measures by local public agencies to minimize exposure to excessive noise and safety hazards near airports. Each ALUC or equivalent designated body is responsible for preparing and maintaining an Airport Land Use Compatibility Plan (ALUCP). The ALUCP must provide policies for reviewing certain types of development that occur near airports. State law requires consistency between ALUCPs and any associated general plans. Caltrans is responsible for the review and approval of all ALUCPs within the State of California.

CALIFORNIA GOVERNMENT CODE SECTION 53091

California Government Code Section 53091 specifies that water supply facilities such as those associated with the proposed Project, are exempt from zoning restrictions. Specifically, Section 53091 states:

> *d) Building ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, wastewater, or electrical energy by a local agency.*
>
> *e) Zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water.*

CALIFORNIA FARMLAND MAPPING AND MONITORING PROGRAM

The California Department of Conservation, under the Division of Land Resource Protection, has established the Farmland Mapping and Monitoring Program (FMMP). The FMMP monitors the conversion of the state's farmland to and from agricultural use. The map series identifies eight classifications and uses a minimum mapping unit size of 10 acres. The FMMP also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. The FMMP maintains an inventory of state agricultural land and updates its "Important Farmland Series Maps" every two years. Important farmlands are divided into the following five categories based on their suitability for agriculture:

- **Prime Farmland:** Prime Farmland is the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Farmland of Statewide Importance:** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Unique Farmland:** Farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- **Farmland of Local Importance:** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land:** Land on which the existing vegetation is suited to the grazing of livestock.

WILLIAMSON ACT

The California Land Conservation Act of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Williamson Act contracts, also known as agricultural preserves, create an arrangement whereby private landowners contract with counties and cities to voluntarily restrict their land to agricultural and compatible open space uses. The vehicle for these agreements is a rolling term 10-year contract. In return, restricted parcels are assessed for tax purposes at a rate consistent with their actual use, rather than potential market value. In return, restricted parcels are assessed for tax purposes at a rate consistent with their actual use, rather than potential market value. At the end of the 10-year contract, either the local government, or landowner, can initiate the nonrenewal process. A "notice of nonrenewal" starts a 9-year nonrenewal period. During the nonrenewal process, the annual tax assessment gradually increases. At the end of the 9-year nonrenewal period, the contract is terminated. Contracts renew automatically every year unless the nonrenewal process is initiated. Williamson Act contracts can be divided into the following categories: Prime Agricultural Land, Non-Prime Agricultural Land, Open Space Easement, Built up Land, and Agricultural Land in Non-Renewal. There are no Williamson Act Contracts within the Project area.

CALIFORNIA PUBLIC RESOURCES CODE SECTION 12220(G)

The California Public Resources Code defines "forest land" under section 12220(g) as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber,

aesthetics, fish and wildlife, biodiversity, water quality recreation, and other public benefits. Projects are subject to this code if there are potentially significant changes to existing areas zoned as forest land. None of the proposed Project areas are zoned as forest land.

CALIFORNIA PUBLIC RESOURCES CODE SECTION 4526

The California Public Resources Code defines "timberland" as land, other than land owned by federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis after consultation with the district committees and others. Projects may have significant impacts to timberland if the project conflicts with existing zoning. None of the proposed Project areas are zoned as timberland.

CALIFORNIA PUBLIC RESOURCES CODE SECTION 51104(G)

The California Government Code defines "timberland production zone" under section 51104(g) as an area which has been zoned pursuant to Sections 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h) of the Government Code 51104. Projects may significantly impact timberland resources if the proposed Project conflicts with existing areas zoned for timberland production. None of the proposed Project areas are zoned for timberland production.

3.9.2.3 Local Policies and Regulations

The local land use regulations that apply to this proposed Project include the following planning documents which govern land use in the area.

CITY OF PALMDALE GENERAL PLAN

The City of Palmdale 2045 General Plan (General Plan) is a policy document required by State law that provides long range guidance for various City issues. The General Plan is a comprehensive update to the City's 1993 General Plan. The General Plan is effective from October 22, 2022, and was amended on March 15, 2023.

The proposed Project area is located mostly within the City's boundaries. The following is a selected list of General Plan goals, objectives, and policies that are applicable to the proposed Project.

Goal CON-5: Protect the quality and quantity of local water resources.

- **CON-5.1: Groundwater recharge.** Ensure groundwater supplies are recharged and protect natural recharge areas such as the Littlerock and Big Rock Washes, and Amargosa and Anaverde Creeks from pollutants or other materials, which might degrade groundwater supplies.

GOAL CON-6: Minimize the impacts of urban development on groundwater supplies.

- **CON-6.2: Reduce landscaping irrigation needs.** Require the use of water conserving native or drought resistant plants and drip irrigation systems. Where feasible.
- **CON-6.4: New construction water conservation.** Require water conserving appliances and plumbing fixtures in all new construction.

GOAL CON-7: Maintain and further the City's commitment to long-term water management within the Antelope Valley by planning for the conservation and managed use of water resources, including groundwater, imported water, and reclaimed water.

- **CON-7.1: Reclaimed water irrigation.** Assess and implement, when and where feasible, reclaimed water for landscape irrigation.
- **CON-7.2: Water run-off capture.** Work with local water purveyors to assess the potential for capturing local run-off and utilization of imported water (water banking) for groundwater recharge within the Planning Area.
- **CON 7-3: Retain recharge areas.** Through the land use planning process, ensure that important recharge areas are retained.
- **CON-7.4: Water management.** Continue to seek out long-range water management techniques as new technology is developed.
- **CON-7.5: Implementation.** Promote implementation of water reduction and recycling systems that are feasible and appropriate to the Planning Area.
- **CON-7.6: Water recycling.** Encourage residents and businesses to recycle water where feasible, and where water recycling does not result in health and safety concerns.
- **CON-7.7: Water sources.** Participate in regional efforts to retain imported water allocations and seek out other sources as they become available.

ANTELOPE VALLEY AREA PLAN (2015)

The County of Los Angeles has developed the Antelope Valley Area Plan in conjunction with the other chapters and elements of the County of Los Angeles General Plan. The Antelope Valley Area Plan is a coordinated statement of public policy by the County for use in making public decisions relating to the future of the Antelope Valley. The Antelope Valley Area Plan is designed to provide decision makers with a policy framework to guide them in efforts to improve the quality of life in the valley. The following is a list of selected Antelope Valley Area General Plan goals and policies that apply to the proposed Project.

- **Policy COS 1.4**: Promote the use of recycled water, where available, for agricultural and industrial uses and support efforts to expand recycled water infrastructure.
- **Policy COS 2.1:** Require new landscaping to comply with applicable water efficiency requirements in the County Code.
- **Policy COS 2.2:** Require low flow plumbing fixtures in all new developments.

- **Policy COS 2.7**: Limit use of groundwater sources to their safe yield limits.
- **Policy COS 3.5**: Protect underground water supplies by enforcing controls on sources of pollutants.
- **Policy COS 3.6**: Support and encourage water banking facilities throughout the Antelope Valley, including within Significant Ecological Areas.

LOS ANGELES COUNTY AIRPORT LAND USE PLAN

An Airport Land Use Plan (ALUP) provides for the orderly growth of an airport and the area surrounding the airport, excluding existing land uses. Its primary function is to safeguard the general welfare of people and property within the airport vicinity and the public in general. The ALUP includes several components:

- Airport Land Use Commission Review Procedures (Review Procedures), adopted on December 1, 2004. The Review Procedures are County-wide procedures that apply to all 11 public-use airports in the County, including Palmdale Regional Airport.
- Airport Land Use Plan, adopted December 19, 1991. Although some of the county-wide policies addressed in this plan have been superseded by the 2004 Review Procedure, the 1991 plan includes background on compatibility issues and each airport for which the ALUC is responsible for policy development.

Taken together, these document components define the procedures and criteria through which the County can address, evaluate, and review airport compatibility issues in the vicinity of any of its public use airports.

The goal of an airport land use compatibility plan is twofold: To protect the public from the adverse effects of aviation, and to protect air travelers from land uses that could present unsafe conditions. The ALUP provides specific policies and procedures for proposed changes in land use within the AIA to ensure compliance with four types of compatibility concerns:

- Exposure to aircraft noise;
- Land use safety with respect to both people and property on the ground and air travelers;
- Airspace protection; and
- General concerns related to aircraft overflights.

The ALUC has identified the AIA for each public use airport in Los Angeles County. The AIA is the geographic area that could be affected by present or forecasted aircraft operations and the area in which new land uses or changes in land uses could cause adverse effects to flight operations and safety. Proposals for development within an AIA, as defined by the adopted ALUP, are reviewed for their consistency with ALUP compatibility criteria. As shown in **Figure 3.9-3**, the

AIA for Palmdale Regional Airport includes a large portion of the City of Palmdale, a portion of the City of Lancaster, and portions of unincorporated Los Angeles County.

The ALUP includes policies and programs that apply to Palmdale Regional Airport, including the following:

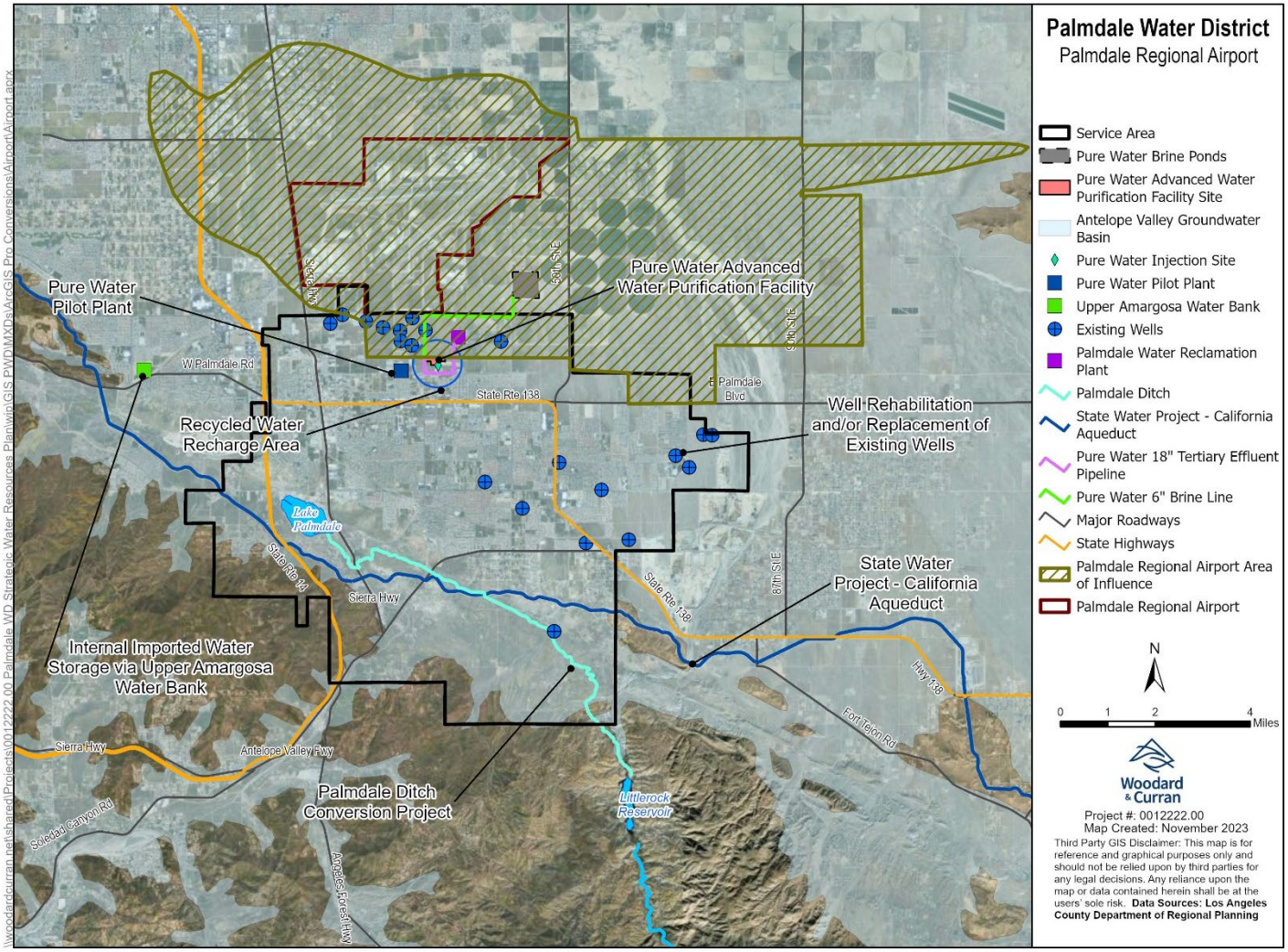
General Policies

- **G-1:** Require new uses to adhere to the Land Use Compatibility Chart.
- **G-4:** Prohibit any uses which will negatively affect safe air navigation.

Policies related to safety

- **S-1:** Establish "runway protection zones" contiguous to the ends of each runway. These runaway protection zones shall be identical to the FAA's runway protection zone (formerly known as "clear zones").
- **S-3:** Prohibit, within a runway protection zone, any use which would direct a steady light or flashing light of red, white, green or amber colors associated with airport operations towards an aircraft engaged in an initial straight climb following take-off or toward an aircraft engaged in final approach toward landing at an airport.
- **S-4:** Prohibit, within a designated runway protection zone, the erection or growth of objects which rise above the approach surface unless supported by evidence that it does not create a safety hazard and is approved by the FAA.
- **S-5:** Prohibit uses which would attract large concentrations of birds, emit smoke, or which may otherwise affect safe air navigation.
- **S-7:** Comply with the height restriction standards and procedures set forth in FAR Part 77.

Figure 3.9-3: Palmdale Regional Airport



PALMDALE REGIONAL AIRPORT LAND USE COMPATIBILITY PLAN

At this time, the County has not prepared a specific Land Use Compatibility Plan for Palmdale Regional Airport; however, an AIA has been established for Palmdale Regional Airport. Any proposed facilities within the AIA would be subject to the county-wide policies in the Los Angeles County ALUP and Review Procedures. However, airport-specific policies have not been developed at this time.

ANTELOPE VALLEY SIGNIFICANT ECOLOGICAL AREAS

As part of the County General Plan Conservation/Open Space and Land Use elements, Los Angeles County has identified and adopted policies for Significant Ecological Areas Proposed Project areas that would overlap a designated Significant Ecological Areas include the Ditch, Littlerock Dam Reservoir, groundwater well rehabilitation or replacement, and potentially new groundwater extraction wells. Regulations that would apply to the proposed Project in the designated Significant Ecological Areas include:

- Protecting the biodiversity, unique resources, and geological formations contained in Significant Ecological Areas from incompatible development, as specified in the Conservation and Natural Resources Element of the General Plan;
- Ensuring that projects reduce the effects of habitat fragmentation and edge effects by providing additional technical review of existing resources, potential impacts, and required mitigations;
- Ensuring that development within a Significant Ecological Area conserves biological diversity, habitat quality, and connectivity to sustain species populations and their ecosystem functions into the future; and
- Directing development to be designed in a manner that considers and avoids impacts to Significant Ecological Area resources within the Los Angeles County Region.

3.9.3 IMPACT ANALYSIS

3.9.3.1 Methodology for Analysis

Impacts are identified and evaluated based on relevant CEQA Guidelines and local standards, policies, and guidelines, on the likelihood that resources, including timberland, agriculture and farmland, established communities, and policies adopted for the purpose of environmental protection are present within the Project area and on the likely effects that the proposed Project might have on these resources.

3.9.3.2 Thresholds of Significance

The criteria used to determine the significance of impacts related to Agricultural and Forestry resources are based on Appendix G of the CEQA Guidelines. The proposed Project would result in a significant impact to Agricultural and Forestry resources if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning or agricultural use, or a Williamson Act Contract;
- Conflict with existing zoning for, our cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest use; or
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

The criteria used to determine the significance of impacts related to Land Use and Planning are based on Appendix G of the CEQA Guidelines. The proposed Project would result in a significant impact to Agricultural and Forestry resources if it would:

- Physically divide an established community; or
- Cause a significant environmental impact due to conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

A discussion of the impacts and mitigation measures for the proposed Project is presented below.

3.9.3.3 Criteria Requiring No Further Evaluation

The proposed Project would not have significant impacts associated with the following criteria:

- **Conflict with existing zoning for, our cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).** The City does not have any land use designations or zoning designations for forest land or timberland (City of Palmdale 2023a and 2023b). Existing groundwater wells, injection wells, recharge facilities, and Pure Water Antelope Valley project are located in the County of Los Angeles and are not classified as forest land or timberland (Los Angeles County Department of Regional Planning 2015). A portion of the Palmdale Ditch Conversion project is within the Angeles National Forest and is within forest lands that are designated as Open Space National Forest by the County with a zoning designation of Watershed. Pursuant to California Government Code Section 53091, the building and zoning ordinances of a county or city

do not apply to the location or construction of facilities for the production, storage, or transmission of water, wastewater, or electrical energy by a local agency. Therefore, the proposed Project would not be subject to the requirements of the zoning ordinances of the City or County. Additionally, Public Resources Code Section 4526 defines timber land as land, other than land owned by the federal government and land designated as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products. Government Code Section 51104(g) defines a Timberland Production Zone as an area devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses. The proposed Project may require minor vegetation removal within Angeles National Forest to allow for construction equipment access; however, the overall amount of vegetation removed would be minimal and would not conflict with existing zoning for, or cause rezoning of, timberland or Timberland Production Zones. Additionally, conversion of the Ditch to a pipeline would not conflict with existing zoning for timberland or Timberland Production.

- **Result in loss of forest land or conversion of forest land to non-forest use.** There are no forested lands within the City (City of Palmdale 2023b). Further, the City is located approximately 2.5 miles north of the Angeles National Forest and, thus, contains no forest land. All proposed facilities would be constructed and operated within the PWD service area, which contains no forest land, except for the Palmdale Ditch Conversion project. A portion of the Palmdale Ditch Conversion project area is within the Angeles National Forest and contains forest land. However, the proposed pipeline would be located in generally the same alignment as the existing Ditch. The proposed Project may require removal of a minor number of shrubs and small trees within the Angeles National Forest to allow for construction equipment access. However, the proposed Project would not involve forest land conversion within the Angeles National Forest. Therefore, the Palmdale Ditch Conversion project would not result in loss of forest land.

- **Physically divide an established community.** The physical division of an established community generally refers to the construction of features that impact mobility within an existing community or between a community and outlying area, such as interstate highways, railroad tracks, or permanent removal of a means of access, such as a local road or bridge. The proposed facilities associated with the proposed Project are not aboveground linear features that would create a barrier or physically divide an established community. Although the proposed pipelines are linear features, they would be installed underground, and thus, would not permanently divide an established community. Some proposed facilities, such as Pure Water Antelope Valley, groundwater production wells and injection wells, may be located adjacent to roadways; however, they would not create a barrier within public roadways or physically divide an established community. The alignment of the Palmdale Ditch Conversion project is primarily within undeveloped areas and would not have the potential to physically divide an established community given the pipeline and a new future turnout would be located below ground. Therefore, no impacts would occur.

3.9.3.4 Impacts and Mitigation Measures

Impact LU-1 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use.

IMPACT LU-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Pure Water Antelope Valley project's AWPF is anticipated to be located on land designated as Other Land (CDOC 2018). There are no Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance within the Project area and the future location of recycled water injection wells are expected to be near Palmdale, and thus, not on designated farmlands. The recycled water pipelines would be constructed near Palmdale Water Reclamation Plant and would be located within Other Land, Grazing Land, and Urban and Built-Up Land. The brine ponds would be adjacent to Prime Farmland, but construction activities are not expected to convert Prime Farmland to non-agricultural use.

Groundwater

Existing Wells Rehabilitation and/or Replacement

It is anticipated that replacement wells would be constructed in the regulatory approved proximity of the physical location as existing wells, which are located in either Other Land or Urban and Built-Up Land (City of Palmdale 2023a). Therefore, there would be no impacts.

Local Supplies

Palmdale Ditch Conversion Project

The Palmdale Ditch Conversion project area does not include areas designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (CDOC 2016). Therefore, the Palmdale Ditch Conversion project would not involve conversion of Farmland to non-agricultural use, and no impact would occur.

Conservation

Implementation of conservation measures does not require any construction activities. Therefore, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

As shown on **Figure 3.9-1**, operation of the Pure Water Antelope Valley project's AWPF, tertiary lines, brine line, brine ponds, and recycled water injection wells are currently planned to be on non-agricultural lands. Therefore, the proposed Project is not expected to convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural lands.

Groundwater

Existing Wells Rehabilitation and/or Replacement

It is anticipated that replacement wells would be in relatively the same location and maintain the same level of groundwater production. Operation of the replaced wells would not affect groundwater production in a such a way that would result in conversion of farmland to non-agricultural use.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance because the proposed Project is not within any land designated for farmland. Therefore, there would be no impact.

Conservation

Implementation of conservation measures does not require operational activities. Therefore, there would be no impact.

IMPACT LU-1 FINDINGS

Significance before Mitigation: Less than significant.

Mitigation Measures: None required.

Impact LU-2 Conflict with existing zoning for agricultural use, or a Williamson Act Contract.

IMPACT LU-2 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The advanced water purification facility is not zoned for agricultural uses (City of Palmdale 2023b) and there are no Williamson Act lands within the potential site of the advanced purification facility (CDOC 2022). Therefore, there would be no impact.

The location of the recycled water injection wells will be within the vicinity of the Pure Water Antelope Valley project and pipelines and brine ponds are anticipated to be located near the Palmdale Water Reclamation Plant which do not have land zoned for agricultural uses (City of Palmdale 2023b). Additionally, there are no Williamson Act lands within the vicinity of the Palmdale Water Reclamation Plant or Pure Water Antelope Valley. Therefore, the Pure Water Antelope Valley project would not conflict with existing zoning for agricultural use nor a Williamson Act Contract. Therefore, there would be no impact.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Based on the proposed Project, PWD would be rehabilitating and or replacing nine existing groundwater wells. It is anticipated that replacement wells would be constructed in the same physical location as existing wells, which are not located within land zoned for agricultural uses. Additionally, there are no Williamson Act lands within the vicinity of existing wells. Therefore, there would be no impact.

Local Supplies

Palmdale Ditch Conversion Project

A portion of the Palmdale Ditch Conversion project area is in unincorporated Los Angeles County includes a parcel zoned as Heavy Agricultural (A-2-2). However, this parcel is not currently used for agricultural production, and the Palmdale Ditch Conversion project would not inhibit the future use of its site for agricultural uses because it would not change the existing land use. Therefore, the Palmdale Ditch Conversion project would not conflict with zoning for agricultural use.

The Palmdale Ditch Conversion project area does not overlap with parcels enrolled in a Williamson Act contract (CDOC 2022). Therefore, the Palmdale Ditch Conversion project would not conflict with existing zoning for agriculture use. Impacts would be less than significant.

Conservation

Implementation of conservation measures does not require any construction. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley would not cause any conflict with existing zoning for agricultural use or a Williamson Act contract as the advanced purification water facility will not be located within land zoned for agricultural uses (City of Palmdale 2023b) nor land enrolled in Willamson Act. Operation of the recycled water injection wells and pipelines would not conflict with existing zoning for agricultural use or a Williamson Act contract as there are no lands zoned for agricultural uses nor land enrolled in the Williamson Act within the vicinity of Palmdale Water Reclamation Plant and Pure Water Antelope Valley project. Therefore, there would be no impact.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of rehabilitated wells and/or replacement wells would not conflict with existing zoning for agricultural use as there are no lands zoned for agricultural use within the vicinity of existing wells. Therefore, there would be no impact. Additionally, operation of the rehabilitated wells and/or replacement wells would not conflict with the Williamson Act as there are lands enrolled in the Williamson Act within the vicinity of the existing wells. Therefore, there would be no impact.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project would not conflict with existing zoning for agricultural use is not used for agricultural production and operation of the proposed Project would not inhibit the future use for agricultural uses because it would not change the existing land use. Operation of the proposed Project would also not conflict with the Williamson Act contract as there are no lands enrolled in a Williamson Act contract within the Palmdale Ditch Conversion project area. Therefore, there would be impact.

Conservation

Implementation of conservation measures does not require operational activities. Therefore, there would be no impact.

IMPACT LU-2 FINDINGS

Significance before Mitigation: Less than significant.

Mitigation Measures: None required.

Impact LU-3 Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

IMPACT LU-3 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

As mentioned in *Impact LU-1,* the Pure Water Antelope Valley project would not be located on any land designated as farmland. Pure Water Antelope Valley project would also not be located in any land designated for forest use (City of Palmdale 2023b). The recycled water injection wells are anticipated to be within the vicinity of Pure Water Antelope Valley project's AWPF, and associated pipelines are expected to be constructed within existing roadways whenever possible on Other, Urban and Built-Up Land, and Grazing Land. The brine ponds would be constructed adjacent to Prime Farmland, but construction activities would not convert Prime Farmland to non-agricultural use. Therefore, there would not be other changes in the existing environment that could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

Groundwater

Existing Wells Rehabilitation and/or Replacement

The rehabilitation and replacement of existing groundwater wells is anticipated to be within the vicinity of existing groundwater wells. Based on **Figure 3.9-1**, existing groundwater wells are located within Other Land and Urban and Built-Up Land, and according to **Figure 3.9-1,** there is no zoning for forest land within the City (City of Palmdale 2023b). Thus, there would not be other changes in the existing environment that could result in conversion of farmland to non-agricultural use or the conversion of forest land to non-forest use.

Local Supplies

Palmdale Ditch Conversion Project

The Palmdale Ditch Conversion project would not involve activities that would result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

The proposed Project also would not involve other off-site changes that would affect Farmland or forest land. No impact would occur.

Conservation

Conservation measures would not require construction of new facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

The operation of the proposed Project maximizing the use of recycled water would not result in the conversion of farmland to non-agricultural use because water would not be moved from agricultural lands. Additionally, operation of the proposed Project would not result in the conversion of forest land to non-forest land use because there is no forest land within the City (City of Palmdale 2023b).

The operation of the proposed Project would not result in the conversion of farmland to non-agricultural use because water would not been moved from agricultural lands. Also, operation of the proposed Project would not result in conversion of forest land to non-forest land as there is no forest land within the City (City of Palmdale 2023b).

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project would not involve activities that would result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use nor involve other off-site changes that would affect Farmland or forest land. No impact would occur.

Conservation

Implementation of conservation measures does not require operational activities. Thus, there would be no impact.

IMPACT LU-3 FINDINGS

Significance before Mitigation: Less than significant.

Mitigation Measures: None required.

Impact LU-4 Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

IMPACT LU-4 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

According to the City's land use designations, the location of the Pure Water Antelope Valley project would be in an aerospace industrial land use designation (City of Palmdale 2023a). The location of recycled water injection will be within the vicinity of the future AWPF. Recycled water pipelines would be near the Palmdale Water Reclamation Plant, which is in the Heavy Industrial land use designation (City of Palmdale 2023a).

Recycled water pipelines would be within the AIA for Palmdale Regional Airport (see **Figure 3.9-3**). All other proposed facilities would be located outside of the AIA. Construction of facilities within the AIA has the potential to disrupt airport operations. The presence of construction equipment, particularly cranes, could pose temporary hazards to aviation within the AIA. To prevent potential intrusions to navigable airspaces, PWD coordinate directly with the County of Los Angeles ALUC and FAA and prepare an airport construction safety plan that would identify best management practices to be used before proposed Project construction.

Further, PWD would notify the airport of proposed construction activities in advance and participate in the FAA's 7460 process to ensure that the proposed construction equipment does not pose hazards to aviation. In addition to FAA airspace review, ongoing coordination with the airport would be required to ensure that proposed construction of pipelines, ongoing coordination with the airport would be required to ensure that proposed construction activities do not disrupt airport operations, and that appropriate notice is provided to aviators using the airport. Impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Five existing groundwater wells that would be rehabilitated and/or replaced would be located within the AIA for the Palmdale Regional Airport (see **Figure 3.9-3**). Well rehabilitation or replacement activities within the AIA has the potential to disrupt airport operations, and the presence of construction equipment could pose temporary hazards to aviation within the AIA. PWD would coordinate directly with the County of Los Angeles ALUC and prepare an airport construction safety plan. Additionally, PWD would notify the airport of proposed construction activities in advance and participate in the FAA's 7460 process to ensure that the proposed

construction equipment does not pose hazards to aviation. Impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The Palmdale Ditch is within the Angeles National Forest, unincorporated Los Angeles County, and the City. The Palmdale Conversion Project area traverses several parcels with various land use designations and zoning designations, including residential, commercial, and utilities land use designations within the City and County and residential, commercial, agricultural, and watershed zoning within the City, County, and Angeles National Forest. Pursuant to California Government Code Section 53091, the building and zoning ordinances of a county or city do not apply to the location or construction of facilities for the production, storage, or transmission of water, wastewater, or electrical energy by a local agency. Therefore, the Palmdale Ditch Conversion project would not be subject to the requirements of the zoning ordinances of the City or County.

Conservation

Conservation measures would comply with the State's conservation objectives, and thus, there would be no impacts.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would not conflict with any land use plan, policy, or regulations because it will be located in land zoned for Heavy Industrial. It would also support the City's goal of increasing the municipal reuse of local recycled water (City of Palmdale 2022).

Long-term impacts associated with the operation of the recycled water injection wells and pipelines may be within the AIA for the Palmdale Regional Airport. PWD shall submit, as applicable, proposed Project design plans to Los Angeles County ALUC and airport staff to ensure facility locations and heights would not pose a hazard to aviation and to participate in the FAA's 7460 process and would minimize potential effects associated with the proposed Project design issues. Therefore, impacts would be less than significant.

Groundwater

Long-term impacts associated with the operation of groundwater facilities would be similar to the impacts associated with recycled water facilities. The height of groundwater facilities has the potential to intrude and obstruct navigable space and groundwater facilities may be within the AIA for Palmdale Regional Airport. With the implementation of PWD would submit proposed

Project design plans to Los Angeles County ALUC and airport staff to ensure facility locations and heights would not pose a hazard to aviation. PWD would also be required to participate in FAA's 7460 process and would minimize potential effects associated with the proposed Project design issues. Thus, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The Palmdale Ditch Conversion project would also support several of the City's 2045 General Plan Public Facilities, Services, and Infrastructure goals and policies that pertain to water supply reliability. These policies include Policy PFSI-3.1, which encourages supporting water suppliers in the Antelope Valley region in determining needs to improve water supply and delivery; and Policy PFSI-3.18, which encourages water conservation across water infrastructure. The proposed Project would be consistent with these goals because the proposed Project's purpose is to increase efficiency by minimizing water losses from evaporation and seepage into the soil, increase the capacity of PWD's water conveyance infrastructure, and to improve reliability and redundancy of PWD's water conveyance infrastructure. Therefore, the proposed Project would not conflict with the City's 2045 General Plan.

Conservation

Implementation of conservation measures would comply with State regulations and would not conflict with any land use plans. Therefore, there would be no impact.

IMPACT LU-4 FINDINGS

Significance before Mitigation: Less than Significant

Mitigation Measures: None required.

Mitigation Measures

None required.

3.9.3.5 Cumulative Impact Analysis

As discussed above, the proposed Project's land use, agricultural, and forestry impacts would be associated with construction and operation phases. The proposed Project would not divide a community. While implementation of the proposed Project may cause conflict within Palmdale Regional Airport's AIA, as described in *Impact LU-1*, the effects are less than significant. PWD will also comply with County Ordinance 22.102.080 to ensure the proposed Project is not in conflict with any Significant Ecological Areas within the Project area and the potential conflict would be temporary and not cumulatively considerable when considered with development plans for the area. Therefore, the proposed Project would not considerably contribute to a cumulative impact on land use, agricultural, and forestry resources.

3.9.4 REFERENCES

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3.10 NOISE AND VIBRATION

This section describes the environmental and regulatory setting for noise and vibration in the Project area, identifies the significance criteria for determining environmental impacts, and evaluates the potential noise and vibration impacts that could result from implementation of the Project.

3.10.1 ENVIRONMENTAL SETTING

3.10.1.1 Noise Principles and Descriptors

Noise is generally defined as unwanted sound, traveling in the form of waves from a source and exerting a sound pressure level (referred to as sound level), that is measured in decibels (dB). A decibel is the basic unit of sound level; it denotes a ratio of intensity to a reference sound. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound. The human ear does not judge sound in absolute terms, but instead senses the intensity of differences in sound levels. Most sounds that humans are capable of hearing have a decibel range of 0 to 140, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain.

Sound and noise are not the same thing, but sound becomes noise when it is: too loud, unexpected, uncontrollable, occurs unexpectedly, or it has pure tone components. Noise is any sound that has the potential to annoy or disturb humans or cause an adverse psychological or physiological effect on humans. The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 hertz and above 5,000 hertz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency deemphasis and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are shown in **Table 3.10-1**.

Table3.10-1: Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	**70**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**60**	
		Large business office
Quiet urban daytime	**50**	Dishwasher in next room
Quiet urban nighttime	**40**	Theater, large conference room (background)
Quiet suburban nighttime		
	30	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast/recording studio
	10	
	0	

Source: Caltrans 2013

COMMUNITY NOISE

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. The noise levels presented in **Table 3.10-1** are representative of measured noise at a given instant in time; however, they rarely persist consistently over a long period of time. Rather, community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

Community noise is generally not a steady state and varies with time. Under conditions of non-steady state noise, some type of statistical scale of measurement is necessary in order to quantify noise exposure over a long period of time. A variety of different noise measurement scales or "metrics" have been developed for describing the effects of noise on people. The following explanations were adapted from the City of Palmdale (City) General Plan Noise Element (City of Palmdale 2022) and describe the metrics typically employed for measuring community stationary and mobile noise sources:

dB Decibels (dB) are based on a logarithmic scale that condenses range in sound pressure levels to a more usable range of numbers.

dBA Decibel (dBA) is an adjusted measure of sound loudness that adjusts the sound rating scale to levels consistent with the sensitivity range of the human ear. Typical exterior daytime noise levels range from 50 to 75 dBA.

CNEL Community Noise Equivalent Level (CNEL) is the average sound level over a 24-hour period, with a penalty of 4 dB added between 7pm and 10pm and penalty of 10 dB added for the nighttime hours of 10 pm to 7 am. The noise levels identified within this chapter are all discussed using dBA CNEL, unless otherwise indicated.

L_{eq}: The L_{eq} is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a time period. Typically, L_{eq} is equivalent to a one-hour period, even when measured for shorter durations, because the noise level of a 10- to 30-minute period would be the same as the hour if the noise source is relatively steady

L_{dn}: The Day-Night Average Sound Level (L_{dn}) describes a receiver's cumulative noise exposure from all events over 24 hours. Events between 10:00 p.m. and 7:00 a.m. are increased by 10 dB to account for humans' greater nighttime sensitivity to noise.

L_{max}: L_{max} is the highest Root Mean Squared (RMS) sound pressure level within the sampling period,

L_{min}: L_{min} is the lowest RMS sound pressure level within the measuring period.

Noise Attenuation

Noise dissipates with distance and with attenuation features, such as barriers or terrain. Noise that emanates from a point source generally decreases at a rate of 6 dB per doubling of distance for hard sites and 7.5 dBA for soft sites per doubling distance from the reference measurement, while noise that emanates from a line source – a source that is created by multiple point sources moving in one direction; for example, a continuous stream of roadway traffic – decreases at a rate of 3 dB per doubling of distance (FTA 2018). Hard sites are those with a reflective surface between the source and the receiver such as parking lots or smooth bodies of water. No excess

ground attenuation is assumed for hard sites and the change in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. (FTA 2018)

3.10.1.2 Vibration Principles and Descriptors

Groundborne vibration may occur when heavy equipment or vehicles create vibrations in the ground, which can then propagate through the ground to buildings, creating a low-frequency sound. Groundborne vibrations can be a source of annoyance to humans due to a "rumbling" effect, and such vibrations may also cause damage to buildings. Groundborne vibration is discussed in terms of these impacts on humans and structures. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. The following vibration terminology has been adapted from the FTA's Transit Noise and Vibration Impact Assessment Manual (FTA 2018):

PPV Peak Particle Velocity (PPV) describes the peak signal value (maximum positive or negative peak) of the vibration signal. PPV is often used in monitoring of construction vibration (such as blasting) because it is related to the stresses that are experienced by buildings and is not used to evaluate human response. PPV is usually expressed in inches/second.

RMS Root Mean Square (RMS) describes the smoothed vibration amplitude. The rms amplitude is used to convey the magnitude of the vibration signal felt by the human body, in inches/second. The average is typically calculated over a one-second period. The rms amplitude is always less than the PPV and is always positive.

VdB Vibration Decibels (VdB) describes the vibration velocity level in decibel scale and is commonly used to measure RMS.

3.10.1.3 Regional and Project Setting

EXISTING NOISE SOURCES

The primary noise sources of the Project area are related to transportation including automobiles, trucks, motorcycles, buses, trains, helicopters, and planes. The predominant noise ambient sources include roadway traffic noise. Secondary noise sources include activities related to the operation of commercial businesses in the area including loading area/delivery truck activities, trash compaction, and refuse collection; and periodic landscape maintenance and other occasional outdoor noise associated with residential uses.

Major highways through the PWD service area include State Route 14 and State Route 138, which connect to Interstate (I) 5 and I-15, and State Route 14. Commuter rail service is provided

by Metrolink's Antelope Valley Line that runs north-south adjacent to State Route 14 through Palmdale, from Los Angeles Union Station to the City of Lancaster. Freight rail service is also provided by this rail line, which continues north beyond the City of Lancaster. The Palmdale Regional Airport and U.S. Air Force Plant 42 are located one mile north of PWD's service boundary. U.S. Air Force Plant 42 and Palmdale Regional Airport are separate facilities that share a common runway with a northeast to southwest orientation. There may be occasional flyovers from small general aviation aircraft, but no commercial flights are scheduled to fly directly over the City's airspace. The northern portion PWD service area overlaps with the 65 dBA CNEL contour for the Palmdale Regional Airport (Los Angeles County Airport Land Use Commission 2003).

Sensitive Receptors

Noise can disrupt everyday activities such as sleep, speech, and activities requiring concentration. Noise can also interfere with the activities of wildlife, especially nesting birds. Some land uses are considered more sensitive to noise than others due to the types of activities that typically occur at the receptor location. Noise-sensitive receptors are typically defined as land uses that are considered more sensitive to intrusive noise than others, such as residences, schools, motels and hotels, libraries, and hospitals, due to the land use activities typically occurring at the receptor.

Many of the proposed Project facilities are located within low-density residential or single-family residential use areas within the City and unincorporated area of Los Angeles County (County) and would be located adjacent to or within the vicinity of residential use sensitive receptors. Additionally, other sensitive receptors such as schools and recreational areas could be located along anticipated pipeline alignments and near future pump stations and storage tanks.

EXISTING GROUND-BORNE VIBRATION SOURCES

Aside from periodic construction work that may occur throughout the area, other sources of ground-borne vibration in the proposed Project area include heavy-duty vehicular travel (e.g., refuse trucks, delivery trucks) on local roadways. Truck traffic at a distance of 50 feet typically generates ground-borne vibration velocity levels of approximately 63 VdB (approximately 0.006 in/sec PPV). These levels could reach 72 VdB (approximately 0.016 in/sec PPV) where trucks pass over irregularities in the road surface.

Sensitive Receptors

Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment.

3.10.2 REGULATORY FRAMEWORK

This section describes local laws, policies and regulations that apply to the proposed Project. While there are federal and State documents that present noise and vibration levels, they are only adopted to provide guidance; there are no federal or state noise or vibration regulations that apply to the proposed Project. The proposed Project actions are located in the City and unincorporated areas of the County of Los Angeles; therefore, the City and County General Plan Noise Elements and Municipal Code Noise Ordinances are applicable to the project.

3.10.2.1 Federal Policies and Regulations

NOISE CONTROL ACT OF 1972

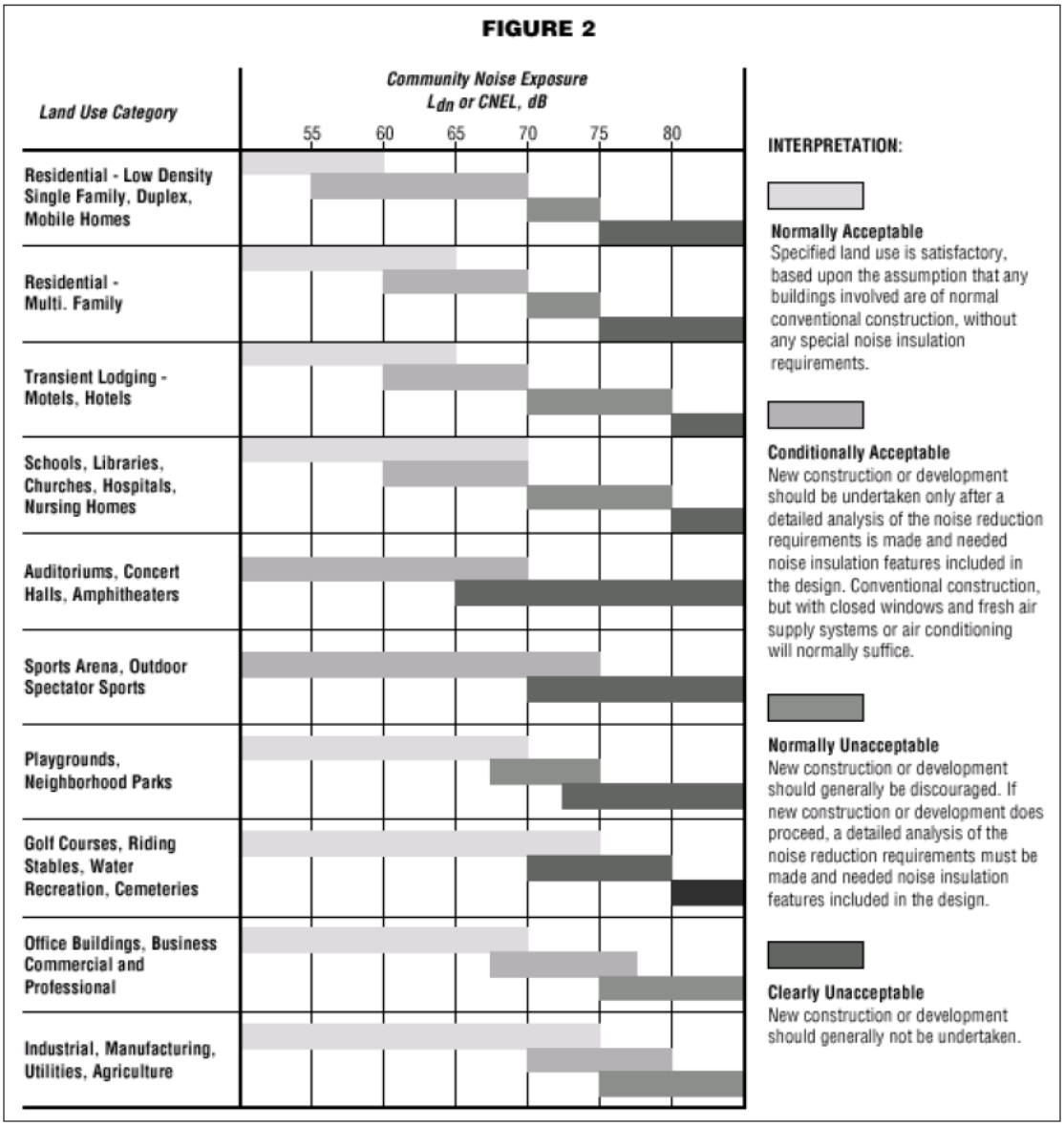
Under the authority of the Noise Control Act of 1972, the United States Environmental Protection Agency (U.S. EPA) established noise emission criteria and testing methods published in Parts 201 through 205 of Title 40 of the Code of Federal Regulations that apply to some transportation equipment (e.g., interstate rail carriers, medium trucks, and heavy trucks) and construction equipment. In 1974, U.S. EPA issued guidance levels for the protection of public health and welfare in residential land use areas (U.S. EPA 1974). The guidance levels specified an outdoor Ldn of 55 dBA and an indoor Ldn of 45 dBA. These guidance levels are not considered as standards or regulations and were developed without consideration of technical or economic feasibility. There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the proposed Project.

3.10.2.2 State Policies and Regulations

STATE OF CALIFORNIA GENERAL PLAN GUIDELINES

To assist local governments in preparing general plans and the public in participating in that process, the Governor's Office of Planning and Research (OPR) periodically revises guidelines for the preparation and content of local general plans. The 2017 edition of the General Plan Guidelines is the most recently published. The purpose of a general plan is to guide land use planning decisions. In statute, the general plan is presented as a collection of "elements," or topic categories. The required elements include Land Use, Circulation, Housing, Conservation, Open Space, Noise, Safety, Environmental Justice, and Air Quality. The noise element of the general plan provides a basis for comprehensive local programs to control and abate environmental noise and to protect residents from excessive exposure. The standard community exposure as presented in the Noise Element Guidelines is presented in **Table 3.10-2.** However, these exposure levels are presented as guidelines, rather than regulations or standards that need to be adopted in any general plan.

Table 3.10-2: Land Use Compatibility For Community Noise Environment



Source: OPR 2017

CALIFORNIA DEPARTMENT OF TRANSPORTATION

There are no State vibration standards. Moreover, according to the California Department of Transportation's (Caltrans) Transportation and Construction Vibration Guidance Manual, there are no official Caltrans standards for vibration. However, this manual provides guidelines that can be used as screening tools for assessing the potential for adverse vibration effects related to structural damage and human annoyance. The manual is meant to provide practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. The vibration criteria

established by Caltrans for assessing structural damage and human are shown in **Table 3.10-3**, and **Table 3.10-4**, respectively.

Table 3.10-3: Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources*	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 3.10-4: Guideline Vibration Annoyance Potential Criteria

Human Response	Maximum PPV (in/sec)	
	Transient Sources*	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

3.10.2.3 Local Policies and Regulations

Under Section 53091 of the California Government Code, PWD, as a local agency and utility district, is not subject to renewable energy or energy efficiency ordinances for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, PWD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies for guidance.

CITY OF PALMDALE GENERAL PLAN

The City General Plan Noise Element (City of Palmdale 2022) outlines the goals and policies related to the noise environment in the City. The following goals, objectives and policies in the City's General Plan are related to noise and vibration levels. In addition, the City is dedicated to supporting programs designed to reduce energy consumption and to utilize alternative energy sources. The Noise Element outlines general goals and policies to regulate noise levels within the City, including the following:

GOAL N-1: Minimize resident exposure to excessive noise.

- **N-1.3 Acoustical Analysis for Stationary Noise Sources.** When proposed stationary noise sources could exceed an exterior noise level of 65 dBA CNEL at the property line or could impact future noise sensitive land uses, require preparation of an acoustical analysis and mitigation measures to reduce exterior noise levels to no more than 65 dBA CNEL at the property line.

GOAL N-2: Minimize acceptable noise environments throughout the City.

- **N-2.2 Restrict Construction Activities:** Restrict construction activities in the vicinity of sensitive receptors during the evening, early morning, and weekends, and holidays.
- **N-2.3 Maintain Acceptable Noise Environments:** Utilize any or all the following measures to maintain acceptable noise environments throughout the City:
    - Control of noise at its source, including noise barriers and other muffling devices built into the noise source.
    - Provision of buffer areas and/or wide setbacks between the noise source and other development.
    - Reduction of densities, where practical, adjacent to the noise source (freeway, airport, railroad).
    - Use of sound insulation, blank walls, double paned windows and other design or architectural techniques to reduce interior noise levels.
    - Designation of appropriate land uses to known noise sources.

The General Plan aims to minimize exposure to excessive noise levels for sensitive receptors (e.g. residences, schools, hospitals) in areas where noise from freeways, high-traffic roads, rail activity, or the airport exceeds 65 dba CNEL (City of Palmdale 2022).

CITY OF PALMDALE NOISE ORDINANCE

Chapter 8.28 of the City Municipal Code (Noise Ordinance) governs construction and operational noise for various land uses and regulates the impact of offensive noise from various sources. According to Section 8.28.030, no person shall perform any construction or repair work

on any Sunday, or any other day after 8:00 p.m. or before 6:30 a.m., in any residential zone or within 500 feet of any residence, hotel, motel or recreational vehicle park. According to Section 8.28.070, construction work or excavation by a public utility may also be exempt from the noise level limits for the preservation of life or property and where such necessity makes it necessary to construct, repair, or excavate during the prohibited hours (City of Palmdale 2024).

COUNTY OF LOS ANGELES GENERAL PLAN

The Noise Element of the County of Los Angeles General Plan reduces and limits the exposure of the general public to excessive noise levels. The Noise Element sets the goals and policy direction for the management of noise. The following portions of the General Plan Noise Element are relevant to the proposed Project:

Goal N-1: An environment that is protected from unacceptable levels of noise.

- Policy N 1.1: Employ effective noise abatement measures to achieve acceptable levels of noise as defined by the Los Angeles County Exterior Noise Standards.
- Policy N 1.2: Ensure the compatibility of land uses throughout the County to minimize excessive noise levels.

COUNTY OF LOS ANGELES NOISE ORDINANCE

Chapter 12.08, Noise Control, of the County of Los Angeles Municipal Code serves as the Noise Ordinance for the County and establishes standards to control unnecessary, excessive, and annoying noise and vibration in the County. Within Chapter 12.08 of the Los Angeles County Code, Section 12.08.380 assigned the following noise zones for receptor properties in the County:

- Noise Zone 1 – Noise-sensitive areas
- Noise Zone 2 – Residential properties
- Noise Zone 3 – Commercial properties
- Noise Zone 4 – Industrial properties

With respect to operational noise, Section 12.08.390 of the Noise Ordinance established exterior noise levels that should be applied to all receptor properties within a designated noise zone in the County. These exterior noise levels are shown in **Table 3.10-5**.

Table 3.10-5: County Of Los Angeles Exterior Noise Standards By Noise Zones

Noise Zone	Designated Noise Zone Land Use (Receptor property)	Time Interval	Exterior Noise Level (dB)
I	Noise-sensitive area	Anytime	45
II	Residential properties	10:00 pm to 7:00 am (nighttime)	45
		7:00 am to 10:00 pm (daytime)	50
III	Commercial properties	10:00 pm to 7:00 am (nighttime)	55
		7:00 am to 10:00 pm (daytime)	60
IV	Industrial properties	Anytime	70

The exterior noise levels shown in **Table 3.10-5** are meant to be further applied as noise standards based on the duration of the noise; i.e., the louder the noise, the shorter the time it is allowed to last. The Noise Ordinance uses a number of noise metrics to define the permissible noise levels. These metrics include L_{50}, L_{25}, $L_{8.3}$, $L_{1.7}$, and L_{max}, and are based upon a 1-hour timeframe which indicates exceedances of 50, 25, 8.3, and 1.7 percent of the time, plus the maximum sound level during that time period. The following noise standards should be applied to the exterior noise levels provided in **Table 3.10-5**:

- Standard No. 1 shall be the exterior noise level that may not be exceeded for a cumulative period of more than 30 minutes in any hour. Standard No. 1 shall be the applicable noise level from **Table 3.10-5**; or, if the ambient L_{50} exceeds the forgoing level, then the ambient L_{50} becomes the exterior noise level for Standard No. 1.
- Standard No. 2 shall be the exterior noise level that may not be exceeded for a cumulative period of more than 15 minutes in any hour. Standard No. 2 shall be the applicable noise level from **Table 3.10-5** plus 5 dB(A); or, if the ambient L_{25} exceeds the forgoing level, then the ambient L_{25} becomes the exterior noise level for Standard No. 2.
- Standard No. 3 shall be the exterior noise level that may not be exceeded for a cumulative period of more than 5 minutes in any hour. Standard No. 3 shall be the applicable noise level from **Table 3.10-5** plus 20 dB(A); or, if the ambient $L_{8.3}$ exceeds the forgoing level, then the ambient $L_{8.3}$ becomes the exterior noise level for Standard No. 3.
- Standard No. 4 shall be the exterior noise level that may not be exceeded for a cumulative period of more than one minute in any hour. Standard No. 4 shall be the applicable noise level from **Table 3.10-5** plus 15 dB(A); or, if the ambient $L_{1.7}$ exceeds the forgoing level, then the ambient $L_{1.7}$ becomes the exterior noise level for Standard No. 4.

- Standard No. 5 shall be the exterior noise level that may not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level from **Table 3.10-5** plus 20 dB(A); or, if the ambient L_0 exceeds the forgoing level, then the ambient L_0 becomes the exterior noise level for Standard No. 5.

With respect to construction noise in the County, Section 12.08.440 of the Noise Ordinance prohibits the operation of any tools or equipment used between weekday hours of 7:00 P.M. and 7:00 A.M., or at any time on Sundays or holidays, which will create a noise disturbance across a residential or commercial real-property line. The only exceptions would be emergency work or public safety projects (Section 12.08.0570, part 5, exemption H, Public Health and Safety Activities) or by variance issued by the health officer. Additionally, both the working hours and maximum levels of equipment and activity noise that are allowable from both mobile and stationary equipment in the County are defined by land use and shown in **Table 3.103.10-6**.

Table 3.10-6: County of Los Angeles Construction Noise Standards

Residential Structures						
Allowable Work Dates & Hours	Single-Family		Multi-Family		Semi-Residential/Commercial	
	Mobile Equipment[a]	Stationary Equipment[b]	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment
Daily 7:00 A.M. to 8:00 P.M.[c]	75 dBA	60 dBA	80 dBA	65 dBA	85 dBA	70 dBA
Daily 8:00 P.M. to 7:00 A.M.[d]	60 dBA	50 dBA	64 dBA	55 dBA	70 dBA	60 dBA
Business Structures						
Daily[d]	85 dBA					

[a] Represents maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days).

[b] Represents maximum noise level for repetitively scheduled and relatively long-term operation (periods of 10 days or more).

[c] Exception for Sundays and legal holidays.

[d] Includes all day Sunday and legal holidays.

Source: County of Los Angeles nd

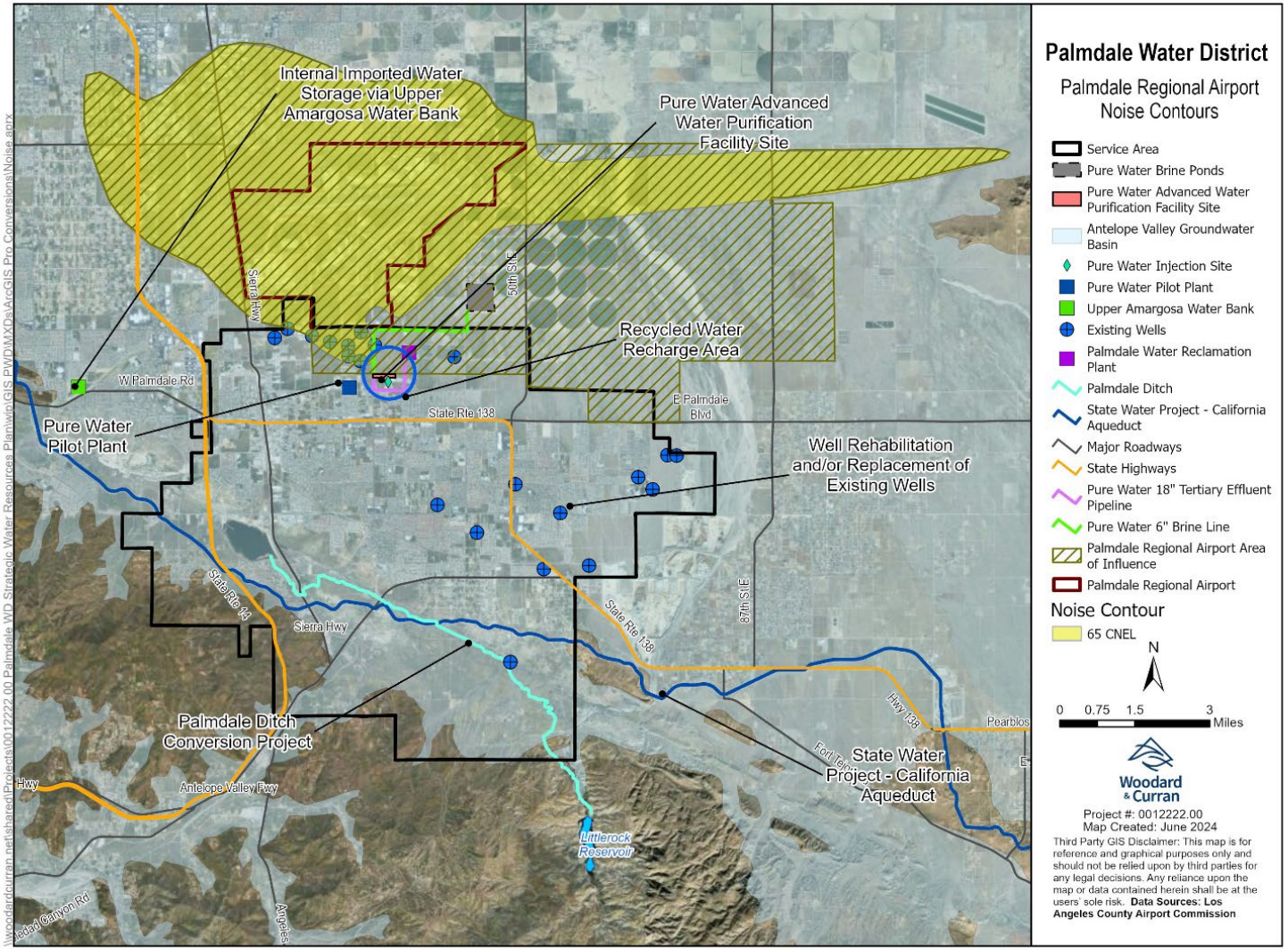
With respect to vibration, the County Noise Ordinance identifies a presumed perception threshold of 0.01 inches per second over the range of 1 to 100 hertz. Section 12.08.560 of the County Noise Ordinance prohibits the operation of any device that creates vibration above the vibration perception threshold of any individual at or beyond the property boundary of the

source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way.

Los Angeles County Airport Land Use Commission-Palmdale Regional Airport Influence Area

The Los Angeles County Airport Land Use Commission (ALUC) implements State law regarding airports and surrounding land use compatibility for the County. The ALUC is responsible for designating an Airport Influence Area (AIA) and noise contours for each airport within its jurisdiction. Noise contours are lines drawn about a noise source indicating constant energy levels of noise exposure (ALUC 1991). The Palmdale Regional Area AIA and noise contours are shown in **Figure 3.10-1**.

Figure 3.10-1: Palmdale Regional Airport Noise Contours



3.10.3 IMPACT ANALYSIS

This section evaluates whether implementation of the proposed Project would result in significant impacts related to noise and vibration levels.

3.10.3.1 Methodology for Analysis

Noise impacts are assessed based on a comparative analysis of the noise and vibration levels resulting from the proposed Project and the noise and vibration levels under existing conditions.

Noise generation on most construction projects is the result of equipment operation, with diesel engines being the primary source of noise. Equipment components that generate noise include: the engine, cooling fan, air intake, exhaust, transmission, and tires. In assessing noise generation, construction equipment can be grouped into two categories, stationary and mobile. Equipment noise can also be categorized as being either continuous or impulse in nature. Stationary equipment is considered to operate in one location for one or more days at a time; drill rigs, pumps, generators, compressors, screens, are typical examples of stationary equipment. In addition, pile drivers and pavement breakers are sometimes categorized as stationary equipment. Mobile equipment includes machinery that performs cyclic processes such as: bulldozers, scrapers, loaders, and haul trucks.

3.10.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines,* as updated in December 2018, an impact on noise and vibration would be considered significant if the proposed Project would:

- Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards of the City and County, or applicable standards of other agencies.
- Generate excessive groundborne vibration in the project vicinity above levels existing without the project.
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.

3.10.3.3 Criteria Requiring No Further Evaluation

The Project would not have significant impacts associated with the following criteria:

- **For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.** The proposed Project would require the implementation of actions within the vicinity of Palmdale Regional Airport and U.S. Air Force Plant 42. The actions include construction and operation of Pure Water Antelope Valley project,

resulting in short-term airport noise exposure. However, the proposed Project would not result in new residences near any airports, nor would it create new long-term employment within those areas. In regard to the Palmdale Ditch Conversion project, the Palmdale Ditch (Ditch) is not located within the noise contours for the airport according to the ALUC. Therefore, the proposed Project would not expose residences or workers to excessive aircraft noise. There would be no impact.

3.10.3.4 Impacts and Mitigation Measures

Impact NOI-1	**Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards of the City of Palmdale and Los Angeles County, or applicable standards of other agencies.**

IMPACT NOI-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of Pure Water Antelope Valley project facilities could generate substantial temporary increases in ambient noise levels. However, construction noise levels would fluctuate depending on particular type, number, and duration of uses of various pieces of construction equipment. **Table 3.10-7** shows the typical maximum and average noise novels produced by various types of construction equipment, and **Table 3.10-7** shows the typical noise levels during different construction phases. The noise levels shown in **Table 3.10-7** represents composite levels associated with typical construction activities, which consider both the number of pieces and spacing of heavy construction equipment that are typically uses during each phase of construction. These noise levels would diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance.

Table 3.10-7: Typical Noise Levels from Construction

Construction Equipment	Maximum Noise Level (dBA, L_{max} at 50 feet)	Average Noise Level (dBA L_{eq} at 50 feet)
Air Compressor	78	74
Backhoe	78	74
Chain Saw	84	77
Compactor (Ground)	83	76
Concrete Mixer Truck	79	75
Concrete Pump Truck	81	74
Concrete Saw	90	83
Crane	81	73
Dozer	82	78
Dump Truck	77	73
Excavator	81	77
Generator	82	78
Flat-Bed Truck	74	70
Front End Loader	79	75
Grader	85	81
Jack Hammer	89	82
Pavement Scarafier	90	83
Paver	77	74
Pneumatic Tool	85	82
Pumps	81	78
Roller	80	73
Scraper	84	80
Tractor	84	80
Vacuum Street Sweeper	82	72
Vibratory Concrete Mixer	80	73
Welder/Torch	74	70

Source: FHWA 2006

Table 3.10-8: Typical Noise Levels from Construction Activities

Construction Phase	Noise Level[a] (dBA, L_{eq})
Ground clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89
Well Drilling	83

Construction of Pure Water Antelope Valley facilities would exceed the City and County's Maximum permissible sound levels. Pipeline construction would be short-term in duration and would expose sensitive receptors to temporary increase in noise levels because the construction activities would move as the pipeline as installed. Furthermore, construction activities that occur between 7:00 am to 7:00 pm, Monday through Saturday, would be exempt from the Los Angeles County Code and City Municipal Code noise thresholds. However, if construction activities within 4,500 feet of a sensitive receptor in the County or 500 feet of a sensitive receptor in the City were to occur outside of these times and days, sensitive receptors could be exposed to increased noise levels in excess of the County or Municipal Code, which could result in a significant impact. However, implementation of **Mitigation Measure NOISE-1** and **NOISE-2** would impose measures to reduce construction noise activities adjacent to sensitive receptors, and excessive noise impacts to sensitive receptors would be reduced to less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation of existing wells would be within existing wells sites within the Antelope Valley Groundwater Basin. Construction activities of well rehabilitation can vary in noise levels depending on the specific method used. It is anticipated that PWD would use the chemical treatment method. Chemical treatment involves using chemicals to dissolve encrusting materials from the well. Noise levels during the chemical treatment process are generally moderate and would not exceed maximum noise. Therefore, impacts would be less than significant.

Construction of replacement wells would involve a temporary increase in ambient noise levels as construction of each replacement well would involve noise-generating activities such as excavation, well drilling, and installation of facilities. Based on the typical noise levels associated with typical construction activities, construction activities would exceed the City or County maximum permissible sound levels. Implementation of **Mitigation Measure NOISE-1** and **NOISE-2** would impose measures to reduce construction noise activities adjacent to sensitive receptors, and excessive noise impacts to sensitive receptors would be reduced to less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Temporary noise levels caused by construction activity would be a function of the noise generated by construction equipment, the location and sensitivity of nearby land uses, and the timing and duration of noise-generating activities. For a construction noise assessment, construction equipment can be considered to operate in two modes: stationary and mobile. Generally, stationary equipment operates in a single location for one or more days at a time, with either fixed-power operation (e.g., pumps, generators, and compressors) or variable-power operation (e.g., pile drivers, rock drills, and pavement breakers). Conversely, mobile equipment moves around the construction site with power applied in cyclic fashion, such as bulldozers, graders, and loaders (FTA 2018). Noise impacts from stationary equipment are assessed from the center of the equipment location, while noise impacts from mobile construction equipment are assessed from the center of the equipment activity area (e.g., construction site).

Construction noise was estimated using the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM). Typical construction projects have long-term noise averages that are lower than louder short-term noise events due to equipment moving from one point to another on the site, work breaks, and idle time. Each phase of construction has a specific equipment mix, depending on the work to be conducted during that phase. Accordingly, the noise characteristics of each construction phase also varies; some will be characterized by higher continuous noise levels, while others may result in discontinuous, high-impact noise levels. The maximum hourly L_{eq} of each phase is determined by combining the noise contributions from each piece of equipment used during that phase (FTA 2018). Proposed Project construction phases would include clearing/grubbing, demolition, excavation, pipeline installation, paving, and site restoration. It is assumed diesel engines would power all construction equipment. For assessment purposes, the loudest phase (site preparation) was modeled under the conservative assumption that a backhoe, tractor, dozer, and excavator would be operating simultaneously. Due to scheduling constraints, construction activities may occur simultaneously at multiple locations within the proposed Project area. However, it is unlikely that construction activities at separate locations would be close enough to affect the same sensitive receptor(s). As a result, this analysis evaluates the impacts of one active construction site near each sensitive receptor.

Construction would typically occur on Monday through Friday during work hours allowed by local ordinances. Due to schedule constraints, work on Saturdays and Sundays may be required, but would be conducted at least 500 feet away from residential areas, hotels, motels, and recreational vehicle parks to avoid conflicts with City and County noise ordinances. Nighttime construction may be required to install the proposed pipeline crossing across State Route 138; however, this portion of the proposed Project area is approximately 0.25 mile away from the nearest residence and therefore would not generate noise levels in conflict with local noise ordinances. Therefore, construction hours would not conflict with the allowed hours in the Los Angeles County Code or PMC.

Based on information provided by the proposed Project engineer, approximately 200 linear feet of pipeline would be installed each day; therefore, construction activities would be mobile and would be constantly moving in a linear path along the pipeline alignment. As a result, the exposure of the nearest sensitive receptors to construction noise would be temporary, and the distance to the receptors would vary over the course of a construction day. It was assumed the mobile homes at the Alpine Springs Mobile Home Park would be exposed to construction noise at an average distance of 270 feet, the single-family homes near Lake Palmdale would be exposed to construction noise at an average distance of 280 feet, the single-family homes along Barrel Springs Road would be exposed to construction noise at an average distance of 380 feet, and the single-family homes off Old Nadeau Road near the California Aqueduct would be exposed to construction noise at an average distance of 500 feet throughout a typical construction workday.

Table 3.10-9 shows the results of the noise modeling from RCNM. As shown therein, construction noise levels at the nearest noise-sensitive receptors to the proposed Project area during construction activities would not exceed the applicable thresholds of significance of 75 dBA L_{eq} for areas in unincorporated County and 80 dBA L_{eq} for areas in the City. Accordingly, proposed Project construction would not generate a substantial temporary increase in ambient noise levels in the vicinity of the proposed Project in excess of applicable standards, and impacts would be less than significant.

Table 3.10-9: Construction Noise Levels at Sensitive Receptors During Loudest Construction Phase (Site Preparation)

Sensitive Receptor	Distance (Feet)	Construction Nose Level (dBA L_{eq})	Significance Threshold (dBA L_{eq})	Threshold Exceeded
Mobile homes at Alpine Springs Mobile Home Park[1]	270	71	75	No
Single-family residences near Lake Palmdale[1]	280	71	75	No
Single-family residences along Barrel Springs Rd[1]	380	68	75	No
Single-family residences off Old Nadeau Rd near California Aqueduct[2]	500	63	80	no

Note: Noise levels were calculated assuming a backhoe, tractor, dozer, and excavator would be operating simultaneously.

[1] Evaluated according to LA County's 75 dBA Leq construction noise level limits (see **Table 3.10-6**. Noise level limits for mobile equipment were used at the thresholds of significance because proposed Project construction activities would be moving along the linear project alignment at an average rate of approximately 100 feet per day and are unlikely to affect the same sensitive receptor for more than 10 consecutive days.

[2]Evaluated according to FTA's 80 dBA Leq construction noise threshold.

See Appendix G for construction noise modeling output.

Conservation

Conservation measures do not require any construction of new facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would include new sources of operation and maintenance noise. Generally, common sources of noise in operation and maintenance are from pumps and valves, compressors and fans, treatment process, conveyors and mixers, and water pump stations. However, the location of Pure Water Antelope Valley project, including recycled water injection wells and pipelines, would be located within industrial areas, away from sensitive receptors. Thus, operation of the Pure Water Antelope Valley project would not be in conflict with the City's General Plan. Impacts would be less than significant.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Operation of the wells would require 24-hour pumping, which would generate noise. The exact well pump and instrumentation model type that would be used in the proposed Project replacement wells is unknown at the time of this analysis, but according to the Federal Highway Administration (FHWA 2006) pump equipment specifications, the noise from one pump at a distance of 100 feet is approximately 71.8 dBA $L_{EQ,}$ assuming typical usage rate of 50 percent. However, all groundwater wells would be enclosed and housed to provide noise attenuation. Such features would lower the operational noise level within the acceptable thresholds within the City and County. Additionally, it is likely that wells would be housed on PWD property greater than 100 feet away from sensitive receptors further reducing the potential for impact. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the pipeline would not generate noise at aboveground sensitive receptors. Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. As such, the proposed Project would not result in new noise-generating activities as compared to existing conditions. Therefore, proposed Project operation would not generate a substantial permanent increase in ambient noise levels in the vicinity of the proposed Project in excess of applicable standards, and no operational noise impact would occur.

Conservation

Implementation of conservation measures does not require any operational activities. Therefore, there would be no impact.

IMPACT NOI-1 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure NOISE-1, NOISE-2

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact NOI-2 Generate excessive groundborne vibration in the project vicinity above levels existing without the Project.

IMPACT NOI-2 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Typical activities that could generate ground-borne vibration during construction include demolition, pile driving, and drilling or excavation in close proximity to structures. FTA's threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV and the FTA threshold of human annoyance to ground-borne vibration is 80 RMS (FTA 2006). Construction of the proposed Project would employ conventional activities and the equipment/techniques to be used would not cause excessive ground-borne vibration; however, drilling could be required during pipeline installation. **Table 3.10-10** below summarizes the vibration velocities for construction equipment.

Table 3.10-10: Vibration Velocities for Construction Equipment

Construction Equipment	PPV at 25 Feet (inches/second)	Approximate VdB at 25 Feet
Air Compressor	N/A	N/A
Auger Drill Rig	0.089[1]	87[1]
Backhoe/Loader	N/A	N/A
Concrete Mixer Truck	0.076[1]	86[1]
Concrete Saw	N/A	N/A
Crane	N/A	N/A
Dozer	0.089	87
Drilling Rig Truck	0.089[1]	87[1]
Generator	N/A	N/A
Paver	N/A	n/A
Pick-up Trucks	0.076[1]	86
Pump	N/A	N/A
Roller (static)	0.089[1]	87[1]
Sweeper	N/A	N/A
Utility Truck	0.076[1]	86[1]
Water Truck	0.076[1]	86[1]
Welder	N/A	N/S

Source: FTA 20018

Most construction equipment is not expected to generate vibration; these are denoted with N/A

[1] Drill rig PPV was assumed to be comparable to caisson drilling. Pick-up trucks, utility trucks, water trucks, and concrete trucks were assumed to be comparable to "loaded trucks" and a static roller was assumed to be comparable to a large bulldozer as listed in the Transit Noise and Vibration Impact Assessment Manual.

The specific location of recycled water injection pipelines has not been officially sited, so there is a possibility that they could be near any sensitive receptors. However, if construction activities within 43 feet of a sensitive receptor were to occur, sensitive receptors could be exposed to ground-borne vibration of ground-borne noise in excess of FTA standards, which would be a significant impact. Implementation of **Mitigation Measure NOISE-3** would reduce ground-borne vibration and noise levels when construction activities occur adjacent to sensitive receptors and would result in less than significant impacts.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Rehabilitation of existing wells could result in groundborne vibration, especially through the physical cleaning of the wells. However, because well rehabilitation would be confined within existing well structures, it is anticipated that rehabilitation activities would not result in excessive groundborne vibration. Therefore, impacts would be less than significant.

Replacement of wells would be construction within the north and eastern parts of the Antelope Valley Groundwater Basin. Construction would not involve high-impact activities, such as piledriving, blasting, or vibratory rolling, that typically generate high levels of groundborne vibration. However, construction activities associated with the proposed Project would have the potential to generate lower levels of groundborne vibration. **Table 3.10-11** summarizes the vibration velocities for typical construction equipment. Construction of wells would not involve use of high-impact activities, such as piledriving or blasting that typically generate high levels of groundborne vibration. However, loaded trucks and well drilling rigs would produce levels of vibration noise that exceed the human annoyance at a distance of 25 feet. Groundborne vibration noise from the most impactful piece of equipment (drilling rig) would attenuate to below 80 VdB at a distance of 43 feet (FTA 2018). Vibration noise from trucks would attenuate to below 80 VdB at a distance of 40 feet. Construction of the proposed Project may generate low levels of vibration and groundborne noise, however, vibration would dissipate before reaching sensitive receptors. Furthermore, no construction equipment used for the proposed Project would have the potential to generate vibration that could damage structures. Thus, vibration impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Construction activities known to generate excessive groundborne vibration, such as pile driving, would not be conducted as part of the proposed Project. Therefore, the greatest known sources of vibration during proposed Project construction activities may be a vibratory roller and excavator, which may be used as close as 75 feet to the nearest residential structures. Vibration impacts are evaluated at a distance of 75 feet for the purpose of identifying potential structural damage pursuant to FTA thresholds and at a distance of 150 feet for the purpose of identifying impacts in relation to the Los Angeles County Code's vibration limits, which are established at a distance of 150 feet from the source for work within the public right-of-way.

A vibratory roller would generate a vibration level of approximately 0.210 in/sec PPV at a distance of 25 feet (Caltrans 2020), which would equate to a vibration level of approximately 0.04 in/sec PPV at a distance of 75 feet and approximately 0.014 in/sec PPV at 150 feet.[1] An excavator would generate a vibration level of approximately 0.089 in/sec PPV at 25 feet, equating to a vibration level of approximately 0.017 in/sec PPV at 75 feet and 0.006 in/sec PPV at 150 feet. Vibration levels generated by these types of equipment would not exceed the FTA's 0.2 in/sec PPV threshold (the level at which structural damage occurs to older residential structures). However, vibration levels generated by a vibratory roller would exceed the Los Angeles County Code's threshold of 0.01 in/sec (the level of perception) at 150 feet. Therefore, proposed Project construction may generate excessive groundborne vibration or groundborne noise, and impacts would be potentially significant. Implementation of **Mitigation Measure Noise-4** would be required.

Conservation

Conservation measures do not require any construction of new facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation and maintenance would not include the use of equipment that could create groundborne vibration. Thus, operation and maintenance would not result in the generation of excessive groundborne vibration or groundborne noise levels, and there would be no impact.

Groundwater

Existing Wells Rehabilitation and/or Replacement

Once operational, the proposed wells would not generate groundborne vibration or noise. Vibration and vibration noise from the proposed Project would not be damaging or excessive. Therefore, the impact would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The proposed Project, which consists of an underground pipeline and appurtenant facilities, would not include any permanent sources of vibration. Therefore, the proposed Project operation would not generate excessive groundborne vibration or groundborne noise, and no operational impact would occur.

[1] PPVEquipment = PPVRef (25/D)^n (in/sec); PPVRef = reference PPV at 25 feet, D = distance, and n = 1.1

Conservation

Implementation of conservation measures does not require any operational activities. Therefore, there would be no impact.

IMPACT NOI-2 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure NOISE-3, NOISE-4

Significance after Mitigation: Less than Significant

3.10.3.5 Mitigation Measures

MITIGATION MEASURE NOISE-1: NOISE MEASURES

PWD shall require the construction contractor(s) to implement the following measures, as applicable, during construction of the proposed Project:

- Construction activities shall meet municipal, or County code requirements related to noise. Construction activities shall be limited to between 7:00 am and 7:00 pm Monday through Saturday to avoid noise-sensitive hours of the day, when applicable. Construction activities shall be prohibited on Sunday and holidays.
- Sensitive receptors of the proposed Project construction activities shall be identified and mapped.
- Construction equipment noise shall be minimized by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by shrouding or shielding impact tools.
- Construction contractor(s) shall locate fixed construction equipment and construction staging areas as far as possible from nearby sensitive receptors.
- Where feasible, construct barriers between noise sources and noise-sensitive land uses to block sound transmission. Enclose construction equipment where practicable.
- If construction were to occur near a school, the construction contractor(s) shall coordinate the most noise producing construction activities with school administration in order to limit disturbance to the campus.

MITIGATION MEASURE NOISE-2: NOISE COORDINATOR

PWD shall require the construction contractor(s) to notify in writing all landowners and occupants of properties within 500 feet of the construction area of the construction schedule at least two weeks prior to groundbreaking. The construction contractor(s) shall designate a Noise Compliant Coordinator who will be responsible for responding to complaints regarding

construction noise. The Noise Coordinator shall ensure that reasonable measures are implemented to correct any problems. A contact telephone number for the Noise Coordinator shall be conspicuously posted at the construction site and included in the written notification of the construction schedule sent to surrounding properties.

MITIGATION MEASURE NOISE-3: VIBRATION MEASURES

PWD shall require the construction contractor(s) to implement the following measures, as applicable, during construction of proposed facilities:

- Sensitive receptors shall be identified and mapped.
- Limit construction activities that cause excessive groundborne vibrations to at least 43 feet from sensitive receptors and 15 feet from any structures.

MITIGATION MEASURE NOISE-4: ALTERNATIVE CONSTRUCTION EQUIPMENT

PWD shall require its construction contractor(s) to avoid utilizing vibratory rollers within 190 feet of residences. If paving work is necessary within 190 feet of residences, alternative offroad construction equipment, such as equipment limited to 100 horsepower or less or a static/pneumatic roller, shall be utilized instead.

3.10.3.6 Cumulative Impact Analysis

Cumulative impacts to noise and vibration are less than significant when mitigation measures are incorporated. The proposed Project is consistent with the 2045 General Plan and adheres to the City and County's noise policies and ordinances. The proposed Project's impacts would be less than significant and the Project's contribution to these impacts would not be cumulatively considerable. Therefore, the proposed Project would not considerably contribute to a cumulative impact on noise and vibration.

3.10.4 REFERENCES

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3.11 RECREATION

This section describes the environmental and regulatory setting for recreation resources in the Project area, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts on recreation resources that could result from implementation of the proposed Project.

3.11.1 ENVIRONMENTAL SETTING

The Antelope Valley contains a variety of recreational opportunities of varying sizes and amenities. Park classification consists of community parks, greenways, and special use parks (City of Palmdale 2022). Recreation facilities within the proposed Project area are discussed below.

3.11.1.1 Parks

CITY OF PALMDALE

The City of Palmdale (City) operates 19 parks, totaling 370 acres, which provide a variety of features for residents and visitors (City of Palmdale 2022). Existing recreational facilities include community centers, public pools, an outdoor amphitheater, playhouse, and waterpark (City of Palmdale 2022).

Neighborhood parks are typically 3 to 7 acres and feature ballfields, picnic areas, tot lots, restrooms, playgrounds, basketball courts, tennis courts, volleyball courts, and trails (City of Palmdale 2022). Community parks are about 5 to 50 acres and include features found in neighborhood parks plus pools, gymnasiums, amphitheaters, equestrian facilities, sports complexes, and other similar facilities. Based on the conceptual layout of facilities associated with the proposed Project, certain components of the proposed Project could be located on or in close proximity to neighborhood and community parks in **Table 3.11-1.**

COUNTY OF LOS ANGELES

Los Angeles County (County) maintains a number of neighborhood and community parks in the incorporated portions of the Antelope Valley. These parks are designed to serve the communities surrounding the City; however, City residents can enjoy these facilities as well. Only one County park is located in the proposed Project area. Jackie Robinson Park, located at 8773 East Avenue R in Littlerock, covers a 9.2-acre site. The park provides a community building, picnic area, and game courts.

Table 3.11-1: Neighborhood Parks and Community Parks

Park	Acres
Domenic Massari Park	38
Joshua Hills Park	4
Manzanita Heights Park	4
Melville J. Courson Park	5
Tejon Park	20
William J. McAdam Park	19
Desert Sands Park	20
Total	**110**

Source: City of Palmdale, 2022

3.11.1.2 Bike Paths

The City has four designations of bike paths that are defined as follows (City of Palmdale 2022):

- Class I: Provides a completely separate right of way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized.
- Class II: Provides a striped lane for one-way bike travel on a street or highway.
- Class III: Provides for shared use with pedestrian or motor vehicle traffic.
- Class IV: Exclusive use of bicycles and includes vertical separation between the bikeway and the through vehicular traffic, such as grade separation, flexible posts, inflexible physical barriers, or on-street parking.

The City of Palmdale 2018 Draft Bicycle Transportation Plan prioritizes the development of 173 new miles of trails for biking, hiking, and horseback riding, dependent on future funding. The portion of Sierra Highway between Avenue H and the Kern County line is designated as a bikeway in the Antelope Valley Areawide Plan.

3.11.1.3 Open Space

City of Palmdale

The City contains 1,129 acres of open space, of which 75 acres are outside the city limits in the Sphere of Influence area (City of Palmdale 2022). Across the City, many acres of open space are owned by agencies or private individuals, which include cemeteries and open spaces (City of Palmdale 2022). In addition to open space in the General Plan, several of the Specific Plans across Palmdale include dedicated open space, such as the Ritter Ranch Specific Plan which included 7,700 acres of preserved public open space within City limits (City of Palmdale 2022).

Los Angeles County

Existing open spaces in the unincorporated areas of the County include County parks, conservancy lands, State parklands, and federal lands. Open space can also include private and other open space lands, such as open space parcels and easements. Open space areas near the

proposed Project area, as designated by the Los Angeles County General Plan include the Angeles National Forest, SEAs, and County owned land to the east of the proposed Project area (Los Angeles County 2017).

ANGELES NATIONAL FOREST

The Angeles National Forest is located adjacent to the proposed Project area, and encompasses approximately 700,000 acres of diverse terrain, and provides recreational opportunities for residents throughout Southern California (USDA n.d.). Much of the Forest is covered with dense chaparral, which changes to pine and fir forests at higher elevations. Angeles National Forest offers camping and picnicking sites, hiking trails, and opportunities for fishing, hunting and target shooting, off-highway vehicle exploration, water sports, and winter sports. Lands within Angeles National Forest are management by the U.S. Department of Agriculture (USDA) Forest Service (USDA n.d.).

3.11.2 REGULATORY FRAMEWORK

3.11.2.1 City of Palmdale General Plan

The proposed Project Area is located mostly within the City, and as such is subject to the guidelines of the Palmdale General Plan. The City updated its General Plan in 2022. The City of Palmdale General Plan identifies the types of development that will be allowed, the spatial relationships among land uses, and the general pattern of future development in the city.

The City's General Plan contains a Parks, Recreation, and Open Space Element designed to guide future development of parks, recreation facilities, multi-use trails, bikeways, and open space areas. Specifically, the following goals are identified within this element:

- **Goal PR-1.** Provision of adequate park and recreation facilities to meet the needs of all existing and future residents.
- **Goal PR-2.** Promote bicycling as an important mode of transportation and recreation in the City of Palmdale.
- **Goal PR-6.** Provide a network of open space areas to provide for passive and active recreation opportunities, enhance the integrity of biological systems, and provide visual relief from the developed portions of the city.
- **Goal PR-7.** Maintain a system of multi-use trails that provide connections to regional trail systems and residential neighborhoods.

3.11.2.2 Antelope Valley Area General Plan

The Antelope Valley Area General Plan includes goals and policies relating to open space and recreation within the planning area. Two goals that are relevant to the proposed Project include:

- Encourage safety considerations in the planning construction, and use of bikeways in the Antelope Valley.
- Consider land swapping as a means of expanding existing parks, and as a means of locating new parks. Swapping lands for lands directly adjacent to existing parks and for land in more desirable locations should be explored.

3.11.3 IMPACT ANALYSIS

3.11.3.1 Methodology for Analysis

Impacts are identified and evaluated based on relevant CEQA Guidelines and local standards, policies, and guidelines, on the likelihood that recreational resources, and policies adopted for the purpose of environmental protection are present within the Project area and on the likely effects that the proposed Project might have on recreational resources.

3.11.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines,* as updated in December 2018, an impact on recreation would be considered significant if the proposed Project would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

3.11.3.3 Criteria Requiring No Further Evaluation

All criteria require evaluation.

3.11.3.4 Impacts and Mitigation Measures

Impact REC-1	**Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.**

IMPACT REC-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project would not build new housing or otherwise have a direct impact on population growth in the Project area. Therefore, the

proposed Project would not result in an increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Recycled water wells would be within the vicinity of the Pure Water Antelope Valley project. The closest park to the Pure Water Antelope Valley project is William J. McAdam Park which is approximately 1.5 miles away. The recycled water wells and associated infrastructure such as pipelines would not substantially interfere with the park or any other recreation facility. Pipelines would be located below ground and within roadways and disturbed areas near the Palmdale Water Reclamation Plant and recycled water wells would be located within the Pure Water Antelope Valley project. The location and nature of the proposed facilities would not have the potential to cause or accelerate substantial physical deterioration of neighborhood or regional parks or other recreational facilities. Therefore, any potential permanent impact on recreational facilities from recycled water wells would be less than significant.

A Class I bikeway is located on Avenue S, 0.6 miles from the Palmdale Water Reclamation Plant(City of Palmdale 2019). If the recycled water pipelines are installed on Avenue S, construction may temporarily disrupt public access to William J. McAdam Park and cyclist use of the bike path. **Mitigation Measure REC-1** would be implemented to ensure that potential impacts associated with temporary disruptions to bikeways would be avoided by establishing bike route detours to ensure no temporary impacts to recreational facilities would occur. Impacts would be less than significant with mitigation incorporated.

Groundwater

Existing Well Rehabilitation and/or Replacement

Rehabilitation of existing wells would be within existing well sites while replacement and new groundwater production wells would be optimized for future output likely within the north or eastern parts of the Antelope Valley Groundwater Basin. These locations would be sited in areas compatible with groundwater wells. Similar to the impacts associated with recycled water wells, groundwater extraction wells would not pose much risk to degradation of recreation facilities. Existing well sites are not located within parks and future well sites would be located in areas with compatible land uses with a small building and footprint that would not interfere with existing or future recreation facilities in a significant way. Nor would the replacement wells have the potential to cause deterioration of recreational facilities. Therefore, there would be a less than significant impact.

Similar to the recycled water pipelines if any pipelines associated with ground water extraction wells were to be located in a street with this bikeway, construction may temporarily disrupt public access to the park and cyclists utilizing these paths. **Mitigation Measure REC-1** would be implemented to ensure that potential impacts associated with temporary disruptions to bikeways would be avoided by establishing bike route detours to ensure no temporary impacts to recreational facilities would occur. Impacts would be less than significant with mitigation incorporated.

Local Supplies

Palmdale Ditch Conversion Project

Barrel Springs Trail, a pedestrian and bicycle trail that travels from Tejon Park to the Barrel Springs Park and Ride, crosses through a portion of the Project area. Construction in the vicinity of Barrel Springs Trail would be short-term and temporary, and pedestrian and bicycle access to this trail would be detoured around work areas, or portions of the trail in the vicinity of active construction would be closed for public safety. After construction, access to Barrel Springs Trail would be restored to existing conditions. As such, proposed Project construction would not substantially impact this trail such that the redirection of existing users to other local, generally comparable trails in the Project area vicinity, such as Littlerock Creek Walk and the California Aqueduct Trail, would cause or accelerate substantial physical deterioration of these facilities. Impacts would be less than significant.

Conservation

Conservation measures do not require construction of any facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would not provide housing or other such mechanisms that could directly increase the use of existing recreational facilities. Thus, operation of the new wastewater treatment facility would not result in an increased use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facility would occur or be accelerated. Therefore, there would be no impact.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operation of groundwater extraction wells would not induce unplanned population growth and would not substantially alter existing recreational facilities. Thus, groundwater extraction wells would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facility would occur or be accelerated. Therefore, there would be impacts.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the proposed Project would be confined with the pipeline and would not interfere with the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Therefore, impacts would be less than significant.

Conservation

Implementation of conservation measures does not require any operational activities. Therefore, impacts would be less than significant.

IMPACT REC-1 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure REC-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact REC-2	**Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.**

IMPACT REC-2 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project does not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. Therefore, there would be no impact.

Groundwater

Existing Well Rehabilitation and/or Replacement

Rehabilitation/and or replacement of existing wells and construction of new wells do not include recreational facilities or require the construction or expansion of recreational facilities. Therefore, there would be no impact.

Local Supplies

Palmdale Ditch Conversion Project

The Palmdale Ditch Conversion project would not require modifications to PWD's existing water rights and would not result in additional water supplies beyond those afforded to PWD under its existing water rights and SWP allocation. The anticipated water savings of approximately 1,450 acre-feet per year associated with the proposed Project would be used to serve existing and planned future development in accordance with PWD's 2020 Urban Water Management Plan (PWD 2020). As a result, the proposed Project would not induce population growth that could increase the use of existing parks and recreational facilities or require the construction or expansion of recreational facilities. The proposed Project also does not include recreational facilities. Therefore, impacts to recreation would be less than significant.

Conservation

Conservation measures do not require construction of any new facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project does not include recreational facilities or involve the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment. Additionally, operation of recycled water pipelines would occur below-ground and would not include recreational facilities nor involve the construction or expansion of recreational facilities. Therefore, there would be no impact.

Groundwater

Existing Well Rehabilitation and/or Replacement

Well operational activities would require chemical deliveries and intermittent well maintenance such as pump testing and maintenance, and well capacity testing. The operational activities would be minimal and do not include recreational facilities nor involve the construction or expansion of recreational facilities. Additionally, operation of associated pipelines would occur below-ground and would not include recreational facilities nor involve the construction or expansion of recreational facilities. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project does not include any recreational facilities or would not result in additional water supplies beyond those afforded to PWD under its existing water rights and SWP. As a result, the proposed Project would not induce population growth that could increase the use of existing parks and recreational facilities or require the construction of expansion of recreational facilities. Therefore, impacts would be less than significant.

Conservation

Implementation of conservation measures does not require operational activities. Therefore, there would be no impact.

IMPACT REC-2 FINDINGS

Significance before Mitigation: Less than significant.

Mitigation Measures: None required.

3.11.3.5 Mitigation Measures

MITIGATION MEASURE REC-1: COORDINATION FOR BIKEWAYS

For Project facilities that would include pipelines or other new facilities within designated bikeways, PWD shall coordinate with the applicable jurisdiction to determine whether circulation and detour plans are required to minimize impacts to access local bikeways. Circulation and detour plans may include the use of signage and flagging of cyclists through and/or around the construction zone.

3.11.3.6 Cumulative Impact Analysis

The proposed Project impacts, when considered with the effects of other plans and projects described in **Section 3.0**, does not have the potential to incrementally contribute to a considerable impact that would substantially degrade or require construction of recreational facilities that could result in a substantial impact to the environment. The proposed Project is consistent with the 2045 General Plan and adheres to the City's policies. Additionally, the proposed Project's impacts to recreational facilities are temporary during pipeline construction and when combined with other projects would not have the potential to cumulatively impact recreational resources. Therefore, the proposed Project would not considerably contribute to a cumulative impact on recreational resources.

3.11.4 REFERENCES

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3.12 TRANSPORTATION

This section describes the environmental and regulatory setting for transportation resources in the Project area, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts on transportation resources that could result from implementation of the Project.

3.12.1 ENVIRONMENTAL SETTING

3.12.1.1 Regional Setting

REGIONAL ROAD NETWORK

The proposed Project area is located within the Antelope Valley in the City of Palmdale (City) and several unincorporated areas of Los Angeles County (County). The proposed Project areas would likely use each of the major interstate freeways and other major regional highways located within the City. The freeways and highways are described below.

STATE ROUTE 14

State Route 14 is a north/south freeway which provides the Antelope Valley regional access to the rest of Los Angeles County. The southern portion of the highway is signed as Antelope Valley Freeway (City of Palmdale 2022). The northern portion of the highway is legislatively named Aerospace Highway and serves the Edwards Air Force Base (City of Palmdale 2022).

STATE ROUTE 138

State Route 138 begins just north of Lancaster, where it is paired with State Route 14. State Route 138 extends south to merge with Palmdale Boulevard to become an east-west highway (City of Palmdale 2022).

PEARBLOSSOM HIGHWAY

Pearblossom Highway—the most southerly roadway in the City—connects State Route 138 in the east to State Route 14 in the southwest (City of Palmdale 2022).

SIERRA HIGHWAY

Sierra Highway connects Pearblossom Highway to the north through Palmdale, Lancaster, Rosamond. Traveling north, Sierra Highway merges with State Route 58 just south of Mojave Air and Space Port. State Route 58/Sierra Highway ends about 7 miles north of Mojave Air and Space Port (City of Palmdale, 2022).

3.12.1.2 Local Setting

LOCAL ROAD NETWORK

The City's roadways are classified into regional, major, and secondary arterials (City of Palmdale 2022). Regional arterials are limited access facilities that provide service to non-local through trips with minimal direct access to adjacent land uses. Major arterials represent the major carrying capacity for traffic to and within the City. Major arterials have a cross-section of three through lanes and a raised landscape median and turn lanes at a limited number of access points (City of Palmdale 2022). Secondary arterials provide more local access compared to major arterials and also provide a reduced level of non-local through traffic service (City of Palmdale 2022). Secondary arterials have a cross-section of four through lanes, a bike lane, and a left-turn lane.

The City's Street system is laid out on a grid. For example, each lettered east-west avenue is one mile from the next letter and major streets that run north to south are numbered inside their direction (City of Palmdale 2022). The following are major east-west and north-south streets:

- Major East-West Roads
    - Avenue L
    - Columbia Way/Avenue M
    - Avenue P/Rancho Vista Blvd
    - Technology Drive/East Avenue P-8
    - Avenue Q
    - Palmdale Blvd
    - Easte Avenue R/Rayburn Road
    - Avenue S
- Major North-South Roads
    - 10th Street West
    - Divisions Street
    - Fifth Street East
    - Sierra Highway
    - 10th Street East
    - 15th Street East
    - 20th Street East
    - 25th Street East
    - 30th Street East
    - 40th Street East
    - 50th Street East/47th Street East
    - 70th Street East
    - 90th Street East/87th Street East

PUBLIC TRANSPORTATION

BUS SERVICE

Bus service within the Project area is provided through the Antelope Valley Transit Authority, a joint powers agency whose members include the City, City of Lancaster, and Los Angeles County. Several AVTA bus routes pass through the Project area, including routes 1, 2, 3, 8, 51, 52, and 98 (AVTA, 2023).

TRAIN SERVICE

The Metrolink Antelope Valley Line also runs in a north south direction through the Project area along State Route 14. The Metrolink Palmdale stop is located near the intersection of E Avenue Q and State Route 14.

BICYCLE ROUTES AND PEDESTRIAN FACILITIES

Pedestrian facilities within the Project area include sidewalks, crosswalks, and pedestrian signals; pedestrian facilities are present along most roadways in the Project area (City of Palmdale 2022). Bikeways fall into one of four classes: Class I (a separated right of way for the exclusive use of bicycles and pedestrians); Class II (a striped lane for one-way bike travel on a street or highway); Class III (a shared roadway that allows shared use with pedestrians or motor vehicle traffic); and Class IV (a separated bike lane that allows for bicycle only use) (Caltrans 2020). The Project area contains multiple bikeways as shown in the City's Bikeway and Multi-Purpose Trail Plan (City of Palmdale 2019) and Los Angeles County Bikeways Map (County of Los Angeles 2016).

AIR TRAFFIC

The Palmdale Regional Airport and U.S. Air Force Plant 42 are located one mile north of PWD's service boundary. U.S. Air Force Plant 42 and Palmdale Regional Airport are separate facilities that share a common runway with a northeast to southwest orientation. There may be occasional flyovers from small general aviation aircraft, but no commercial flights are scheduled to fly directly over the City's airspace. The Los Angeles County Airport Land Use Commission established an airport influence area (AIA) surrounding the airport (County of Los Angeles 2003); Several of the proposed Project actions would be located within the AIA for the Palmdale Airport.

3.12.2 REGULATORY FRAMEWORK

This section describes local and State laws, policies and regulations that apply to the proposed Project. No federal policies are applicable to the Project's potential effects on transportation.

3.12.2.1 State Policies and Regulations

CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)

The California Department of Transportation (Caltrans) is responsible for planning, designing, building, operating, and maintaining California's transportation system. Caltrans sets standards, policies, and strategic plans that aim to do the following: 1) provide the safest transportation system for users and workers; 2) maximize transportation system performance and accessibility; 3) efficiently deliver quality transportation projects and services; 4) preserve and enhance California's resources and assets; and 5) promote quality service (Caltrans 2007). Caltrans has the discretionary authority to issue special permits for the use of State highways for other than normal transportation purposes. Caltrans also reviews all requests from utility companies, developers, volunteers, nonprofit organizations, and others desiring to conduct various activities within the State Highway right-of-way.

The following Caltrans regulations apply to potential transportation and traffic impacts associated with the proposed Project.

CALIFORNIA LEGISLATIVE CODE

Streets and Highways Code

The California Streets and Highways Code includes Caltrans encroachment regulations which would apply to construction of the proposed pipelines within and immediately adjacent to roadways, as well as the transportation of construction crews and construction equipment throughout the proposed Project. Caltrans requires that permits be obtained for transportation of oversized loads, certain materials, and construction-related traffic disturbance (California Streets and Highways Code §660-711).

California Vehicle Code

The California Vehicle Code includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways (California Vehicle Code §35000-35796).

PROJECT DEVELOPMENT PROCEDURES MANUAL

Chapter 17 of the Caltrans Project Development Procedures Manual contains specific provisions pertaining to encroachment onto State highways and the placement and protection of utilities within State highway rights-of-way (Caltrans 2022).

CEQA GUIDELINES SECTION 15064.3, SUBDIVISION (B)

Section 15064.3 states that a lead agency may use models to estimate a project's vehicle miles traveled and methodology of choice to analyze impacts. For the purposes of this section, "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-

motorized travel. A project's effect on automobile delay shall not constitute a significant environmental impact.

- **Land Use Projects.** Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.

- **Qualitative Analysis.** If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

- **Methodology.** A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.

CEQA requires environmental analyses to reflect a "good faith effort at full disclosure." (CEQA Guidelines, § 15151.) Thus, where methodologies exist that can estimate the full extent of vehicle travel from a project, the lead agency should apply them to do so. Analyses should also consider a project's both short- and long-term effects on VMT (Governor's Office of Planning and Research, 2018).

3.12.2.2 Local Policies and Regulations

CONNECT SOCAL (2020–2045 REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY)

Connect SoCal is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. It charts a path toward a more mobile, sustainable, and prosperous region by making connections between transportation networks, between planning strategies and between the people whose collaboration can improve the quality of life for Southern Californians. The Connect SoCal 2024 plan has been approved by the Southern California Association Governments Council in April 2024. is currently under development (SCAG 2024).

CONGESTION MANAGEMENT PROGRAM

The Los Angeles County Metropolitan Transportation Authority prepared a Congestion Management Program (CMP) in 2010. The CMP summarizes the results from eighteen years of highway and transit monitoring and fifteen years of monitoring local growth. The CMP also contains specific information about CMP requirements and implementation responsibilities. The CMP details expansions of the transit system within the Los Angeles County Area, summarizes level of service data from 1992 through 2005, and predicts traffic volume growth (LACMTA 2010).

CITY OF PALMDALE GENERAL PLAN

The City's General Plan Circulation and Mobility element addresses the City's plans to upgrade and expand its pedestrian walkways, surface streets, arterial and regional highways, public transportation, rail service and air service. Recreational trail plans and bikeways are addressed in the Parks, Recreation and Open Space (City of Palmdale 2022). The City has developed its 2045 General Plan, and the updated Plan will serve as a blueprint for the City's vision for the future (City of Palmdale 2022).

CIRCULATION AND MOBILITY ELEMENT

The following goals, objectives and policies are related to transportation in the City.

GOAL CM-1: Build and maintain a transportation system that is safe and comfortable for travelers of all modes regardless of age or ability.

CM-1.1 Roadway Design: Design and maintain the public right-of-way through a complete streets approach that facilitates safe, comfortable, and efficient travel for all roadway users.

Goal CM-3: Build and maintain a transportation system that provides affordable, equitable, and efficient access to employment centers and essential services.

CM-3.2 Transit Access: Encourage investments and Capital Projects that reduce first/last-mile barriers to transit stops.

Goal CM-4: Build and maintain a transportation system that enhances quality of life and public health.

CM-4.3 Access to Parks and Open Space: Prioritize investments that expand access to Palmdale's parks and trails and support physical activity.

GOAL CM-6: Build and maintain a transportation system that leverages the City's natural setting and reduces impacts to the environment.

CM-6.1 Vehicle Miles Traveled: Prioritize transportation investments and strategies that create opportunities for residents to reduce Vehicle Miles Traveled.

PARKS, RECREATION AND OPEN SPACE

The following goals, objectives and policies are related to trails and bikeways in the City.

GOAL PR-2: Promote bicycling as an important mode of transportation and recreation in the City of Palmdale.

PR-2.1 Bikeway Network: Encourage bicycle use by developing a comprehensive bikeway network for the city that meets access needs of all bicyclists.

GOAL PR-6: Provide a network of open space areas to provide for passive and active recreation opportunities, enhance the integrity of biological systems, and provide visual relief from the developed portions of the city.

Goal PR-7: Maintain a system of multi-use trails that provide connections to regional trails systems and residential neighborhoods.

- **PR-7.1 Multi-use Trails**: Provide and maintain multi-use trails, for use by pedestrians, bicyclists, and equestrians, connecting to existing or currently planned multi-use trails.
- **PR-7.2 Multi-use Trail Connections:** Prioritize multi-use trail connections to existing neighborhoods, public parks, and public facilities based on the modal priority network in the Mobility Element.

COUNTY OF LOS ANGELES GENERAL PLAN

The Los Angeles County General Plan 2035 Mobility Element (County of Los Angeles 2022) provides an overview of the transportation infrastructure and strategies for developing an efficient and multimodal transportation network. The Element assesses the challenges and constraints of the Los Angeles County transportation system and offers policy guidance to reach the County's long-term mobility goals. Two sub-elements—the Highway Plan and Bicycle Master Plan—supplement the Mobility Element. The following goals and policies in the County's General Plan are related to transportation resources.

GOAL M6: The safe and efficient movement of goods.

Policy M 6.4: Minimize noise and other impacts of goods movement, truck traffic, deliveries, and staging in residential and mixed-use neighborhoods.

3.12.3 IMPACT ANALYSIS

3.12.3.1 Methodology for Analysis

This section evaluates whether construction and operation of the facilities associated with the proposed Project would result in significant impacts related to transportation.

A review of local and state regulations, policies, and plans was conducted to evaluate the proposed Project's potential to conflict with transportation planning and policies. Vehicle miles traveled were calculated based on approximations of necessary operation and maintenance activities. The Technical Advisory on Evaluating Transportation Impacts in CEQA (Governor's Office of Planning and Research, 2018) was used in determining impacts based on the guidance that "projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact".

Construction activities lasting less than one year in duration were considered less-than-significant unless unique project conditions warranted further impact considerations. Construction activities lasting over one year were assessed individually for potential to result in a significant transportation impact.

Long-term effects of operations and maintenance activities were assessed for frequency of vehicle trips and if operation actions would impact roadways, traffic routes, transportation planning, or emergency access.

3.12.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines,* as updated in December 2018, an impact on transportation would be considered significant if the Project would:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
- Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access

3.12.3.3 Criteria Requiring No Further Evaluation

All criteria require further evaluation.

3.12.3.4 Impacts and Mitigation Measures

Impact TRA-1 Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

IMPACT TRA-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project would generate vehicle trips per day associated with both construction worker commutes and material and equipment hauling. These increases in trips per day on local and regional roadways could affect roadway capacity and circulation; slower movements and larger turning radii of construction trucks compared to passenger vehicles could also lessen roadway capacities.

The number and type of equipment and worker vehicles required for construction of the advanced water purification facility, recycled water injection wells, and pipelines would depend on the facility type. Currently, the associated number of vehicle trips and types of vehicles required for the construction of the proposed project is unknown. The definitive construction schedules, workforce details, equipment lists, and material lists will be specified in the future as the proposed Project continues to be designed.

Construction of pipeline would impede traffic flow and disrupt AVTA bus routes because a large portion of the pipelines would be installed in existing roadways to the extent feasible and could temporarily require partial or complete road closures, which would conflict with the goals of the General Plan. Per **Mitigation Measure TRA-1**, PWD would develop and implement a Traffic Control Plan that would perform traffic counts to understand existing traffic conditions on roadways near proposed Project facilities at the time they are constructed. Using these traffic counts, the Traffic Control Plan would recommend various mitigation measures, including minimizing deliveries during the A.M. and P.M. peak travel hours, as well as alternative haul routes to avoid traffic disruption to minimize disturbance on traffic flow. Implementation of **Mitigation Measure TRA-1** would reduce impacts to less than significant level.

Groundwater

Existing Well Rehabilitation and/or Replacement

It is anticipated that rehabilitation of existing wells would involve a relatively small number of trips as construction of replacement well structures is not required. Impacts would be less than significant.

Construction of replacement would be located within the south and eastern parts of the Antelope Valley Groundwater Basin. Construction of wells would generate vehicle trips

associated with both construction worker commutes and material and equipment hauling. Construction of conveyance pipelines would also impede traffic and result in temporary lane closures as pipelines would be installed in existing roadways as much as possible, disrupting AVTA bus routes within the Project area. Implementation of **Mitigation Measure TRA-1** would delineate work areas, provide control, flagging, and signage. Therefore, impacts would be less than significant with mitigation incorporated.

Local Supplies

Palmdale Ditch Conversion Project

Construction-related vehicle trips would include construction workers traveling to and from the Project area, haul trucks (including for export of demolition debris and soil import/export), and other trucks associated with equipment and material deliveries. Haul trucks would make approximately 18 roundtrips per day to and from the Project area. Additionally, approximately two to 10 construction workers would commute to and from each construction site each day (construction may occur simultaneously at multiple locations along the alignment at any given time). Finally, temporary lane or road closures along Mt. Emma Road, 47 Street E, and Barrel Springs Road may be required to repave roadways disturbed by construction.

Construction equipment and materials would be staged on site and along the proposed Project alignment in the designated work area. Given that construction would be a short-term and temporary activity, trips would account for a relatively small portion of existing traffic on area roadways, most of which are low-volume roadways in largely undeveloped areas. Trenchless installation methods would be utilized for the crossing of State Route 138 to minimize disruption to traffic. In addition, lane closures to facilitate pipeline installation along certain segments of existing roadways would be temporary, and traffic control would be provided in accordance with traffic control plans prepared as part of the encroachment permitting process with the City, County, LA Metro/Metrolink/Southern California Regional Rail Authority, and United States Forest Service. AVTA routes in the Project area do not utilize Mt. Emma Road, 47 Street E, and Barrel Springs Road; therefore, public transit would not be affected by lane or road closures during proposed Project construction. Pedestrian and bicycle access along Barrel Springs Trail would be detoured around work areas, and construction in this area would be short-term and temporary. Therefore, proposed Project construction would not conflict with a program, plan, ordinance, or policy addressing the circulation system impacts, and impacts would be less than significant.

Conservation

Conservation measures do not require construction of any new facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

After construction is completed, the proposed Project would generate vehicle trips for operation and maintenance activities. While the exact number of vehicle trips is currently unknown, it is anticipated that vehicle tripes associated with operation and maintenance activities are not likely to worsen intersection operating conditions along roadways. Additionally, operation of the proposed pipelines would only require periodic maintenance. Any additional trips added by periodic maintenance would be negligible compared to overall traffic volumes in the area. Therefore, impacts would be less than significant.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operation of wells would generate vehicle trips for operation and maintenance but would not worsen intersection operating conditions along roadways. Additionally, all other operation and maintenance activities would occur within well sites, which would limit obstructions to roadways or walking paths and operation of pipelines would only require periodic maintenance. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Once the Palmdale Ditch (Ditch) is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. As such, proposed Project operation would not result in a net increase in vehicle trips on the local transportation network as compared to existing conditions. Therefore, proposed Project operation would not conflict with a program, plan, ordinance, or policy addressing the circulation system impacts, and impacts would be less than significant.

Conservation

Conservation measures do not require construction of any new facilities. Therefore, there would be no impact.

IMPACT TRA-1 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure TRA-1

Significance after Mitigation: Less than Significant with Mitigation Incorporated

Impact TRA-2 Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b).

IMPACT TRA-2 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

CEQA Guides Section 15064.3(b) requires an analysis of the proposed Project's contribution to vehicle miles travelled consistent with regulatory guidance on VMT analysis (OPR 2018). As described in *Impact TRA-1*, it is unknown how many vehicle trips the proposed Project would generate as the Pure Water Antelope Valley project is still under design. The proposed Project may generate a high number of vehicle trips depending on the facility type and construction activities. However, the proposed Project is a temporary construction project with minimal increases in permanent VMT following construction, rather than a long-term land use project. Therefore, the proposed Project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b). Impacts would be less than significant during construction.

Groundwater

Existing Well Rehabilitation and/or Replacement

The Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018) provides the following guidance for evaluating projects that include heavy truck traffic: Vehicle Types. Proposed Section 15604.3, subdivision (a), states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks. The technical advisory also states that projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less than significant impact.

Rehabilitation of existing wells and construction of replacement wells are anticipated to generate fewer than 110 trips per day, which is far less than the 110 trips per day that are presumed to result in less than significant impact. Furthermore, the proposed Project has limited impacts on transportation as construction trips are temporary and would not generate significant VMT. Therefore, construction of the proposed Project would have a less than significant impact.

Local Supplies

Palmdale Ditch Conversion Project

Traffic on local roadways would temporarily increase during Ditch construction due to worker trips and the necessary transport of construction vehicles, equipment, and demolition/soil

material to and from the Project area. Increases in VMT from construction would be short-term, minimal, and temporary. Neither the Governor's Office of Planning and Research nor local jurisdictions require an evaluation of VMT impacts during construction. Caltrans' *Transportation Analysis under CEQA, First Edition* (2020) guidance document indicates a construction VMT analysis is typically only necessary for large projects or projects located a considerable distance from urbanized areas. Because the proposed Project is not a large project that would require an unusually substantial number of construction personnel or trips and the Project area is not located a considerable distance from the urbanized area of Palmdale, a construction-level VMT analysis is not necessary for the proposed Project.

Conservation

Conservation measures do not require construction of any new facilities. Therefore, impacts would be less than significant.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

As indicated by *Impact TRA-1*, it is unknown how many vehicle trips the proposed Project would generate for operation and maintenance activities as design of the Pure Water Antelope Valley project is still in progress. However, it is anticipated that the proposed Project would not generate a significant amount of vehicle trips for operation and maintenance activities as most of the vehicle trips would be associated from PWD staff, and thus, would not result in a significant increase in VMT. Therefore, proposed Project operation and maintenance would have less than significant impacts related to VMT.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operation of the proposed Project would require limited operations and maintenance trips that are not anticipated to exceed an average of one trip per day over the life of the proposed Project at a given well site. Therefore, the proposed Project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b) and would have less than a significant impact.

Local Supplies

Palmdale Ditch Conversion Project

Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. As such, proposed Project operation would not result in a net increase in VMT as compared to existing conditions and

would not exceed the County's screening threshold of 110 daily vehicle trips. Therefore, the proposed Project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b). No impact related to VMT would occur.

Conservation

Implementation of conservation measures does not require any operational activities. Therefore, there would be no impact.

IMPACT TRA-2 FINDINGS

Significance before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact TRA-3 Substantially increase hazards due to a geometric design feature.

IMPACT TRA-3 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project would not involve any roadway improvements or alterations, and thus, would not increase hazards due to a design feature like a sharp curve or dangerous intersections. However, the proposed Project would involve the hauling of heavy construction equipment. The use of oversize vehicles during construction could be an incompatible use and can create a hazard to the public by limiting motorists' views on roadways by obstruction of space. However, oversize loads associated with construction of the proposed Project would be required to comply with applicable CVC and Caltrans requirements applicable to licensing, size, weight, and roadway encroachment of construction vehicles. Further, **Mitigation Measure TRA-1** would require the use of traffic counts to recommend construction-related oversize haul routes in the Traffic Control Plan prepared for the proposed Project. Compliance with regulatory requirements to reduce hazards caused by incompatible roadways uses during construction and compliance with **Mitigation Measure TRA-1** would minimize the potential for hazards to other vehicles to less than significant levels.

Groundwater

Existing Well Rehabilitation and/or Replacement

Rehabilitation of existing wells/ construction of replacement wells do not include any changes in roadway design but would entail short periods of construction within roadways to construct pipeline connections between the wells and existing water lines. Pipeline construction would

require lane closure that would temporarily change the configuration of the existing right-of-way along public roads; however, once installation is complete, the road would be restored to pre-construction conditions. Lane closures could present a hazard to traffic. Implementation of **Mitigation Measure TRA-1** would limit potential hazards from construction activities by identifying construction staging locations and establishing alternative routes in the event of a road closure, and traffic controls in the event of a lane closure. With implementation of **Mitigation Measure TRA-1**, construction of the proposed Project would have a less than significant impact.

Local Supplies

Palmdale Ditch Conversion Project

The proposed Project would not involve the construction of new roads or reconfiguration of any roadways or intersections that could result in a substantial increase in traffic hazards. Construction equipment would be staged on site, which would not create traffic hazards. In addition, potential lane and/or road closures to facilitate proposed Project construction activities across certain segments of existing roadways would be temporary, and traffic control would be provided in accordance with traffic control plans prepared as part of the encroachment permitting process with the City, County, LA Metro/Metrolink/Southern California Regional Rail Authority, and United States Forest Service. Furthermore, the proposed Project would not introduce new land uses to the proposed Project alignment. Therefore, no impact would occur.

Conservation

Conservation measures do not require construction of any new facilities. Therefore, impacts would be less than significant.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation and maintenance activities would be contained within the Pure Water Antelope Valley project areas (e.g., advanced purification facility, recycled water injection wells site, etc.). Operation of the pipelines would occur below-ground and would not present permanent hazard. Therefore, operation of the proposed Project would have a less than significant impact.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operation of wells would not introduce features that could substantially increase hazards due to geometric design features because proposed Project features are below ground or in parcels outside of roadways. Therefore, operation of the proposed Project would have a less than significant impact.

Local Supplies

Palmdale Ditch Conversion Project

During operation, maintenance activities would be similar to or less than those conducted for the Ditch under existing conditions. As such, the proposed Project would not substantially increase hazards due to a geometric design feature or incompatible use, and no impact would occur.

Conservation

Implementation of conservation measures does not require any operational activities. Therefore, there would be no impact.

IMPACT TRA-3 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure TRA-1

Significance after Mitigation: Less than Significant after Mitigation Incorporated

Impact TRA-4 Result in inadequate emergency access.

IMPACT TRA-4 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Fire protection and police services within the Project area are provided by the Los Angeles County Fire Department and Los Angeles County Sheriff's Department. Depending upon the timing, location, and duration of construction activities. Construction of the proposed facilities could delay emergency vehicles response times or otherwise disrupt delivery of emergency services. Implementation of **Mitigation TRA-1** requires coordination with emergency service providers at least one month prior to construction. Adherence to this mitigation measure would reduce any potential impacts regarding emergency services to less than significant levels.

Groundwater

Existing Well Rehabilitation and/or Replacement

During construction, temporary closures of roads could occur during installation of pipelines, which could interfere with emergency service access and emergency access, creating a potentially significant impact. Implementation of **Mitigation Measure TRA-1** would require PWD to coordinate with local emergency responders in the event of a lane closure and ensure

the access is maintained for emergency response traffic. **Mitigation Measure TRA-1** would reduce the potential for impairing or physically interfering with emergency response, evacuation, and emergency access. Thus, construction of the proposed Project would have a less than significant impact.

Local Supplies

Palmdale Ditch Conversion Project

Once the Ditch is fully converted to a pipeline, the amount of operation and maintenance activities conducted by PWD staff would be reduced as compared to the past several decades due to a reduction in maintenance needs during flooding events, wash-outs, and debris build-outs that currently occur due to the open-channel nature of the Ditch. As such, proposed Project operation would not result in a net increase in vehicle trips on the local transportation network as compared to existing conditions. Therefore, proposed Project operation would not conflict with a program, plan, ordinance, or policy addressing the circulation system impacts, and impacts would be less than significant.

Conservation

Conservation measures do not require any construction of any new facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would not result in increased traffic that would cause congestion and affect local emergency access. Additionally, operation of pipelines would occur below-ground and would not disrupt any emergency access. Therefore, proposed Project operation and maintenance would have a less than significant impact related to emergency access.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operational activities would generally occur on proposed Project areas and not in public rights-of-way with the potential to restrict emergency access. If maintenance work is required within roadways that restrict emergency access it would be considered a construction activity and would follow **Mitigation Measure TRA-1**, which requires coordination with emergency management services. Thus, operation of the proposed Project would have a less than significant impact.

Local Supplies

Palmdale Ditch Conversion Project

Proposed Project operation would not result in an increase in traffic that would cause congestion and affect local emergency access. As a result, proposed Project operation would not result in inadequate emergency access, and no impact would occur.

Conservation

Conservation measures do not require construction of any new facilities. Therefore, there would be no impact.

IMPACT TRA-4 FINDINGS

Significance before Mitigation: Potentially Significant

Mitigation Measures: Mitigation Measure TRA-1

Significance after Mitigation: Less than Significant with Mitigation Incorporated

3.12.3.5 Mitigation Measures

MITIGATION MEASURE TRA-1: TRAFFIC CONTROL PLAN

Prior to construction, PWD shall require its construction contractor(s) to prepare and implement a Traffic Control Plan, to be approved by the City of Palmdale and/or the County of Los Angeles, based on jurisdiction. The plan shall include traffic counts at intersections near the proposed Project facilities to determine existing traffic conditions. Based on these traffic counts, the plan shall recommend mitigation to minimize impacts to existing traffic conditions. These mitigation measures shall include but shall not be limited to:

- Identification of hours of construction and hours for deliveries, potentially avoiding the A.M. and P.M. peak hours to minimize disturbance to traffic flow
- Specification of both construction-related vehicle and oversize haul routes; alternative routes shall be proposed to avoid traffic disruption.
- Identification of limits on the length of open trench, work area delineation, traffic control, flagging, and signage requirements
- Identification of all access and parking restrictions
- Identification of staging locations to be used during construction
- Identification of potential road or lane closures
- Establishment of haul routes for construction-related vehicle traffic
- Identification of alternative safe routes to maintain pedestrian bicyclist safety during construction

At least three days prior to initiation of construction activities, PWD shall coordinate with emergency services (police, fire, and others) to notify these entities regarding construction schedule, proposed Project alignment and siting, and potential delays due to construction. PWD shall identify roadways and access points for emergency services and minimize disruptions to or closures of these locations.

The plan shall include provisions for traffic control measures including barricades, warning signs, cones, lights, and flag persons, to allow safe circulation of vehicle, bicycle, pedestrian, and emergency response traffic.

3.12.3.6 Cumulative Impact Analysis

Cumulative impacts to transportation are less than significant when **Mitigation Measure TRA-1** is incorporated. The proposed Project is consistent with the 2045 General Plan and adheres to the City's policies. The proposed Project's impacts when considered with future conditions considered in the 2045 General Plan would not be cumulatively considerable. Therefore, the proposed Project would not considerably contribute to a cumulative impact on transportation.

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3.13 UTILITIES, SERVICE SYSTEMS, AND PUBLIC SERVICES

This section describes the environmental and regulatory setting for utilities, service systems, and public services in the Project Area, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts to utilities, service systems, and public services resources that could result from implementation of the proposed Project.

3.13.1 ENVIRONMENTAL SETTING

3.13.1.1 Water Agencies

The following water districts supply water to the Project area: Palmdale Water District (PWD), Los Angeles County Waterworks District 40 (LACWWD40), Quartz Hill Water District (QHWD), and Antelope Valley-East Kern (AVEK). Each agency is described below:

PALMDALE WATER DISTRICT

PWD is a water retailer serving the southeastern portion of the City of Palmdale (City) and areas of unincorporated Los Angeles County (County). PWD provides their customers with a combination of groundwater, surface water, and recycled water. Groundwater comes from PWD's operation of groundwater wells and surface water is supplied from the State Water Project (SWP) and Littlerock Creek. PWD has a direct Table "A" amount of 21,300 acre-feet (AF) from the SWP. Surface water from Littlerock Creek is stored in Littlerock Dam Reservoir, which is jointly owned by PWD and Littlerock Creek Irrigation District. Both sources of surface water are transferred to Palmdale Lake for local storage. In addition to imported water from the SWP, PWD has long-term transfer arrangements with other SWP contractors. Recycled water available for use within the PWD service area is supplied by the Sanitation Districts of Los Angeles County's (LACSD's) Palmdale Water Reclamation Plant located in the City. A contract with LACSD entitles PWD to up to 5,325 acre-feet per year (AFY) of recycled water.

LOS ANGELES COUNTY WATERWORKS DISTRICT 40

LACWWD40 is a water retailer that provides treated potable water to the City of Lancaster, the western portion of the City, and the unincorporated communities of Pearblossom, Littlerock, Sub Village, Rock Creek, Lake LA, Desert View Highlands, and northeast Los Angeles County. LACWWD40's water sources include imported SWP water through AVEK and groundwater from its own production wells. Approximately 20 to 40 percent of LACWWD40's water supply is provided by groundwater.

QUARTZ HILL WATER DISTRICT

QHWD is water retailer that provides treated potable water to the community of Quartz Hill, located in the southwest corner of the Antelope Valley in unincorporated Los Angeles County. QHWD's water sources include imported SWP water through AVEK and local groundwater.

ANTELOPE VALLEY-EAST KERN AGENCY

AVEK is a wholesaler of water that is imported to the Antelope Valley through the SWP. Currently, AVEK has a contractual Table A amount of 144,844 AFY from the SWP. The raw water imported from the SWP is treated at one of four water treatment plants in the Antelope Valley: Quartz Hill Water Treatment Plant (WTP), Eastside WTP, Rosamond WTP and Acton WTP. AVEK supplies treated water to LACWWD40, RCSD, and QHWD. AVEK began recovering imported water from the groundwater banks in 2014 once groundwater production wells were in place. AVEK does not provide recycled water.

3.13.1.2 Wastewater

The Los Angeles County Sanitation District (LACSD) Nos. 14 and 20 provide wastewater management services for the Antelope Valley. The two districts serve a combined wastewater service of approximately 76 square miles and approximately 310,000 people. Collection is provided through a network of 104 miles of trunk sewers, which are all designed to provide wastewater conveyance through gravity flow.

LACSD No. 14 includes portions of the cities of Lancaster and Palmdale and adjacent unincorporated County areas. LACSD No. 14 owns and operates the Lancaster Water Reclamation Plant and the adjoining network of trunk sewers. LACSD No. 20 serves an area that includes the majority of the City and portions of unincorporated County areas. LACSD No. 20 owns and operates the Palmdale Water Reclamation Plant and a network of approximately 40 miles of trunk sewers. The Project area is within the service area of LACSD No. 20's Palmdale Water Reclamation Plant.

The Palmdale Water Reclamation Plant is located in the City and currently provides tertiary treatment for approximately 12,000 AFY of wastewater generated in and around the City. In 2012, the Palmdale Water Reclamation Plant was expanded to reach its current treatment capacity of 12 million gallons per day. The Water Reclamation Plant currently produces an effluent of about 10,700 AFY of recycled water on average. The Palmdale Water Reclamation Plant processes all wastewater solids generated within its service area, and these solids are anaerobically digested, stored, and then dewatered into biosolids. All wastewater treated at the Palmdale WRO is treated to tertiary level and is used, discharged, or stored within the PWD service boundaries.

3.13.1.3 Stormwater

The City maintains storm water drainage infrastructure within its city limits. Stormwater mitigation in the City consists of mostly a network of flood control channels and culverts maintained by the Los Angeles County Flood Control District. Floodwaters are restricted by catch basins feeding into a network of 396 miles of gravity flow sewer mainlines and 2,790 feet of forced flow mainlines (City of Palmdale 2022). There are approximately 172 catch basins within the City's limits. Two pump stations operate within the city. The Los Angeles County Flood Control District maintains three debris retention basins along the southern edge of the city.

3.13.1.4 Solid Waste Management

Currently, waste management of Antelope Valley is the local division of Waste Management, Inc. that provides collection, disposal, recycling, and environmental services to the Antelope Valley. It operates two landfills: the Antelope Valley Recycling and Disposal Facility located at 1200 West City Ranch Road in Palmdale and the Lancaster Landfill and Recycling Center located at 600 East Avenue F in Lancaster. Materials accepted by both landfills include municipal solid wastes, industrial waste, construction and demolition material, contaminated soils, and waste tires.

3.13.1.5 Other Utilities

Electricity is provided to the Antelope Valley by Southern California Edison (SCE) and natural gas services are provided by the Southern California Gas Company (SGCG). SCE provides electricity to approximately 15 million people, 180 incorporated cities, 15 counties, 5,000 large businesses, and 280,000 small businesses through its 50,000-square-mile service area, (SCE 2017). SCE produces and purchases its energy from a mix of conventional and renewable generating sources.

3.13.1.6 Public Services

Fire Services

The California Department of Forestry and Fire Protection (CAL FIRE) is responsible for fire protection within State Responsibilities Areas (SRAs), including 31 million acres of wildlands throughout California (CAL FIRE 2024).

The Los Angeles County Fire Department (LACFD) has a service area of 2,300 miles and provides fire and emergency response services to more than 4.1 million residents and commercial businesses. The Project area is located within North Region Division V of the LACFD (LACFD 2020). There are three fire stations located within the Project area:

- Station 24, located at 1050 W. Rancho Vista Blvd., Palmdale, CA 93551
- Station 37, located at 38318 E, 9th Street East, Palmdale, CA 93550
- Station 131, located at 2629 E. Avenue S, Palmdale, CA 93550

Police Services

LA County Sheriff

The Los Angeles County Sheriff's Department serves an area totaling approximately 4,084 square miles with a population of over 10 million people The County Sheriff's Department provides general law enforcement services to 40 contract cities, 90 unincorporated communities, 216 facilities, hospitals, and clinics located throughout the County, nine community colleges, the Metropolitan Transit Authority, and 47 Superior Courts.

Two sheriff's stations serve the Antelope Valley, one in Lancaster and the other in Palmdale. The Palmdale substation, located at 750 East Avenue Q would serve the Project area (LASD 2019).

CALIFORNIA HIGHWAY PATROL

The California Highway Patrol (CHP) is a law enforcement agency created in 1929 to provide uniform traffic law enforcement for the State of California. The CHP has jurisdiction over all Interstates and State Routes in the State of California, which includes State Route (SR) 14 in the Project area. The Project area is served by the Southern Division, which has one facility in the immediate Project area (CHP nd). The Antelope Valley Station located at 2041 West Avenue "I" in the City of Lancaster and just north of the Project area patrols approximately 30 miles of SR-14 and approximately 1400 miles of unincorporated roadways (CHP nd).

SCHOOLS

The Palmdale School District serves the Project area. The Palmdale School District student population is made up of approximately 22,006 students attending approximately 29 Elementary, Middle, and "Other Educational" Schools. The School District's main office is located at 39139 10th Street in Palmdale.

The Antelope Valley Union High School District also serves the Project area. The Antelope Valley Union High School District student population is made up of approximately 24,127 students attending approximately 15 high schools. The School District's main office is located at 39139 10th Street in Palmdale. The Antelope Valley Union High School District also serves the Project area. The Antelope Valley Union High School District student population is made up of approximately 24,00024,127 students attending approximately 15 11 high schools, 2 of which are continuation high schools (Antelope Valley Union High School District 2019). The District's main office is located at 44811 N. Sierra Highway in Lancaster, CA. 176 Holston Drive in the City of Lancaster (Antelope Valley Union High School District 2019).

PARKS

The City's Department of Recreation and Culture manages the operation of developed parkland throughout the City. According to the City General Plan, recreational facilities in the area include parks, golf courses, bikeways, land designated as open space, and multipurpose facilities (City of Palmdale 2022).

3.13.2 REGULATORY FRAMEWORK

This section describes local, State, and federal laws, policies and regulations that apply to the proposed Project.

3.13.2.1 Federal Policies and Regulations

RESOURCE CONSERVATION AND RECOVERY ACT

The Resource Conservation and Recovery Act (40 CFR, Part 258 Subtitle D) established minimum location standards for siting municipal solid waste landfills. In addition, because California laws and regulations governing the approval of solid waste landfills meet the requirements of Subtitle D, the U.S. Environmental Protection Agency had delegated the enforcement responsibility to the State of California.

3.13.2.2 State Policies and Regulations

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (Public Resources Code [PRC] Division 30) enacted through AB 939 emphasized conservation of natural resources through reduction, recycling, and reuse of solid waste. AB 939 requires that all cities and counties divert 25 percent of solid waste streams from landfills by 1995 and 50 percent by 2000. In accordance with AB 939, each local agency must submit an annual report to the California Integrated Waste Management Board summarizing its progress in diverting solid waste disposal.

Protection of Underground Infrastructure

The California Government Code Section 4216-4216.9 "Protection of Underground Infrastructure" requires an excavator to contact a regional notification center (e.g., Underground Services Alert or Dig Alert0 at least two days prior to excavation of any subsurface installations. Any utility provider seeking to begin a project that could damage underground infrastructure can call Underground Service Alert, the regional notification center for southern California.

The Underground Service Alert will notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities are then notified and are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area.

AB 341

Since the passage of AB 939 in 1989, State diversion rates are now equivalent to 65 percent, the statewide recycling rate is 50 percent, and the beverage container recycling rate is 80 percent. With the passage of AB 341 (Chesbro, Chapter 476, Statutes of 2011), the Governor and the Legislature established a policy goal for the State that a minimum of 75 percent of solid waste must be reduced, recycled, or composted by the year 2020. The State provided strategies to achieve that 75 percent goal:

1. Moving organics out of the landfill
2. Expanding the recycling/manufacturing infrastructure
3. Exploring new approaches for State and local funding of sustainable waste management programs
4. Promoting State procurement of post-consumer recycled content products
5. Promoting extended producer responsibility

To achieve these strategies, the State recommended legislative and regulatory changes including mandatory organics recycling, solid waste facility inspections, and revising packaging. With regard to construction and demolition, the State recommended an expansion of California Green Building Code standards that incentivize green building practices and increase diversion of recoverable construction and demolition materials. Current standards require 50 percent waste diversion on construction and some renovation projects, although this may be raised to

65 percent for nonresidential construction in upcoming changes to the standards. The State also recommends promotion of the recovery of construction and demolition materials suitable for reuse, compost or anaerobic digestion before residual wastes are considered for energy recovery (CalRecycle 2017c).

CALIFORNIA HEALTH AND SAFETY CODE

The California Health and Safety Code, Division 104, Part 12, Chapter 5, Article 2, Section 116815, requires all pipes carrying recycled water to be colored purple or wrapped in purple tape. This requirement stems from a concern about cross contamination and potential public health risks similar to those discussed for Title 17. It is also discussed in the California Health Laws Related to Recycled Water.

CALIFORNIA ENERGY ACTION PLAN II

The California Energy Commission prepared the California Energy Action Plan Update in February 2008, and it serves as the State's principal energy planning and policy document (CEC 2008). The plan identifies state-wide energy goals, describes a coordinated implementation plan for State energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the first priority actions to address California's increasing energy demands are energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation (i.e., the use of relatively small power plants near or at centers of high demand). To the extent that these actions are unable to satisfy the increasing energy and capacity needs, clean, and efficient fossil-fire generation is supported.

RENEWABLES PORTFOLIO STANDARD

The California Renewables Portfolio Standard (RPS) was established in 2002 and required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2013. California Senate Bill 350 (Chapter 547, Statutes of 2015) is the most recent update to the State's RPS requirements. The RPS requires publicly owned utilities and retail sellers of electricity in California to procure 33 percent of their electricity sales from eligible renewable sources by 2020 and 50 percent by the end of 2030.

3.13.2.3 Local Policies and Regulations

COUNTY OF LOS ANGELES CONSTRUCTION DEBRIS RECYCLING AND REUSE ORDINANCE

The County of Los Angeles Board of Supervisors adopted the Construction and Demolition Debris Recycling and Reuse Ordinance on January 4, 2005, which has since been amended in January 2009 by the Los Angeles County Green Building Program. The Ordinance added Chapter 20.87 to the Los Angeles County Code which requires projects in unincorporated areas to recycle or reuse 50 percent of the debris generated. Its purpose is to increase the diversion of

construction and demolition debris from disposal facilities and will assist the County in meeting the State of California's 50 percent waste reduction mandate. Any construction project that requires a demolition or grading permit must submit a Recycling and Reuse Plan.

Los Angeles County General Plan

The following General Plan policies from the safety element are relevant to the proposed Project (County of Los Angeles 2014):

- **Goal S 4:** Effective County emergency response management capabilities:
    - **Policy S 4.2:** Support County emergency providers in reaching their response time goals.
    - **Policy S 4.3:** Coordinate with other County and public agencies, such as transportation agencies, and health care providers on emergency planning and response activities, and evacuation planning.

Antelope Valley Area Plan:

The following policies from the public safety, services, and facilities element of the Antelope Valley Area Plan:

- **Goal PS 7:** Emergency services that respond in a timely manner,

City of Palmdale General Plan

The City 2045 General Plan (General Plan) is a policy document required by the State law that provides long range guidance for various City issues. The General Plan is a comprehensive update to the City's 1993 General Plan. The General Plan is effective from October 22, 2022, and was amended on March 15, 2023.

The proposed Project area is located mostly within the City. The following is a selected list of General Plan goals, objectives, and policies that are applicable to the proposed Project.

- **Goal PFSI-2:** Maintain superior public safety services to protect the community and meet the needs of residents, businesses, and visitors.
- **Goal SE-7:** Ensure evacuation of residents in the event of an emergency requiring evacuation.
- **Goal SE-8:** Improve disaster preparedness in the event of an emergency.

City of Palmdale Emergency Operations Plan

The City Emergency Operations Plan (EOP) was updated in 2023, and it is a flexible, multi-hazard document that addresses the City's planned response and short-term recovery to extraordinary emergency/disaster situations associated with natural disasters, technological incidents, and natural security emergencies. The EOP is a preparedness document, designed to be read, understood, and exercised prior to an emergency/disaster. The EOP is intended to facilitate multi-agency and multi-jurisdictional coordination in emergency operations, particularly

between the City, Special Districts, non-governmental agencies, stakeholders, and the Los Angeles County Office of Emergency Management.

3.13.3 IMPACT ANALYSIS

3.13.3.1 Methodology for Analysis

Utilities, service systems, and public services impacts are assessed based on the proposed Project's level of direct and indirect physical impact on existing utilities, service systems, and public services.

3.13.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines,* as updated in December 2018, an impact on recreation would be considered significant if the proposed Project would:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.
- Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years.
- Result in a determination by the wastewater treatment provider, which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments.
- Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
- Comply with federal, State, and local management and reduction statutes and regulations related to solid waste.
- Result in substantial adverse physical associated with provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:
    - Fire protection
    - Police protection
    - Schools
    - Parks
    - Other public facilities

3.13.3.3 Criteria Requiring No Further Evaluation

All criteria require evaluation.

3.13.3.4 Impacts and Mitigation Measures

Impact UTL-1 Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

IMPACT UTL-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

Construction activities of the Pure Water Antelope Valley project are anticipated to require grading, excavation, and other soil disturbing activities, which would result in soil erosion and the migration of soil and sediment in stormwater runoff. Fuels, lubricants, and other hazardous materials associated with construction equipment could adversely affect water if spilled or stored improperly. PWD would also construct up to five recycled water injection wells and associated recycled water pipelines. Construction of recycled water injection wells would not require or result in the relocation of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. Because the Pure Water Antelope Valley project would disturb more than one acre, a SWPPP containing erosion and sediment control BMPs would be prepared and implemented. With implementation of a SWPPP, environmental effects would be mitigated to less than significant impact.

Groundwater

Existing Well Rehabilitation and/or Replacement

Rehabilitation or replacement of existing wells would not result in construction of additional potable water facilities. Nor would it require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. Therefore, there would be no impact.

Local Supplies

Palmdale Ditch Conversion Project

The proposed Project involves the conversion of existing water conveyance facilities (i.e., the Ditch) to a belowground pipeline and potential installation of a new future turnout on the California Aqueduct, the environmental effects of which have been evaluated throughout this document. The proposed Project would not require modifications to PWD's existing water rights and would not result in additional water supplies beyond those afforded to PWD under its existing water rights and SWP allocation. No additional environmental effects related to the

construction or relocation of new or expanded water facilities would occur beyond those analyzed herein.

As a raw water pipeline and a new future turnout, the proposed Project would not generate wastewater or involve wastewater treatment facilities. Therefore, the proposed Project would not require or result in the relocation or construction of new or expanded wastewater treatment facilities, and no impacts would occur.

The proposed Project would result in a net decrease in impervious surfaces within the Project area as compared to existing conditions due to the conversion and backfill of the Palmdale Ditch (Ditch), some portions of which are lined with concrete. Therefore, no new or expanded stormwater drainage facilities would be required, and no impacts would occur.

The proposed pipeline would be a gravity flow pipeline and would not require the provision of a new power supply or the relocation or expansion of existing electric power facilities. The new future turnout would require a connection to the existing electrical infrastructure located adjacent to the aqueduct and within the Project area, to supply a minor amount of electricity for turnout operation. Therefore, the new future turnout would not require or result in the relocation or construction of new or expanded electric power facilities, and impacts would be less than significant.

The proposed Project does not involve components requiring natural gas and would not require the relocation of existing natural gas facilities. Therefore, no impact would occur.

The new future turnout would require connection to DWR's existing fiber optic network and may require a Supervisory Control and Data Acquisition control system for communication with PWD staff. However, the existing DWR telecommunications infrastructure is located adjacent to the aqueduct and within the Project area. Therefore, the new future turnout would not require or result in the relocation or construction of new or expanded telecommunications facilities, and impacts would be less than significant.

Conservation

Conservation measures would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Discharges from new advanced water purification facility could result in significant environmental effects. PWD would obtain an Industrial Wastewater Discharge Permit and would comply with State and local discharge regulations to dispose of wastewater discharge properly. Compliance with State and local discharge regulations would ensure operational impacts be mitigated to a less than significant level.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operation of rehabilitated or replacement wells would not require the expansion of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications. There would be no operational impacts.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project would not require the expansion of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications. There would be no operational impacts.

Conservation

Implementation of conservation measures does not require operation and maintenance activities. Therefore, there would be no impact.

Impact UTL-1 Findings

Significance before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact UTL-2 Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years.

Impact UTL-2 Analysis

Construction

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project may use water for various purposes such as dust control, concrete mixing, and equipment cooling. PWD's water supply reliability can be impacted by many factors, including changes in the availability of supplies due to climatic or infrastructure changes, as well as the efficient use of those supplies in both average and dry periods (PWD 2021). These factors could impact water available for construction activities. However, PWD has invested in diversifying its water supply portfolio with imported water, local and regional supplies, groundwater, and recycled. Due to this diversification, it is anticipated that PWD will have sufficient water to use for construction of the Pure Water Antelope Valley project. If shortages do occur, PWD has implemented a water shortage contingency plan to manage these situations and ensure that there is sufficient water for potable and non-potable uses. Therefore, the impacts would be less than significant.

Groundwater

Existing Well Rehabilitation and/or Replacement

Well rehabilitation and/or replacement is anticipated to use water for various construction activities such as well cleaning, equipment colling, pumping tests, and cement grouting for replacement wells. As mentioned above, PWD's diversified water portfolio is sufficient to provide water for construction activities and would implement a water shortage contingency plan to management conditions and ensure adequate water supplies for all uses.

Local Supplies

Palmdale Ditch Conversion Project

The proposed Project would involve conversion of the Ditch to an underground pipeline and potential installation of a new future turnout from the California Aqueduct. The proposed Project would facilitate conveyance of existing water supplies managed by PWD and would not involve changes to PWD's existing water rights or additional water supplies beyond those afforded to PWD under its existing water rights and SWP allocation. The anticipated water savings of approximately 1,450 acre-feet per year associated with the proposed Project would be used to serve existing and planned future development in accordance with PWD's 2020 Urban Water Management Plan (PWD 2021). Therefore, no impact to water supplies would occur.

Conservation

Implementation of conservation measures does not require any construction. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would involve treating wastewater for indirect potable reuse. It is anticipated that the proposed Project would use water within its treatment processes for cleaning and maintenance activities. Operation of recycled water pipelines would occur below-ground, and thus, it is not anticipated that water will be used for operational and maintenance activities. Therefore, impacts would be less than significant. As mentioned, PWD has a diverse water supply portfolio which could provide resilience, adaptability, and increased reliability during normal, dry, and wet years by reducing dependence on a single source. It is anticipated that PWD would have sufficient water supply for operational activities of the proposed Project. Furthermore, the Pure Water Antelope Valley project would result in purified recycled water to meet demand, increasing PWD's water supply reliability. Operation of recycled water injection wells is anticipated to use water for regular well maintenance activities such as well cleaning, cooling during maintenance, and testing. It is

anticipated that minimal water will be used for maintenance. Therefore, impacts would be less than significant.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operation of groundwater wells is anticipated to use minimal water for regularly scheduled maintenance such as cleaning and testing. Therefore, impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project is not anticipated to use water for operational and maintenance activities as Palmdale Ditch would be an underground pipeline. Therefore, there would be no impact.

Conservation

Implementation of conservation measures does not require operational and maintenance activities. Therefore, there would be no impact.

IMPACT UTL-2 FINDINGS

Significance before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact UTL-3 Result in a determination by the wastewater treatment provider, which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments.

IMPACT UTL-3 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley project would involve construction of an additional wastewater treatment system to treat wastewater for indirect potable reuse and construction of recycled water injection wells and associated pipelines. However, the proposed Project would not result in the unplanned growth of the population but would serve the existing and projected population growth in PWD's service area as indicated in the 2020 Urban Water Management Plan. Therefore, impacts would be less than significant.

Groundwater

Existing Well Rehabilitation and/or Replacement

Rehabilitation and/or replacement of existing wells and construction of new wells would not require the construction or expansion of wastewater systems as wells would not be connected to a public sewer system. Therefore, no offsite wastewater treatment provider would be necessary. There would be no impact.

Local Supplies

Palmdale Ditch Conversion Project

As a raw water pipeline and a new future turnout, the ditch component of the proposed Project would not generate wastewater. Accordingly, no impacts to wastewater treatment or capacity would occur.

Conservation

Construction measures do not require any construction of facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project would increase the treatment capacity available to manage wastewater within its service area. The proposed Project would not result in unplanned population growth. Additionally, operation of recycled water injection wells and associated recycled water pipelines do not involve the production or treatment of wastewater. Thus, impacts would be less than significant.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operation of groundwater wells does not involve the production or treatment of wastewater, and thus, operation of the proposed Project would have no impacts to wastewater treatment providers in the area.

Local Supplies

Palmdale Ditch Conversion Project

As mentioned above, the Palmdale Ditch Conversion project would not generate wastewater as it is a raw water pipeline and a new future turnout. Therefore, operational activities would have no impact.

Conservation

Implementation of conservation measures would not require any operational activities. Therefore, there would be no impact.

Impact UTL-3 Findings

Significance before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact UTL-4 Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

Impact UTL-4 Analysis

Construction

Recycled Water

Pure Water Antelope Valley Project

Construction of the Pure Water Antelope Valley project would result in a temporary increase in solid waste generation as the construction activities would involve soil-disturbing activities, such as excavation and grading. However, PWD would dispose of debris and other solid wastes generated from construction activities in accordance with local and State regulations. It is anticipated that any solid waste generated from construction of the proposed Project would be transferred to the Antelope Valley Public Landfill, which is operated by Antelope Valley Recycling and Disposal. The Antelope Valley Public Landfill has a remaining capacity of 17,911,225 cubic yards and a maximum capacity of 30,200,000 cubic yards (CalRecycle nd). Based on the remaining capacity of the two landfills, it is anticipated that construction of the Pure Water Antelope Valley project would not generate solid waste in excess of the Palmdale Facility nor the Lancaster Facility. Impacts would be less than significant.

Groundwater

Existing Well Rehabilitation and/or Replacement

Rehabilitation or replacement of wells is anticipated to generate minimal solid waste as existing well infrastructure would be used as much as possible. PWD would dispose of any solid waste in accordance with local and State regulations, and the amount of solid waste generated would not affect the capacity of the Antelope Valley Public Landfill. Impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

Construction activities may temporarily generate solid waste, including soil spoils or other construction waste, which would be disposed of in accordance with all applicable federal, State,

and local statutes and regulations. The proposed Project would excavate 27,500 cubic yards of soil, which would be exported off-site. Excavated soil and other construction solid waste from activities such as demolition would be disposed of primarily at the Antelope Valley Public Landfill, located approximately 2.5 miles northwest of the proposed Project's northwestern terminus at Lake Palmdale. Due to the temporary nature of construction and the minimal amount of construction waste anticipated to require disposal at this landfill, the proposed Project would not generate quantities of solid waste that would account for a substantial percentage of the total daily regional permitted capacity available at the Antelope Valley Recycling and Disposal Facility. Impacts would be less than significant.

Conservation

Conservation measures do not require any construction, and thus, would not generate any solid waste. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Operation of the Pure Water Antelope Valley project could generate solid waste through the initial stages of the treatment process. During the initial treatment process, solid materials such as debris, grit, and large particles are removed from the wastewater through screening and grit removal processed, which need to be collected and disposed of properly. It is anticipated that the operation of recycled water injection wells would not generate solid waste as wells would be used to inject purified recycled water into the Antelope Valley Groundwater Basin and recycled water pipelines would occur below-ground.

PWD would dispose of the solid waste in accordance with local and State regulations. It is anticipated that solid waste would be transferred to the Antelope Valley Public Landfill, which has available capacity and would remain open until April 1, 2044. In the event where the Antelope Valley Public Landfill has ceased operations or does not have remaining capacity, PWD would implement **Mitigation Measure UTL-1**. **Mitigation Measure UTL-1** would require PWD to conduct a thorough site selection process to identify an appropriate location for siting a landfill facility for the disposal of solid waste generated by the proposed Project. Therefore, impacts would be less than significant after mitigation incorporated.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operation of groundwater wells would not generate solid waste as wells would be used to extract groundwater from the Antelope Valley Groundwater Basin. Therefore, there would be no impact.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion is not expected to generate solid waste as it is an underground pipeline. Therefore, there would be no impact.

Conservation

Implementation of conservation measures does not require operational activities, and thus, they would not generate any solid waste. Therefore, there would be no impact.

Impact UTL-4 Findings

Significance before Mitigation: Potentially significant.

Mitigation Measures: Mitigation Measure UTL-1

Significance after Mitigation: Less than significant.

Impact UTL-5 Comply with federal, State, and local management and reduction statutes and regulations related to solid waste.

Impact UTL-5 Analysis

Construction

Recycled Water

Pure Water Antelope Valley Recharge Project

Construction of the Pure Water Antelope would generate solid waste, including excavated soils removed. Construction of the Pure Water Antelope Valley project would comply with the Chapter 20.87 of Los Angeles County Code requiring recycling of at least 65 percent of the waste generated during construction and with Section 5.408.1.1 of the California Green Building Standards, which requires preparation of a Construction Waste Management Plant that would disclose how much waste would be deterred from the waste stream and submittal to the City Building and Safety Division. Therefore, the proposed Project would comply with all applicable solid waste regulations, and impacts would be less than significant.

Groundwater

Existing Well Rehabilitation and/or Replacement Wells

Rehabilitation and/or replacement of existing wells is not anticipated to generate a substantial amount of solid waste as existing well infrastructure would be used as much as possible. However, PWD would still comply with Chapter 20.78 of the Los Angeles County Code and with Section 5.408.1.1 of the California Green Building Standards as mentioned above. Therefore, the

proposed Project would comply with all applicable solid waste regulations, and impacts would be less than significant.

Local Supplies

Palmdale Ditch Conversion Project

The proposed Project would be required to comply with all applicable laws and regulations related to solid waste generation, collection, and disposal. The proposed Project would result in a short-term and temporary increase in solid waste generation during construction but would not substantially affect standard solid waste operations of any landfill accepting waste. Recycling and reuse activities during construction would be required to comply with the California Integrated Waste Management Act of 1989 (Assembly Bill 939). Impacts would be less than significant.

Conservation

Implementation of conservation measures does not require any construction of facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Recharge Project

Similar to *Impact UTL-4,* operation of the Pure Water Antelope Valley project could generate solid waste through the initial stages of the treatment process because large particles could be removed from the wastewater through screening the processes. PWD would obtain an Industrial Wastewater Discharge Permit and would dispose of discharge in accordance with the Industrial Wastewater Discharge Permit. Therefore, impacts would be less than significant.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operation of wells is not anticipated to generate solid waste, and the proposed Project involves extracting and conveying groundwater to PWD's potable water system. Therefore, there would be impacts.

Local Supplies

Palmdale Ditch Conversion Project

Similar to *Impact UTL-4*, the proposed Project would involve the conveyance of water and would not include activities that would generate a substantial amount of solid waste during operation. Therefore, the proposed Project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment

of solid waste reduction goals. As a result, impacts related to solid waste would be less than significant.

Conservation

Implementation of conservation measures does not require any operational activities, and thus, would not generate any solid waste. Therefore, there would be no impact.

IMPACT UTL-5 FINDINGS

Significance before Mitigation: Less than significant.

Mitigation Measures: None required.

Impact PUB-1	**Result in substantial adverse physical associated with provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire services; police protection; schools; parks; and other public facilities.**

IMPACT PUB-1 ANALYSIS

CONSTRUCTION

Recycled Water

Pure Water Antelope Valley Project

The Pure Water Antelope Valley project would not construct new or physically alter existing fire and police protection services, schools, parks, and other public facilities, nor would it substantially change response times or service ratios for fire and police protection services and facilities. Therefore, there would be no impact.

Groundwater

Existing Well Rehabilitation and/or Replacement

Rehabilitation or replacement of existing wells would not construct new or physically alter existing fire and police protection services, schools, parks, and other public facilities, nor would it substantially change response times or service ratios for fire and police protection services and facilities. Therefore, there would be no impact.

Local Supplies

Palmdale Ditch Conversion Project

The proposed Project would not introduce new infrastructure requiring additional fire or police protection services. In addition, the proposed Project could reduce the need for police

protection services by undergrounding the existing Ditch into a pipeline, thereby eliminating the current impacts of trash dumping on the Ditch. Furthermore, the proposed Project would not require modifications to PWD's existing water rights and would not result in additional water supplies beyond those afforded to PWD under its existing water rights and SWP allocation. The anticipated water savings of approximately 1,450 acre-feet per year associated with the proposed Project would be used to serve existing and planned future development in accordance with PWD's 2020 Urban Water Management Plan (PWD 2021). As a result, the proposed Project would not induce population growth that could require additional fire protection, police protection, schools, parks, or other governmental facilities, such as libraries. Therefore, the proposed Project would not result in substantial adverse physical impacts associated with the provision of other new or physically altered public facilities, or the need for other new or physically altered public facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times or other performance objectives. No impact would occur.

Conservation

Implementation of conservation measures does not require any construction of new facilities. Therefore, there would be no impact.

OPERATION

Recycled Water

Pure Water Antelope Valley Project

Pure Water Antelope Valley project may require a minimal increase in staff for the operation and maintenance of the proposed Project, but it would not induce an unplanned or substantial population growth in the Project area that would expand fire and police services and build new schools, parks, and other public facilities. Additionally, operational activities would not require fire services. Therefore, impacts would be less than significant.

Groundwater

Existing Well Rehabilitation and/or Replacement

Operation of wells would not require new staff for operational activities. It is anticipated that existing staff will resume operational and maintenance activities for the rehabilitated and/or replacement wells, and thus, would not induce an unplanned or substantial population growth in the Project area that would expand fire and police services and build new schools, parks, and other public facilities. Therefore, there would be no impact.

Local Supplies

Palmdale Ditch Conversion Project

Operation of the Palmdale Ditch Conversion project will not require new staff as it is anticipated that existing staff will resume operational and maintenance activities. Additionally, operation of

the proposed Project would not induce unplanned population growth, and thus, would not need to expand fire and police protection services nor build new schools, parks, and other public facilities. Therefore, there would be no impact.

Conservation

Implementation of conservation measures does not require any operational and maintenance activities, and thus, would have no impact to sire services.

IMPACT PUB-1 FINDINGS

Significance before Mitigation: Less than significant.

Mitigation Measures: None.

3.13.3.5 Mitigation Measures

MITIGATION MEASURE UTL-1: SITE SELECTION PROCESS

In the event the Antelope Valley Public Landfill does not have remaining capacity or has ceased operations, PWD would conduct a thorough site selection process to identify an appropriate location to dispose of solid waste generated by the Project.

3.13.3.6 Cumulative Impact Analysis

Cumulative impacts to utilities, service systems, and public services are less than significant when Mitigation Measure UTL-1 is incorporated. The proposed Project is consistent with the 2045 General Plan and adheres to the City's policies and local, State, and federal regulations. The proposed Project's contribution to impacts when considered with the future conditions envisioned by these plans would not cumulatively be considerable. Therefore, the proposed Project would not considerably contribute to a cumulatively impact on utilities, service systems, and public services.

3.13.4 REFERENCES

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CHAPTER 4. ALTERNATIVES

The California Environmental Quality Act (CEQA) requires that an environmental impact report (EIR) describe and evaluate a reasonable range of feasible alternatives to a project, or to the location of a project, that would attain most of the project objectives and avoid or substantially lessen significant project impacts. The alternatives analysis must also include the "No Project Alternative" as a point of comparison. The No Project Alternative includes existing conditions and reasonably foreseeable future conditions that would exist if the project were not approved (CEQA Guidelines Section 15126(f)). The environmental impacts associated with the alternatives are evaluated relative to the impacts associated with the proposed project.

CEQA Guidelines (Section 15126.6) set forth the following criteria for alternatives:

- Identifying Alternatives. The range of alternatives is limited to those that would avoid or substantially lessen any of the significant effects of the project, are feasible, and would attain most of the basic objectives of the project. Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. The specific alternative of 'no project' shall also be evaluated along with its impact.

- Range of Alternatives. An EIR need not consider every conceivable alternative, but must consider a reasonable range of alternatives that will foster informed decision-making and public participation. The "rule of reason" governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those alternatives necessary to permit a reasoned choice.

- Evaluation of Alternatives. EIRs are required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. Matrices may be used to display the major characteristics of each alternative and significant environmental effects of each alternative to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed but in less detail than the significant effects of the project.

4.1 PROPOSED PROJECT SUMMARY

The proposed Project (referred to as the Preferred Strategy in the Strategic Water Resources Plan (SWRP) Update is described in detail in **Chapter 2** of this document. **Chapters 3** and **5** assess the potential impacts of implementing the proposed Project, which includes potential facility siting, facility construction, and operational impacts.

4.1.1 PROJECT OBJECTIVES

As stated in **Chapter 2**, the objectives of the proposed Project are:

Primary Objectives:

- Meeting the current and future water supply needs for PWD's service area to 2050.
- Identifying feasible and reliable sources of water to meet current and future water supply needs.
- Identifying and planning for the facilities that will be needed to meet current and future needs.
- Estimating costs and potential funding sources to accommodate the identified sources and facilities.
- Planning for redundancy and sustainability so that the PWD system can accommodate change.

Secondary objectives:

- Maximizing current SWP Table A water usage.
- Maximizing beneficial use of recycled water through implementation of Pure Water Antelope Valley.
- Storing imported water in the Antelope Valley Basin via the Upper Amargosa Creek Water Project.
- Storing recycled water in the Antelope Valley Basin via injection.
- Maintaining storage capacity in Littlerock Dam Reservoir through sediment removal.
- Improving Palmdale Ditch (Ditch) to reduce water loss.
- Adding additional pumping capacity to access stored water during times of shortage.
- Continuing active conservation programs.

The proposed Project includes proposed actions for maximizing local supplies and facilities and increasing water storage to meet demands through 2050 and address the shortages expected to occur every year starting in 2030 under the existing conditions.

4.1.2 SUMMARY OF POTENTIALLY SIGNIFICANT IMPACTS

Chapters 3 and **5** provide analyses of potentially significant impacts that could result from implementation of the proposed Project for each environmental issue area in Appendix F and

Appendix G of the CEQA Guidelines. Mitigation measures were identified to reduce the majority of impacts to a less than significant level.

As summarized below in **Table 4-1,** and in further detail in **Chapter 5** growth inducement associated with the proposed Project could result in a significant and unavoidable impact. The proposed Project would not result in secondary effects of growth that would be significant and unavoidable (see **Chapter 5**).

As summarized below in **Table 4-1**, the Palmdale Ditch Conversion project component of the proposed Project could result in a significant and unavoidable impact on cultural and historic resources.

Table 4-1: Summary of Project Impact Analysis

Ch. #	Issue Area	Significance Determination
3.1	Aesthetics	LSM
3.2	Air Quality, Greenhouse Gases	LSM
3.3	Biology	LSM
3.4	Cultural Resources, Tribal Cultural Resources	SU, LSM
3.5	Energy	LSM
3.6	Geology, Soils, Seismicity, Minerals, and Paleontological Resources	LSM
3.7	Hazards, Hazardous Materials, and Wildfire	LSM
3.8	Hydrology, Groundwater, and Water Quality	LSM
3.9	Land Use, Agriculture, and Forestry Resources	LS
3.10	Noise and Vibration	LSM
3.11	Recreation	LSM
3.12	Transportation	LSM
3.13	Utilities, Service Systems, and Public Services	LSM
5	Other CEQA Considerations (Growth Inducing, Unavoidable, Irreversible)	LSM, SU

Notes: LS = Less than significant; LSM = Less than significant with mitigation incorporated; SU = significant and unavoidable.

4.2 DEVELOPMENT OF PROJECT ALTERNATIVES

The SWRP Update included a robust alternatives evaluation, involving developing different combinations of supply types, coupled with storage options, additional production, distribution, and other elements. The process resulted in eleven alternatives, summarized in the SWRP Update. The eleven alternatives were developed and evaluated based on the ability to meet complex water resources challenges and achieve SWRP Update goals. The proposed Project evaluated in **Chapters 3** and **5** and described in **Chapter 2** of this EIR is based on the Preferred Alternative recommended in the SWRP Update, Alternative 11. A summary of the development of alternatives for the SWRP Update is described below.

4.2.1 Water Supply Options Development

Prior to creating alternatives comprised of multiple water supply options, a variety of individual water supply options were developed. Water supply options developed for the SWRP Update

were built upon existing project concepts, water supply plans, and feasibility studies. PWD developed a list of options considered feasible under current or reasonable future water resources within the planning horizon of 2050. PWD evaluated these options with respect to a variety of factors including supply reliability under droughts and emergency outages, cost efficiency, water quality, sustainability, funding potential, feasibility of implementing, and institutional independence. A list of the water supply options considered in the SWRP Update is shown below in **Table 4-2**.

Table 4-2: Water Supply Options

No.	Option Name	Option Category
1	Imported Water, Tier 1	Imported Water
2	Imported Water, Tier 2	Imported Water
3	Imported Water, Tier 3	Imported Water
4	Purchase of Antelope Valley Basin Rights	Local Groundwater
5	Well Rehabilitation and/or Replacement of Existing Wells	Local Groundwater
6	Palmdale Ditch Enhancements (Palmdale Ditch Conversion project)	Local Surface Water
7	Sediment Removal at Littlerock Dam Reservoir	Local Surface Water
8	External Imported Water Storage	Recharge/Banking
9	Internal Imported Water Storage	Recharge/Banking
10	Internal Imported Water Storage via Upper Amargosa Water Bank	Recharge/Banking
11	Nonpotable Reuse	Recycled Water
12	Direct Potable Reuse	Recycled Water
13	Indirect Potable Reuse – Recycled Water Augmentation at Palmdale Lake	Recycled Water
14	Indirect Potable Reuse – Recycled Water Injection	Recycled water
15	Conservation	Other

4.2.2 SWRP Update Alternatives Development

Following evaluation of water supply options, PWD grouped the various water supply options into alternatives. The alternatives were developed and differentiated by their use of unique combinations of water resource types such as imported water, groundwater, local surface water, and recycled water. Different combinations of supply types were then coupled with storage options, additional production, distribution, and other elements were added to each alternative to reflect PWD's water system and resources future. This process resulted in 11 alternatives (see **Table 4-3**).

Table 4-3: Water Supply Options and Alternatives Summary

Options	Alternative										
	1	2	3	4	5	6	7	8	9	10	11
1. Imported Water, Tier 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. Imported Water, Tier 2	✓	✓		✓	✓				✓		
3. Imported Water, Tier 3	✓	✓									
4. Purchase of Antelope Valley Basin Rights								✓			✓
5. Well Rehabilitation and/or Replacements of Existing Wells	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6. Palmdale Ditch Enhancements							✓				✓
7. Sediment Removal at Littlerock Dam Reservoir							✓				
8. External Imported Water Storage		✓			✓						
9. Internal Imported Water Storage	✓					✓			✓		
10. Internal Imported Water Storage via Upper Amargosa Water Bank	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11. Nonpotable Reuse											
12 Direct Potable Reuse											
13. Indirect Potable Reuse – Recycled Water Augmentation at Palmdale Lake				✓		✓				✓	
14. Indirect Potable Reuse – Recycled Water Injection			✓		✓		✓	✓	✓	✓	✓
15. Conservation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

4.2.3 Alternatives Considered

CEQA requires that an EIR must consider alternatives that reduce one or more significant effects of the proposed Project (CEQA Guidelines Section 15126.6(c)). For the purposes of this EIR, three alternatives to the proposed Project were identified to reduce one or more of the significant impacts identified in **Table 4-1** while also meeting most Project objectives and being feasible. In addition to the Alternatives considered in the SWRP Update, PWD also considered individual project alternatives that reduce the impacts of specific Project components. The remainder of the chapter describes the alternatives considered but rejected (**Section 4.2.3.1**), alternatives to the Project that were considered (**Sections 4.3, 4.4,** and **4.5**), and identifies an Environmentally Superior Alternative (**Section 4.6)**. The selected alternatives (described in **Sections 4.3, 4.4,** and **4.5**) include: a Reduced Project Alternative; a No Project Alternative; and an Alternative Location

to the Palmdale Ditch Conversion project. The three alternatives represent a reasonable range of alternatives to the proposed Project and the relative environmental impacts of the three alternatives are compared to the proposed Project (see **Table 4-4**).

4.2.3.1 Alternatives Considered but Rejected

CEQA Guidelines Section 15126.6(c) provides that the range of potential alternatives for the project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. Alternatives that fail to meet the fundamental project purpose need not be addressed in detail in an EIR. An EIR is also required to identify any alternatives that were considered by the lead agency but were rejected during the planning or scoping process, and briefly explain the reasons underlying the lead agency's determination.

PWD considered an alternative alignment for the Palmdale Ditch Conversion project that would be located almost entirely within existing roadways rather than along the current Ditch alignment. Similar to the proposed Project, this alternative involves converting approximately 7.2 miles of the Ditch to a buried pipeline and increasing the hydraulic capacity of the Ditch from 20 cfs to approximately 60 cfs. However, this alternative would require installation of approximately 6.5 miles of pipeline between Littlerock Dam Reservoir and Lake Palmdale in addition to a pump station to convey flows because this alternative alignment would not be capable of conveying water via gravity flow, as occurs under existing conditions. A greater number of aboveground appurtenances (e.g., air release and vacuum valves, blow-offs) would also be installed, and the pipeline would experience a higher operating pressure than under the proposed Project, which could increase its susceptibility to leaks or failures. This alternative was not one of the eleven water supply option alternatives evaluated in the SWRP Update; its purpose is to consider an alternate location for one component of the SWRP Update: the Palmdale Ditch Conversion project.

Construction of this alternative would be generally similar in nature to the proposed Project. However, because this alternative would occur primarily within roadways, this alternative would require the extended partial and potentially full closures of roadways, including Cheseboro Road, Barrel Springs Road, Mt. Emma Road, 47th Street East, and Pearblossom Highway, during construction. During operation, this alternative could result in safety issues for PWD staff accessing the new pipeline for routine operations and maintenance activities along active roadways. This alternative would also result in greater operation and maintenance needs than the proposed Project because a substantial number of siphons would be installed along the pipeline to achieve proper flow conveyance, which would result in standing water when the pipeline is not in use and would require annual yearly maintenance to prevent sediment and mineral deposition over time. Furthermore, although this alternative would include abandonment of the existing Ditch, restoration of the Ditch to natural grade may still be required for safety and stormwater control purposes, and the reallocation of stormwater entering the Ditch would still have to be adjudicated with the City, County, and private landowners. The overall construction cost of this alternative would be higher than the proposed

Project, primarily due to the need for extended coordination in roadway encroachment permitting and extensive post-construction roadway restoration. PWD would also have to establish new easements to accommodate the buried pipeline instead of utilizing its existing easements along the Ditch alignment. Furthermore, this alternative would result in higher overall operating costs due to the increased capital, maintenance, and operational expenses associated with the requisite pump station.

This alternative was rejected from further consideration because the high costs associated with construction and operation render it infeasible for implementation. In addition, this alternative would reduce but not eliminate the proposed Project's significant and unavoidable impact to historical resources. Even if the Ditch is left in place, the Ditch would no longer be maintained by PWD and, over time, would be subject to natural processes such as erosion that would deteriorate and degrade its integrity, thereby potentially resulting in material impairment of its historical significance. As such, the proposed Project's significant and unavoidable impact on historical resources would not be fully eliminated under this alternative. Furthermore, this alternative would increase impacts pertaining to energy and greenhouse gas emissions due to the increased electricity associated with operation of the pump station.

4.3 REDUCED PROJECT ALTERNATIVE

SWRP Update Alternative 3 was selected as the Reduced Project Alternative. Under the Reduced Project Alternative, PWD would not implement the Palmdale Ditch Conversion project and would not purchase 2,000 AFY of production rights from other groundwater users in the Antelope Valley Groundwater Basin. Except for those two differences, the remainder of the proposed Project (i.e., maximizing imported water supplies, developing indirect potable reuse and recycled water injection, constructing seven new groundwater production wells, continuing groundwater well rehabilitation/ replacement, continuing Littlerock Reservoir sediment removal, and complying with conservation regulations) would be implemented.

4.3.1 CONSTRUCTION IMPACTS

Under the Reduced Project Alternative, the Ditch would not be converted to a belowground pipeline and a new future turnout to the California Aqueduct would not be constructed. The Ditch would continue to operate in its current condition. PWD would not purchase production rights from other groundwater users in the Basin to access additional groundwater supplies. This would avoid construction impacts associated with drilling and equipping eight new wells outside of PWD's service area, as well as a pipeline to convey groundwater to PWD's distribution system.

Decreasing construction activities would decrease impacts generally associated with construction, including the following: impacts to air quality, GHG, and noise from construction equipment; impacts to traffic circulation and access due to installation of pipelines within roadways; impacts to water quality due to construction-related pollutants in storm water runoff from construction sites; potential impacts to cultural, tribal cultural and paleontological resources due to ground disturbance; and cumulative impacts generally associated with

construction together with other future projects. Because the Reduced Project Alternative would maintain existing Palmdale Ditch operations and not require construction activities within the existing Ditch, it would avoid impacts on special-status species, sensitive natural communities, federally and State protected wetlands, and locally-protected biological resources associated with the Ditch. In addition, this alternative would avoid the potential to create wildfire risks due to the use of construction equipment in vegetated areas within High FHSZs or adjacent to Very High FHSZs along the Ditch. . None of the mitigation measures required to reduce potentially significant but mitigable environmental impacts to biological, cultural, paleontological, and tribal cultural resources from construction of the Ditch would apply. Under this alternative, the proposed Project's significant and unavoidable impact to historical resources (i.e., the Ditch) would be avoided; however, restoration of the Ditch to natural grade may still be required for safety and stormwater control purposes, and if so, impacts to historical resources (i.e., the Ditch) under this alternative would be significant and unavoidable, similar to the proposed Project. Although temporary construction impacts would be reduced under the Reduced Project Alternative, there are no potentially significant or significant and unavoidable impacts associated with construction of the proposed Project that would be entirely avoided by implementing the Reduced Project Alternative instead of the proposed Project.

4.3.2 OPERATIONAL IMPACTS

The Reduced Project Alternative would reduce impacts to energy and GHG emissions due to not operating eight new wells and associated pipelines outside of PWD's service area to convey groundwater to PWD's distribution system.

However, according to the SWRP Update, under the Reduced Project Alternative, the frequency of unmet demand during droughts would be 27%, compared to 3% under the proposed Project. The average unmet demand during droughts would be 650 AFY and the maximum unmet demand would be 2,300 AFY under the Reduced Project Alternative, compared with 5 AFY and 80 AFY under the proposed Project, respectively. In addition, the Reduced Project Alternative would have a higher cost per AFY to produce on average, compared to the proposed Project.

Without the purchase 2,000 AFY of production rights from other groundwater users in the Antelope Valley Groundwater Basin,

Without the Palmdale Ditch Conversion, adverse effects associated with reduced surface water quality due to trash and debris in the Ditch would continue to occur over time. In addition, water seepage into the soil, water loss due to evaporation, and impacted surface water quality would continue to occur. Furthermore, this alternative would not result in the proposed Project's beneficial impacts related to reduced risks of liquefaction, lateral spreading, and expansive soils because moisture would continue to seep into the surrounding area when water is conveyed through the Ditch.

Additionally, under the Reduced Project Alternative, the federal and State grant funding awarded to PWD for the Palmdale Ditch Conversion project would be forfeited. PWD would also not realize other benefits of an estimated water savings of approximately 1,450 acre-feet (AF);

increased conveyance capacity, system performance, reliability, and resiliency; reduced potential for interruption of water conveyance and need for emergency maintenance activities; and improved safety of its operations and maintenance activities.

The Reduced Project Alternative lacks benefits associated with the proposed Project surrounding sustainability, stewardship of facilities, groundwater basins and reservoirs. It would not replenish local resources or improve the condition of existing resources as much as the proposed Project. The Reduced Project Alternative would also be harder to implement, from a phasing potential and adaptability to uncertainty, such as changes in demand trends, hydrology and supply availability, facility needs and costs, regulations, and decision-maker priorities.

4.3.3 Summary of Environmental Impacts

Overall, the Reduced Project Alternative (SWRP Update Alternative 3) would result in similar environmental impacts to the proposed Project because the Reduced Project Alternative includes maximizing imported water supplies, developing recycled water supplies, constructing seven new groundwater production wells, continuing well rehabilitation and replacement, and sediment removal at Littlerock Dam Reservoir. Although the Reduced Project Alternative does not include purchase of groundwater rights from other groundwater users in the Antelope Valley Groundwater Basin, it would not reduce any operational environment impacts because the purchase of groundwater production rights would not result in a significant impact to agricultural production. The Reduced Project Alternative would not include the conversion of the Palmdale Ditch, thus it would have fewer construction-related impacts to biological, cultural and tribal resources, paleontological, wildfire, aesthetics, and transportation to the construction phase, and reduced impacts to air quality, energy, GHG emissions, and transportation during operations. The Reduced Project Alternative would avoid the significant and unavoidable impacts to historic resources (i.e., the Ditch). However, the Reduced Project Alternative would not fulfill the objectives of the SWRP Update to meet the current and future water supply needs for PWD's service area to 2050 as well as the proposed Project.

4.4 ALTERNATIVE ALIGNMENT OF PALMDALE DITCH

This alternative focuses on an alternative alignment for the Palmdale Ditch Conversion project that is primarily located within existing roadway rather than along the current Ditch alignment. Under this alternative, the remainder of the proposed Project would be implemented. This alternative was not one of the eleven water supply option alternatives evaluated in the SWRP Update; its purpose is to consider an alternate location for one component of the proposed Project: the Palmdale Ditch Conversion project.

Similar to the proposed Project, this alternative involves converting approximately 7.2 miles of the Ditch to a buried pipeline and increasing the hydraulic capacity of the Ditch from 20 cfs to approximately 60 cfs. However, under this alternative, approximately 6.5 miles of buried pipeline would be installed within Cheseboro Road and Barrel Springs Road, and the majority of the current Ditch would be abandoned. This alternative would convey water from Littlerock Dam Reservoir to Lake Palmdale via gravity flow utilizing siphons within the pipeline. As with the

proposed Project, this alternative may include installation of a new future turnout to the California Aqueduct.

Construction of this alternative would likely occur over an approximately 10-month period, similar to the proposed Project, and would involve similar construction techniques (i.e., a mix of open-cut trenching and trenchless methods) and equipment. Because this alternative would occur primarily within public rights-of-way, this alternative would require the extended partial and potentially full closures of roadways, including Cheseboro Road, Barrel Springs Road, Mt. Emma Road, 47th Street East, and Pearblossom Highway, during construction. During operation, this alternative could result in safety issues for PWD staff accessing the new pipeline for routine operations and maintenance activities along active roadways. This alternative would also result in greater operation and maintenance needs than the proposed Project because the siphons in the pipeline used to deliver water by gravity would result in standing water when the pipeline is not in use and would require annual yearly maintenance to prevent sediment and mineral deposition over time. Furthermore, although this alternative would include abandonment of the existing Ditch, restoration of the Ditch to natural grade may still be required for safety and stormwater control purposes, and the reallocation of stormwater entering the Ditch would still have to be adjudicated with the City, County, and private landowners. The overall construction cost of this alternative would be higher than the proposed Project, primarily due to the need for extended coordination in roadway encroachment permitting and extensive post-construction roadway restoration. PWD would also have to establish new easements to accommodate the buried pipeline instead of utilizing its existing easements along the Ditch alignment.

4.4.1 Construction Impacts

Under this alternative, construction activities would be largely similar in nature and intensity to the proposed Project and would therefore result in generally similar impacts to the following environmental resources: air quality, energy, GHG emissions, and noise due to similar use of construction equipment; hazards and hazardous materials associated with construction activities; and water quality due to construction-related pollutants in stormwater runoff.

This alternative would be primarily constructed within existing roadways which have already been subject to previous disturbance from roadway construction, and would require less disturbance to vegetated areas and natural drainage and wetlands features to establish construction access and staging/laydown areas. Accordingly, construction of this alternative would have fewer impacts on special-status species, sensitive natural communities, federally and State protected wetlands, and locally-protected biological resources compared to the proposed Project. As such, the extent of biological resources mitigation measures required would likely be reduced as compared to the proposed Project. In addition, this alternative would have less potential to create wildfire risks due to the use of construction equipment in vegetated areas within High FHSZs or adjacent to Very High FHSZs because construction activities would be concentrated along roadway corridors. Furthermore, because this alternative would construct the pipeline primarily within previously disturbed areas, the potential to encounter intact archaeological resources, paleontological resources, or tribal cultural resources during ground-disturbing construction activities would be substantially lower compared to the proposed

Project. However, due to the archaeological, paleontological, and tribal cultural resource sensitivity of the surrounding area, similar mitigation measures related to these environmental resources would likely still be necessary for this alternative.

This alternative would result in disturbances to major roadways, including partial and potentially full closures, for substantially longer periods of time than the proposed Project. Due to the extended closure of roadways, potential impacts related to emergency access and traffic hazards during construction would be greater than those of the proposed Project, and additional mitigation measures may be required to facilitate safe and efficient transportation access during construction. In addition, impacts to aesthetics would be greater than the proposed Project due to the increased visibility of construction equipment along public roadway corridors but would remain less than significant.

Under this alternative, if the Ditch is left in place, the proposed Project's significant and unavoidable impact on historical resources (i.e., the Ditch) would be reduced as compared to the proposed Project. However, the Ditch would no longer be maintained by PWD and, over time, would be subject to natural processes such as erosion that would deteriorate and degrade its integrity, thereby potentially resulting in material impairment of its historical significance. As such, the proposed Project's significant and unavoidable impact on historical resources would not be fully eliminated under this alternative. In addition, restoration of the Ditch to natural grade may still be required under this alternative for safety and stormwater control purposes, and if so, impacts to historical resources (i.e., the Ditch) under this alternative would be significant and unavoidable, similar to the proposed Project.

Although temporary construction impacts would be reduced under this alternative, there are no potentially significant or significant and unavoidable impacts associated with construction of the proposed Project (e.g. biological, historic, and paleontological resources) that would be entirely avoided by implementing this alternative instead of the proposed Project.

4.4.2 Operational Impacts

As with the proposed Project, this alternative would involve installation of a buried pipeline and potential new future turnout and would thus result in generally similar impacts to the following environmental resources: aesthetics, agriculture and forestry resources, geologic and soil hazards, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, utilities and service systems, and wildfire. In addition, similar to the proposed Project, conversion of the Ditch to an underground pipeline would result in significant but mitigable permanent impacts to federally and State protected wetlands because water that was previously conveyed through the Ditch would instead be conveyed through the buried pipeline and because the Ditch may be required to be restored to natural grade for safety and stormwater control purposes.

However, under this alternative, operations and maintenance activities associated with the buried pipeline and potential new future turnout would be increased as compared to the proposed Project due to the need for annual yearly maintenance to prevent sediment and

mineral deposition over time. As a result, this alternative would result in slightly increased impacts to air quality, energy, and GHG emissions due to the increased PWD staff vehicle trips and equipment usage for maintenance. This alternative would also result in increased impacts to transportation if routine maintenance of the pipeline requires partial lane closures to ensure PWD staff safety.

Overall, there are no potentially significant or significant and unavoidable impacts associated with operation of the proposed Project (e.g., federally and State protected wetlands) that would be entirely avoided by implementing this alternative instead of the proposed Project.

This alternative would realize the proposed Project benefits of an estimated water savings of approximately 1,450 AF; increased conveyance capacity, system performance, reliability, and resiliency; and reduced potential for interruption of water conveyance and need for emergency maintenance activities. However, this alternative would not achieve one of the secondary "Local Supplies" objectives of the proposed Project of improved safety of PWD's operations and maintenance activities related to this conveyance system because of the hazards associated with maintaining a pipeline within active roadways.

4.4.3 Summary of Environmental Impacts

Overall, this alternative would result in reduced impacts to biological, cultural, paleontological, and tribal cultural resources and wildfire and greater impacts to aesthetics and transportation during the construction phase. This alternative would also result in greater impacts to air quality, energy, GHG emissions, and transportation during the operational phase. In addition, if restoration of the Ditch to natural grade is required under this alternative for safety and stormwater control purposes, this alternative would not avoid the proposed Project's significant and unavoidable impact to historical resources (i.e., the Ditch). There are no potentially significant or significant and unavoidable impacts associated with the proposed Project that would be entirely avoided by implementing this alternative instead of the proposed Project.

4.5 NO PROJECT ALTERNATIVE

Under the No Project Alternative, PWD would not implement the Preferred Strategy (proposed Project). The impacts associated with the proposed Project as described in Chapters 3 and 5 would be avoided under the No Project Alternative. However, none of the Project objectives would be met. The existing supply mix would not be augmented by maximizing imported water, expanding recycled water supplies, recharging the groundwater basin with additional imported and recycled water, increasing groundwater production, and converting the Palmdale Ditch. There would be a higher chance of not meeting future demands generated by population growth. PWD would not be able to adequately provide water services to its existing or projected customer base while conserving groundwater resources.

Table 4-4: Summary of Alternatives Analysis, Relative Impacts as Compared to the Proposed Project

Issue Area	Proposed Project	No Project	Reduced Project	Alternative Alignment of Palmdale Ditch
Meets Primary Project Objectives?	Yes	No	No	Yes
Aesthetics	LSM	-	LSM -	LSM
Air Quality, Greenhouse Gases	LSM	-	LSM -	LSM
Biology	LSM	-	LSM -	LSM -
Cultural Resources, Tribal Cultural Resources	SU, LSM	-	SU -, LSM -	SU -, LSM -
Energy	LSM	-	LSM -	LSM
Geology, Soils, Seismicity, Minerals, and Paleontological Resources	LSM	-	LSM -	LSM -
Hazards, Hazardous Materials, and Wildfire	LSM	-	LSM -	LSM -
Hydrology, Groundwater, and Water Quality	LSM	-	LSM	LSM
Land Use, Agriculture, and Forestry Resources	LS	-	LS	LS
Noise and Vibration	LSM	-	LSM -	LSM
Recreation	LSM	-	LSM	LSM +
Transportation	LSM	-	LSM -	LSM +
Utilities, Service Systems, and Public Services	LSM	-	LSM	LSM
Other CEQA Considerations (Growth Inducing, , Unavoidable, Irreversible)	LSM, SU	-	LSM	LSM

Notes: LS = Less than significant; LSM = Less than significant with mitigation incorporated; SU = significant and unavoidable; + more severe/more intense; - less severe/less intense compared to the proposed Project.

4.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR must identify the environmentally superior alternative. In addition, the CEQA Guidelines (Section 15126.6(e)(2)) require that, if the environmentally superior alternative is the No Project Alternative, the EIR shall identify an environmentally superior alternative among the other alternatives.

The No Project Alternative would result in the least environmental impacts because there would be no physical changes to the environment. All impacts associated with the proposed Project would be avoided but none of the proposed Project objectives would be met.

The Reduced Project Alternative would have less impacts associated with construction related to air quality and GHG emissions, energy, transportation, biological, cultural and tribal, geological and paleontological resources, and wildfires, and would avoid the significant impacts to historic resources, because the alternative does not include the conversion of Palmdale Ditch. However, the Reduced Project Alternative would not meet the SWRP Update's objectives as much as the

proposed Project because it would result in a higher chance of unmet demand. The Reduced Project Alternative also would not meet the secondary objectives around improving the Palmdale Ditch to reduce water loss and adding additional pumping capacity to access stored water during times of shortage.

While the Alternative Alignment of the Ditch meets the SWRP Update's objectives, the Alternative Alignment of the Ditch would result in greater impacts to air quality, energy, GHG emissions, and transportation. Additionally, if restoration of the Ditch to natural grade is required under this Alternative Alignment of the Ditch for safety and stormwater control purposes, this alternative would not avoid significant impacts on historical resources. This alternative would not avoid any significant impacts associated with the proposed Project.

Based on the comparison of alternative impacts, none of the alternatives (Reduced Project Alternative or Alternative Location) is considered to be the clearly environmentally superior alternative.

4.7 REFERENCES

Palmdale Water District. 2023. Strategic Water Resources Plan Update

Rincon 2024. Palmdale Ditch Conversion Project – Final Initial Study. April.

CHAPTER 5. OTHER CEQA CONSIDERATIONS

This section describes required topics including growth inducing impacts, significant and unavoidable impacts, and significant irreversible environmental changes relative to the proposed Project.

5.1 GROWTH INDUCEMENT

5.1.1 INTRODUCTION

The CEQA Guidelines (Section 15126.2(d)) require that an EIR include a discussion regarding the potential for project-related growth inducing impacts. The CEQA Guidelines provide the following guidance for the discussion and consideration of growth-inducing impacts:

"Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."

Under CEQA, growth inducement is not considered necessarily detrimental, beneficial, or of little significance to the environment. Projects are considered to have growth-inducing implications when economic, housing, or population growth would be stimulated, either directly or indirectly. An example of direct growth is a project that involves construction of new housing. An indirect growth inducement effect could occur if a project would establish substantial new permanent employment opportunities or if it would involve a large construction effort with substantial short-term employment opportunities and indirectly stimulate the need for additional housing and services to support the new employment demand. Similarly, a project would have an indirect growth inducement effect if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service.

Water supply availability and service is one of the main, though not the only, public services needed to support development. Implementation of the proposed Project would help provide the facilities and management actions needed to increase supply to meet future demand associated with planned growth, as well as balance the groundwater basins to minimize further overdraft. As such, implementation of the proposed Project would help to remove water supply availability as one obstacle to further development and population growth, in accordance with local planning documents, within PWD boundaries. While adequate water supply would play a role in supporting additional growth in PWD, it would not be the single impetus to such growth. Other factors, including General Plans and policies, the availability of wastewater disposal

capacity, public schools, transportation services, and other important public infrastructure, also influence business and residential or population growth. Economic factors, in particular, greatly affect development rates and locations.

5.1.2 METHODOLOGY

In accordance with the CEQA Guidelines, implementation of the proposed Project would have an indirect growth inducement potential. As indicated in the CEQA definition above, growth inducement itself is not necessarily an adverse impact. It is the potential consequences of growth, the secondary effects of growth, which may result in environmental impacts. Potential secondary effects of growth could include increased demand on other public services; increased traffic and noise; degradation of air quality; loss of plant and animal habitats; and the conversion of agriculture and open space to developed uses. Growth inducement may result in adverse impacts if the growth is not consistent with the land use plans and growth management plans and policies for the area, as "disorderly" growth could indirectly result in additional adverse environmental impacts. Thus, it is important to assess the degree to which the growth accommodated by a project would or would not be consistent with applicable land use plans.

This section analyzes the nature and extent of growth inducement potential for the proposed Project, to ascertain whether it would remove an obstacle to additional growth and development. The analysis includes an assessment of existing and projected population levels, and existing and projected water supply and demand, as well as a discussion of conformance with regional and local general plans. The secondary effects of growth are then assessed along with a discussion of responsible agencies and mitigation policies and measures to reduce these impacts.

5.1.3 PALMDALE WATER DISTRICT DEMAND PROJECTIONS

Palmdale Water District's (PWD) primary service area covers approximately 46 square miles and includes the central and southern portions of the City of Palmdale ("the City") and adjacent unincorporated areas of Los Angeles County. The entire District encompasses an area of approximately 140 square miles overlying more than thirty non-contiguous areas scattered throughout the Antelope Valley (PWD 2020).

The City's most updated General Plan describes the growth patterns and demographics of the city, rather than the demographics within PWD (City of Palmdale 2022). Because PWD's primary service area boundary does not coincide with the City boundary, population estimates provided by the City do not portray an accurate description of the population within PWD (City of Palmdale 2022). An estimated 75 percent of the population of the City resides in the PWD service area. The PWD 2020 Urban Water Management Plan (UWMP) provides population estimates and projections specific to PWD's boundaries (PWD 2021).

5.1.3.1 Population Projections

As of 2020, the City had a population of 169,450, making it the sixth most populous city in Los Angeles County (City of Palmdale 2022). Palmdale's population experienced rapid growth between before the turn of the century, increasing nearly tenfold in 20 years—from 12,227 in 1980 to 116,670 in 2000 (United States Census Bureau 2002; City of Palmdale 2022). Since 2000, Palmdale's population has increased by a lower average of 1.5% annually, still three times greater than the County average of 0.5% (City of Palmdale 2022). As seen in **Table 5-1,** the City is expected to exceed a population of 200,000 by 2045 (City of Palmdale 2022). By 2040, household growth is expected to exceed population growth by 2040 (City of Palmdale 2022). Therefore, the City is likely to increase development to support the expansion of the population (City of Palmdale 2022). However, much of the undeveloped land in the City lacks "horizontal infrastructure," such as water and power, presenting higher costs for future development in these areas (City of Palmdale 2022). **Table 5-1** displays that the Palmdale Water District reports a population of 126,062, nearly 75% of the City's population (PWD 2021). Furthermore, PWD claims "steady growth" over the last 40 years as of 2020 (PWD 2021). PWD predicts that its users will exceed a population of 150,000 by 2045, approximately 75% of the City's predicted population (PWD 2021; City of Palmdale 2022).

Table 5-1: Population and Water Demand Projections

Population Projection	2020	2025	2030	2035	2040	2045
City of Palmdale (2022 General Plan)	169,450	-	-	-	-	219,298
Palmdale Water District (2020 UWMP)	126,062	128,998	132,003	138,554	145,962	153,766
Potable Water Demand Projection (AFY)						
Palmdale Water District (2020 UWMP)	20,511	19,720	20,310	21,480	22,780	24,250

Source: City of Palmdale 2022; Palmdale Water District 2021.

5.1.4 WATER SUPPLY AND DEMAND

The Palmdale Water District reports that 2020 water demand was 20,511 acre-feet per year (AFY), 13,312 of which was for residential customers (PWD 2021). In 2020, municipal users made up 27,749 water connections, 96% of which were residential connections (PWD 2021). PWD's overall water demands—including commercial, industrial, and landscape irrigation—are expected to reach 24,250 AFY in 2045, as shown in **Table 5-1**, a nearly 20% increase from 2020 (PWD 2021). Depending on climatic conditions in the next 20 years, PWD's 2045 potable water supply could range from 22,225 to 35,375 AFY (**Table 5-1**; PWD 2021). As shown in **Table 5-2,** under normal climatic conditions, the projected water supply well exceeds expected demands for the next two decades (PWD 2021). However, under drought conditions, excess water supply will be small or non-existent, depending on the length and intensity of the drought (PWD 2021).

Table 5-2: Projected Water Supplies 2025 to 2045 (AFY)

Water Supply Projection (AFY)	2025	2030	2035	2040	2045
Normal Year	36,725	35,315	35,345	35,375	35,375
Single-Dry Year	21,235	20,600	21,410	22,225	22,225
Multiple-Dry Year	28,125	26,390	26,105	25,665	25,665

Source: Palmdale Water District 2021.

5.1.5 Palmdale General Plan Goals and Policies

5.1.5.1 City of Palmdale General Plan

Given its dramatic historical increase in population and continued projected future growth, the 2022 City General Plan recognized the need to identify policies and programs designed to address and manage its future growth.

WASTE AND WASTEWATER

Palmdale's 2022 General Plan outlines the City's goal to ensure that any future development is supported by adequate infrastructure, specifically water and sewage facilities (Goal PSFI-3; City of Palmdale 2022, p. 319-320). Furthermore, the region's arid climate requires planners to consider the sustainability of water resources used by the current and future residents of the City (City of Palmdale 2022).

Goal PFSI-3: Ensure that all development in Palmdale is served by adequate water distribution and sewage facilities.

PSFI-3.1. Water Supply and Delivery. Support water suppliers and other jurisdictions within the Antelope Valley in studying status and projected needs for water supply and delivery.

PFSI-3.2 Local Drainage Detection Basins. Make use of interim local drainage detention basins to slow stormwater runoff until such time as permanent drainage facilities are constructed.

PFSI-3.3 Retention Facilities. Where feasible, plan for detention or retention facilities in areas where groundwater recharge can be accomplished.

PFSI-3.4 Drainage Facilities. Through the development review process, reserve land in appropriate locations for construction of drainage facilities.

PFSI-3.5 Sanitation District Collaboration and Water Purveyors. Work with the Sanitation District and Water Purveyors to identify users for reclaimed water and support plans for its treatment and distribution.

PFSI-3.6 Code Compliance. All private sewage disposal systems must comply with the requirements of the City of Palmdale Plumbing Code, the Los Angeles County Health Department, and Lahontan Regional Water Quality Control Board and any Memorandum of Understanding between these agencies concerning private sewage disposal systems.

PFSI-3.7 Public Sewer System Prioritization. Require that all commercial, industrial, institutional, and multiple family uses be connected to a public sewer system with only limited use of private sewage disposal systems.

PFSI-3.8 Public Sewer System Utilization Requirement. Require that all single-family residential uses with lot sizes of less than one acre be connected to a public sewer system.

PFSI-3.9 Renewable Energy and Industrial Project Disposal Systems. Allow the use of private sewage disposal systems on nonresidential renewable energy and industrial projects with domestic discharge only on property with an IN (Industrial) General Plan Land Use designation located between Avenue L and M between 40th Street East and 120th Street East, and on property with an IND (Industrial) General Plan Land Use designation on property located south of Avenue M, north of Avenue P-8, between 90th Street East and 120th Street East. The maximum daily estimated discharge shall not exceed 500 gallons/acre/day wastewater flow with a maximum discharge of 5,000 gallons per day.

PFSI-3.10 Mining and Construction Disposal Systems. Allow the use of private sewage disposal systems on nonresidential industrial aggregate mining and construction aggregate related uses with domestic discharge only within the MRE (Mineral Resource Extraction) General Plan Land Use designations. The maximum daily estimated discharge shall not exceed 500 gallons/acre/day wastewater flow with a total maximum of 5,000 gallons per day.

PFSI-3.11 New Development Fees. Require new development to pay necessary fees for expansion and ongoing maintenance of the sewage disposal system to the appropriate agencies, to handle the increased load, which it will generate.

PFSI-3.12 Water and Wastewater BMPs. Utilize best management practices (BMPs) in the purveyance of water resources and management of wastewater.

PFSI-3.13 Low Impact Development. Require new development to minimize storm water runoff and pollutant exposure by incorporating low impact development (LID) measures and appropriate best management practices (BMPs) consistent with the National Pollution Discharge Elimination System (NPDES).

PFSI-3.14 Water and Wastewater Provision. Ensure the provisions of adequate water and wastewater services to all new development.

PFSI-3.15 Diversify Water Supplies. Coordinate with water purveyors to facilitate the commitment to diversifying the region's water supply through water banking projects and expanded recycled water projects.

PFSI-3.16 Service Levels. Provide sufficient levels of water, sewer, and storm drain services throughout the City.

PFSI-3.17 Adequate Systems. Identify and correct issues within the City's sewer and storm drain systems to prevent system failures.

PFSI-3.18 Water Conservation. Support and promote water conservation across all facets of City water infrastructure.

UTILITIES

As previously mentioned, undeveloped areas lack infrastructure, leading to high upfront costs of development for the City's growing population (City of Palmdale 2022). Palmdale's 2022 General Plan outlines the City's goal to ensure adequate utility services are available and being efficiently used in future development projects (Goal PSFI-5; City of Palmdale 2022, p. 322). Furthermore, the General Plan sets the goal of coordinating development with critical utility providers (Goal PSFI-6; City of Palmdale 2022, p. 323).

Goal PFSI-5: Ensure that adequate public utilities are available to support development in an efficient and orderly manner.

> **PFSI-5.1 Development Priorities**. Prioritize development in areas that have existing horizontal infrastructure (roads, sewer, water, drainage, etc.).
> **PFSI-5.6 Land Use Changes.** When reviewing applications for land use designation changes (i.e., zone change, General Plan Amendment, specific plan amendment), conduct a thorough analysis of the impacts of the proposed change on all elements of the City's infrastructure systems, and require mitigation as deemed appropriate.
> **PFSI-5.7 Adjacent Development Integration.** Require that individual development projects integrate with adjacent development with respect to backbone infrastructure (streets, sewer, water, and drainage). If adjacent property is undeveloped, a conceptual plan should be prepared to show that the pending development will allow for future integration and development of adjacent properties in a manner which is reasonable from a design, construction, and cost standpoint.

Goal PSFI-6: Coordinate with utility providers to support adequate provision of critical utilities.

> **PFSI-6.1 Infrastructure Equity**. Distribute the costs of extending infrastructure equitably among those benefiting from the improvements.
> **PFSI-6.3 New Utility Development.** When feasible, require new utility lines to be constructed underground and along existing utility corridors.
> **PFSI-6.6 Prioritize Connections.** Work with providers to prioritize connections near existing development in the core of the city.
> **PFSI-6.7 Utility Safety.** When feasible, require new utility lines to be constructed away from fault lines, flood zones, fire zones, and other vulnerable areas.

5.1.5.2 Palmdale Strategic Plan

As a part of Palmdale's 2020-2024 Consolidated Plan, the City adopted a Strategic Plan to guide priority setting for funding received between the beginning of the 2020-21 fiscal year and the end of the 2024-25 fiscal year (City of Palmdale 2020). The Strategic Plan establishes goals for improvements to housing, community, and economic development, none of which are specifically relevant to the upcoming Strategic Water Resources Plan (City of Palmdale 2020). However, the Strategic Plan is clear in its goal to improve public infrastructure and facilities in general, which pertains to strategic planning for wastewater and water resources (City of Palmdale 2020).

5.1.6 GROWTH INDUCEMENT POTENTIAL

Implementation of the proposed Project would not have a direct growth inducement effect, as it does not propose development of new housing that would attract additional population to the area. Further, implementation of the proposed project would not result in substantial permanent employment that could indirectly induce population growth.

The proposed Project evaluated various objectives with the goal of providing sustainable water supplies to meet growing demand due to projected increases in population. Furthermore, the proposed Project emphasizes improvement to existing infrastructure, rather than extensive capital projects. Implementation of the proposed Project would not create a new or expanded water supply that could create an indirect growth inducement potential. The proposed Project prioritizes the conservation of existing water supplies by reducing water waste in residential and commercial buildings, as well as preventing excess leakage from the Palmdale Ditch (Ditch) system. Groundwater recharge and increased use of recycled water are two more objectives to improve the sustainability of PWD's water supply.

The local jurisdictions that govern land use and development in PWD include the City and the County of Los Angeles. The adopted General Plan documents guide the type, location, and level of land use and development. Both of these jurisdictions have assessed the growth-related impacts associated with planned land use and growth allowed under their General Plans and the CEQA EIRs they have prepared for those plans. In addition, SCAG, the regional authority charged with providing a framework for coordination of orderly regional growth and development, prepared the Regional Comprehensive Plan (RCP) (SCAG 2008), which combines regional planning efforts into a single focused document. The RCP addresses growth management as well as several core elements including housing, transportation, air quality, and water. The principal objectives of the RCP are to coordinate regional and local decisions with respect to future growth and development and to minimize future environmental impacts. SCAG has also prepared the 2016 RTP (SCAG 2016). The RTP acts as a long-term planning and management plan for the regional transportation system, providing mitigation measures to off-set the impacts of growth projected in the RCP. The RTP/SCS PEIR identifies significant unavoidable impacts in a number of issue areas and concludes that when population and employment growth is held constant, many adverse environmental impacts will be significant and unavoidable (SCAG 2016).

PWD does not have the authority to make land use decisions to halt or alter growth and development patterns or approvals, nor does it have the authority to address many of the potentially significant, secondary effects of planned growth. Authority to implement those measures lies with the City and the County of Los Angeles. PWD does have the authority to take actions and implement projects to help mitigate the secondary effects of growth on water resources and water supply services within the service area.

While the Project would improve water supply sustainability with the goal of meeting future growth within PWD's service area, the Project would support planned population growth that

has been identified within the service area. The most up-to-date current and projected water demand estimates would be assessed by PWD prior to implementation of any proposed projects. Facilities and projects would not be implemented if they are not determined necessary to deliver water to meet demand. As a result, the proposed Project neither supports nor encourages growth within the PWD service area to a greater degree than presently estimated by the City and SCAG as described above. The proposed Project would not remove any obstacles to growth and would not indirectly have a significant impact on growth inducement. As a result, impacts to growth inducement would be less than significant.

5.1.7 SECONDARY EFFECTS OF GROWTH

The local jurisdictions that govern land use and development in PWD include the City and the County of Los Angeles. The adopted General Plan documents guide the type, location, and level of land use and development. Both of these jurisdictions have assessed the growth-related impacts associated with planned land use and growth allowed under their General Plans and the associated CEQA EIRs. In addition, SCAG, the regional authority charged with providing a framework for coordination of orderly regional growth and development, has prepared the Regional Comprehensive Plan (RCP) (SCAG 2008), which combines regional planning efforts into a single focused document. The RCP addresses growth management as well as several core elements including housing, transportation, air quality, and water. The principal objectives of the RCP are to coordinate regional and local decisions with respect to future growth and development and to minimize future environmental impacts. SCAG has also prepared the 2016 RTP/SCS and an associated EIR (SCAG 2016). The RTP acts as a long-term planning and management plan for the regional transportation system, providing mitigation measures to off-set the impacts of growth projected in the RCP, while the SCS prioritizes the sustainable use of resources in recognition of the population growth within the region. The RTP/SCS EIR identifies significant unavoidable impacts in a number of issue areas, but offers management plans and policies for individual local jurisdictions.

It is these growth-related impacts associated with land use and growth planned and approved by the local land use jurisdictions that constitute secondary effects of growth associated with the proposed Project. Following is a discussion of key environmental areas where secondary effects of growth are expected to occur. These impacts are addressed in the applicable jurisdiction's planning documents and related CEQA analyses. The proposed Project would plan for infrastructure and water supply to support this planned growth and thus would have a less than significant impact.

5.1.7.1 Air Quality

Population growth in the PWD service area would result in continued intermittent construction activities for new development scattered throughout the region. These construction activities would result in emission of air pollutants. Increased development in the region would also result in an increase in operational emissions from industrial development. Additionally, increases in regional population would also increase traffic in the region, resulting in increased emissions

from vehicles. With these factors contributing to air quality degradation, growth is generally considered to have a significant unavoidable impact on air quality.

Air quality is primarily regulated at the State and regional levels. The CARB is responsible for establishing and reviewing the State ambient air quality standards, compiling the California State Implementation Plan (SIP) and securing approval of that plan from U.S. EPA. The proposed Project is located in the western portion of the Mojave Desert Air Basin (MDAB.) The Antelope Valley Air Quality Management District is the local air district with jurisdiction over the Project area. The AVAQMD has adopted an Air Quality Management Plan (AQMP) for determination of the significance of a project's contribution to local or regional pollutant concentrations. In addition, the Air Quality Attainment Plan (AQAP) establishes a program of rules and regulations directed at attainment of State and national air quality standards. Accordingly, conformance with the AQAP for development projects is determined by demonstrating compliance with local land use plans. All development projects within the AVAQMD will be required to comply with existing rules as they apply to each specific project.

The AVAQMD has adopted a variety of attainment plans for a variety of nonattainment pollutants. Table 3.15-3 summarizes the applicable attainment plans prepared by the AVAQMD. These plans provide measures to reduce pollutant loads in the local air basins by a certain date to comply with federal air quality standards.

Table 5-3. Air Quality Attainment Plans (AVAQMD)

Name of Plan	Date of Adoption	Applicable Area	Pollutants Targeted	Attainment Date
2004 Ozone Attainment Plan (State and Federal)	4/20/2004	Entire District	O_3, NO_x and VOC	2007
Federal 8-Hour Ozone Attainment Plan	5/20/2008	Entire District	O_3, NO_x and VOC	2021
Federal 8-Hour Ozone Attainment Plan	1/19/2010	Entire District	O_3, NO_x and VOC	2019
Federal 75 ppb Ozone Attainment Plan	3/21/2017	Entire District	O_3, NO_x and VOC	2027
2023 Federal 75 ppb Ozone Attainment Plan	1/17/2023	Entire District	O_3, NO_x and VOC	2033

Source: AVAQMD, 2004; AVAQMD, 2008; AVAQMD, 2009; AVAQMD, 2017; AVAQMD, 2023.

The County and municipalities generally support efforts to minimize air quality degradation with policies that:

- Pledge cooperation between local, regional, and State agencies to establish comparable air quality elements and implementation programs;
- Support and expand public transit to reduce emissions from vehicle trips;
- Provide incentives to reduce work-related vehicle trips (including HOV lanes); and,

- Support legislation to promote cleaner fuels.

Although implementation of these policies and mitigation measures would reduce growth-related impacts on air quality, impacts may remain significant.

5.1.7.2 Biological Resources

Development associated with growth would remove vegetation and result in the loss of habitat for some biological species. Growth would result in the conversion of open spaces to developed uses, potentially resulting in fragmentation of existing wildlife corridors. Additionally, increased development may result in a loss of riparian and wetland habitats. Existing biological communities in the PWD service area that may be affected are described in more detail in Chapter 3.3, Biological Resources.

Local jurisdictions, including the municipalities and the County, have developed policies and mitigation measures through their general plans and the associated EIRs that help identify and preserve biological communities. Additionally, federal and State agencies, including the USFWS and the CDFW, require permitting and otherwise restrict construction or development activities within areas containing sensitive biological species. The federal Endangered Species Act requires permits for actions that could result in the direct loss of listed species including the desert tortoise. Although implementation of these policies and mitigation measures would reduce growth-related impacts on biological resources, impacts may remain significant.

5.1.7.3 Hydrology, Water Supply and Water Quality

Population growth in the region would result in increased water demand and wastewater production, which would require improvement and enlargement of utilities in order to meet demand levels and wastewater treatment requirements. Additionally, an increase in development resulting from population growth would result in increased areas of impermeable surfaces. This may contribute to increases in storm water runoff and water quality degradation. Municipalities and the County address these issues with policies aimed towards:

- Cooperating with federal, State, and local agencies responsible for water basin management to compile water quality and water demand data;
- Limiting development to areas where utilities infrastructure is already in place and where adequate water supply is shown to be available;
- Encouraging the development of water reclamation systems and the use of reclaimed wastewater, where feasible; and,
- Encouraging water conservation.

Water quality issues are also regulated at the regional level by RWQCB. The RWQCB enforces implementation of the NPDES to address both storm water/non-point source pollution and point sources. With respect to water supply for consumptive use, the requirements of California State Senate Bills 610 and 221 require that new developments of certain size obtain verification

of the availability of water to supply the development prior to approval. PWD coordinates with local municipalities to assess that adequate water supplies are available for existing and planned development. Although implementation of these policies and mitigation measures would reduce growth-related impacts on hydrology and water quality, impacts may remain significant.

5.1.7.4 Land Use, Open Space and Agriculture

Population growth would result in the conversion of existing open space and/or agricultural land uses to developed municipal land uses. The conversion of open space is partially addressed by policies related to biological resources. In addition, local municipalities and the County set forth policies to support the preservation of open space and agricultural land. These agencies can establish zoning and land use designations to encourage the preservation of open space, for example by requiring large lot sizes, clustering developments, designating areas of unique resources (sand dunes, hot springs, etc.). Municipal and County general plans also set forth goals of acquiring and purchasing open space areas for preservation and establishing local and regional trail networks.

5.1.7.5 Noise

Population growth may result in increased noise levels in developed areas. Construction activities for development projects would contribute to increases in noise levels. Where development would result in a higher density of municipal or urban land uses, noise levels could be expected to increase. Additionally, increased traffic would result in increased noise levels. The municipalities and the County reduce these impacts of noise through policies that:

- Establish interior and exterior noise standards for different land uses and ensure that construction and operation of new developments do not exceed those standards;
- Establish land use compatibility standards to ensure that noise sensitive developments are not impacted by nearby noise-generating land uses; and,
- Require the inclusion of noise buffering measures in the design of new roadways and transportation corridors.

Although implementation of these policies and mitigation measures would reduce growth-related impacts on noise levels, impacts may remain significant.

5.1.7.6 Traffic

As population in the region grows, the number of vehicles on roadways throughout the region would increase. Accommodating increased traffic volumes would generally require increasing the transportation infrastructure in the region. SCAG's RTP offers long-term planning and management guidelines for the regional transportation system. The RTP EIR provides mitigation measures to off-set the impacts of growth projected in the region. Additionally, municipalities and the County set forth general plan policies to:

- Improve and maintain roadways to accommodate existing and projected traffic volumes;
- Ensure that the roadway system is safe and efficient; and,
- Provide diverse and effective public transit to reduce traffic volumes.

Although implementation of these policies and mitigation measures would reduce growth-related impacts on traffic, impacts may remain significant.

5.1.7.7 Summary

The proposed Project aims to make the most of existing water resources to sustain current and future demand in PWD's service area. While implementation of the proposed Project may indirectly induce growth by removing an obstacle to growth, this would occur in a manner that is consistent with that envisioned in the applicable General Plans. There is potential for this growth to result in significant secondary effects to environmental resources that are evaluated in this EIR. These significant and unavoidable secondary effects have been identified by the local land use planning entities.

The proposed Project provides water supplies for projected growth. PWD does not have the authority to make land use decisions to halt or alter growth and development patterns or approvals. Nor does it have the authority or jurisdiction to address many of the potentially significant, secondary effects of planned growth. Authority to implement those measures lies with the City and the County of Los Angeles. PWD does have the authority to take actions and implement projects to help mitigate the secondary effects of growth on water resources and water supply services within the service area. Implementation of the proposed Project is, in effect, mitigation for the effects of planned growth on groundwater resources and water supply services.

5.2 SIGNIFICANT AND UNAVOIDABLE

As part of the requirements of implementing the proposed Project (Strategic Water Resources Plan Update), Palmdale Water District is required to adopt Findings and prepare a Statement of Overriding Considerations for significant and unavoidable impacts of the Project. The following impact was determined to be significant and unavoidable:

Impact CUL-1: The Project could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5. The Palmdale Ditch is a nearly 130-year-old conveyance system that transports water from Littlerock Dam Reservoir to Lake Palmdale for potable use in PWD's service area. The proposed Project includes the Palmdale Ditch Conversion project, which will require full or partial demolition of the Ditch and its identifying features, causing significant and unavoidable change. To mitigate some of the unavoidable changes, the adoption of **Mitigation Measures CUL-1, CUL-2, CUL-4, CUL-5, and**

CUL-8 would be required. However, mitigation is not guaranteed to reduce the impacts to a less than significant level, and the impacts to the Ditch could remain significant and unavoidable.

5.3 SIGNIFICANT IRREVERSIBLE CHANGES

The proposed Project's contribution to the irreversible commitment of natural resources and irreversible land conversion must be considered prior to implementation. The full implementation of the proposed Project may result in the irreversible consumption of construction materials such as concrete, lumber, steel, and polyvinyl chloride (PVC). Furthermore, labor and energy will be irreversibly spent on some parts of the proposed Project, including fossil fuels to power heavy machinery. The proposed Project involves purchasing additional groundwater rights to diversify PWD's supply portfolio, which may result in the consumption of groundwater resources. However, the proposed Project also plans to recharge the basin with PWD's maximum allotment of SWP Table A water, making the increased consumption therefore reversible. None of the uses listed above would cause undue strain on the environment, or the ecological and human communities in the Project area. The proposed Project strives for efficient resource use and aims to increase the reliability and sustainability of water supply and use within PWD's service area.

5.4 CUMULATIVE IMPACTS

The cumulative impact analysis for each individual resource topic is included in each resource section.

5.5 REFERENCES

Antelope Valley Air Quality Management District. 2004. 2004 Ozone Attainment Plan. Adopted April 20, 2004.

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