

FINAL INITIAL STUDY/MITIGATED NEGATIVE DECLARATION POTABLE WATER SYSTEM IMPROVEMENTS CONSOLIDATION OF WATER SYSTEMS

MAY 2021

State Water Resources Control Board
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Prepared For:

Bighorn-Desert View Water Agency
622 South Jemez Trail
Yucca Valley, CA 92284



N|V|5

15092 Avenue of Science
Suite 200
San Diego, CA 92128

NV5 PROJECT NUMBER 226815-000025.07

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INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Project Title: Potable Water System Improvements and Consolidation of Water Systems
Date: 11 May 2021
Lead Agency: Bighorn-Desert View Water Agency
Contact Person: Marina D. West, PG

Project Location and Description

The Bighorn-Desert View Water Agency (BDVWA) encompasses the unincorporated communities in the county known as Flamingo Heights, Landers, and Johnson Valley. Landers is the largest of these communities, including 2,982 residents and an average elevation of 3,084 feet above sea level (asl).

Water service is provided to approximately 2,000 active residential customers, 460 inactive customers, and 102 bulk-hauling customers within its fifty-two (52) square-mile service area, located in the eastern desert area of San Bernardino County. BDVWA operates three (isolated) separate water systems made up of nine groundwater wells in the Ames-Means Valley Groundwater Basin and one well in the Johnson Valley Groundwater Basin, including the Goat Mountain (GM) system.

Hi-Desert Water District (HDWD) currently has approximately over 10,000 active service connections. With a total service area of 57-square miles, the District operates 16 storage tanks, 13 wells, and maintains over 297 miles of pipeline. It provides potable water services to the Town of Yucca Valley and a portion of the unincorporated area of San Bernardino County with an average elevation of elevation 3,369 feet asl. Yucca Valley is the primary community in the HDWD service area and has a population of 21,748 (2017).

The Potable Water System Improvements and Consolidation of Water Systems project (Project) consists of the system consolidation of the BDVWA and GM water systems, interconnections with HDWD, and pipelines, wells, and associated infrastructure. The Project is proposed by BDVWA and benefits the communities served by BDVWA and HDWD. BDVWA anticipates receiving funding assistance to implement the Project from the Division of Financial Assistance of the State Water Resources Control Board and/or the United States Department of Agriculture.

Declaration

The State Water Resources Control Board, Division of Financial Assistance has determined that the above project, with mitigation measures, would have no significant impact on the environment and is therefore exempt from the requirement of an environmental impact report. The determination is based on the attached Final Initial Study and the following findings:

1. The Project will not degrade environmental quality, substantially reduce habitat, cause a wildlife population to drop below self-sustaining levels, reduce the number or restrict the range of special-status species, or eliminate important examples of California history or prehistory.
2. The Project does not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
3. The Project will not have impacts that are individually limited but cumulatively considerable.

4. The Project will not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.
5. No substantial evidence exists that the Project will have a negative or adverse effect on the environment.
6. The Project incorporates all applicable mitigation measures or environmental commitments identified in the Final Initial Study (attached).
7. This final Mitigated Negative Declaration reflects the independent judgment of the lead agency.

Public Review

The public comment period extended from 11 February 2021 until 5:00 pm on 20 April 2021. Due to Covid precautions, the Draft Initial Study and Mitigated Negative Declaration was available only online using this link: <https://bdvwa.org/board-and-governance/public-works-projects/>

Comments were accepted:

by mail,
 Bighorn-Desert View Water Agency
 622 South Jemez Trail
 Yucca Valley, CA 92284
 Attn: Marina D. West, PG, General Manager

by email,
info@bdvwa.org
 Please include “BDVWA CEQA Review
 Comment” in the Subject line

Public Workshops

Public workshops was held as part of Board of Directors meetings on March 9th and April 13th 2021. During this presentation, the proposed project and the anticipated mitigation measures to address potential impacts was presented.

Public Hearing

On 11 May 2021 the Board of Directors of the Bighorn-Desert View Water Agency conducted a public hearing to consider adoption of the proposed Potable Water System Improvements and Consolidation of Water Systems for the Bighorn-Desert View Water Agency and the adoption of a Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program pursuant to the California Environmental Quality Act (CEQA). The hearing was held at 6:00 pm at the Bighorn-Desert View Water Agency’s office, located at 622 South Jemez Trail, Yucca Valley CA 92284. Public and board wishing to participate remotely due to Covid precautions and were instructed to contact Bighorn-Desert View Water Agency for teleconference links.

<https://bdvwa.org/board-and-governance/public-works-projects/>

Please note that all requirements of the Brown Act requiring the physical presence of the board or staff were waived per Executive Order N-29-20.

Public Comments

No responses were received during the public comment period.

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1.0 INTRODUCTION

Bighorn-Desert View Water Agency (BDVWA) has prepared this Final Initial Study/Mitigated Negative Declaration (IS/MND) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of construction and operation of the proposed Potable Water System Improvements and Consolidation of Water Systems for the Bighorn-Desert View Water Agency (Project). The Project is described in depth in Chapter 2. This document was prepared in accordance with the requirements of the California Environmental Quality Act (CEQA) of 1970 (as amended) and the CEQA Guidelines (14 California Code of Regulations (CCR) § 15000 et seq.).

1.1 INTENT AND SCOPE OF THIS DOCUMENT

This IS/MND has been prepared in accordance with CEQA, under which the Project is evaluated at a project level (CEQA Guidelines § 15378). The Bighorn-Desert View Water Agency, as the Lead Agency under CEQA, will consider the project’s potential environmental impacts when considering whether to approve the project. This IS/MND is an informational document to be used in the planning and decision-making process for the Project and does not recommend approval or denial of the Project.

The site plans for the Project included in this IS/MND are conceptual. BDVWA anticipates that the final design for the Project would include some modifications to these conceptual plans, and the environmental analysis has been developed with conservative assumptions to accommodate some level of modification.

This IS/MND describes the Project; its environmental setting, including existing conditions and regulatory setting, as necessary; and the potential environmental impacts of the Project on or with regard to the following topics:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology / Soils
- Greenhouse Gas Emissions
- Hazards & Hazardous Materials
- Hydrology / Water Quality
- Land Use / Planning
- Mineral Resources
- Noise
- Population / Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities/Service Systems
- Wildfire

Public Involvement Process

Public disclosure and dialogue are priorities under CEQA. CEQA Guidelines § 15073 and § 15105(b) require that the lead agency designate a period during the IS/MND process when the public and other agencies can provide comments on the potential impacts of the Project. Accordingly, the Bighorn-Desert View Water Agency circulated this document for a 60-day public and agency review period.

The public comment period was from 11 February 2021 5:00 pm on 20 April 2021. Due to Covid precautions, the Draft Initial Study and Mitigated Negative Declaration was available only online using this link:

<https://bdvwa.org/board-and-governance/public-works-projects/>

Bighorn-Desert View Water Agency
 622 South Jemez Trail
 Yucca Valley, CA 92284

Comments were submitted:

by mail,

Bighorn-Desert View Water Agency
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Please include “BDVWA CEQA Review Comment” in the Subject line

Public Hearing

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<https://bdvwa.org/board-and-governance/public-works-projects/>

Please note that all requirements of the Brown Act requiring the physical presence of the board or staff were waived per Executive Order N-29-20.

Public Comments

No responses were received during the public comment period.

1.2 ORGANIZATION OF THIS DOCUMENT

This IS/MND contains the following components:

Chapter 1, Introduction, provides a brief description of the intent and scope of this IS/MND, the public involvement process under CEQA, and the organization of and terminology used in this IS/MND.

Chapter 2, Project Description, describes the Project, including its purpose and goals, the Project site where the Project would be constructed, the construction approach and activities, operation-related activities, and related permits and approvals.

Chapter 3, Environmental Checklist, presents the environmental checklist used to assess the Project's potential environmental effects, which is based on the model provided in Appendix G of the CEQA Guidelines. This chapter also includes a brief environmental setting description for each resource topic and identifies the Project's anticipated environmental impacts, as well as any mitigation measures that would be required to reduce potentially significant impacts to a less-than-significant level.

Chapter 4, Comment Letters, The comments received during the public review period and responses thereto.

Chapter 5, List of Preparers, Contributors to this IS/MND.

Chapter 6, Mitigation Monitoring and Reporting Program, A description of the mitigation measures to be followed during the implementation of the Project and the methodology for reporting compliance with these procedures.

Chapter 7, References, provides a bibliography of printed references, websites, and personal communications used in preparing this IS/MND.

1.3 IMPACT TERMINOLOGY

This IS/MND uses the following terminology to describe the environmental effects of the Project:

- A finding of no impact is made when the analysis concludes that the Project would not affect the particular environmental resource or issue.
- An impact is considered less than significant if the analysis concludes that no substantial adverse change in the environment would result and that no mitigation is needed.
- An impact is considered less than significant with mitigation if the analysis concludes that no substantially adverse change in the environment would result with the implementation of the mitigation measures described.
- An impact is considered significant or potentially significant if the analysis concludes that a substantial effect on the environment could result.
- Mitigation refers to specific measures or activities that would be adopted by the lead agency to avoid, minimize, rectify, reduce, eliminate, or compensate for an otherwise significant impact.
- A cumulative impact refers to one that can result when a change in the environment would result from the incremental impacts of a Project along with other related past, present, or reasonably foreseeable future projects. Significant cumulative impacts might result from impacts that are individually minor but collectively significant. The cumulative impact analysis in this IS/MND focuses on whether the Project's incremental contribution to significant cumulative impacts caused by the Project in combination with past, present, or probable future projects is cumulatively considerable.
- Because the term "significant" has a specific usage in evaluating the impacts under CEQA, it is used to describe only the significance of impacts and is not used in other contexts within this document. Synonyms such as "substantial" are used when not discussing the significance of an environmental impact.

2.0 PROJECT DESCRIPTION

2.1 BACKGROUND AND NEED FOR THE PROJECT

The Potable Water System Improvements and Consolidation of Water Systems project (Project) consists of the system consolidation of the BDVWA and Goat Mountain (GM) water systems, interconnections with Hi-Desert Water District (HDWD), and pipelines, wells, booster stations, storage tank, and associated infrastructure. The Project is proposed by BDVWA and benefits the communities served by BDVWA and HDWD.

Separate Potable Water Systems

BDVWA operates two separate water systems (BDVWA and GM). The operational reliability and economy of two systems that share a border and have facilities separated by only 1,000-feet in some locations would be greatly improved with a consolidated system on a long-term basis. Consolidation of the two systems by connecting existing facilities would allow BDVWA to provide enhanced levels of service to the customers of both systems by improving water supply reliability, quality, sustainability, and efficiency.

Interconnection with Nearby Systems

BDVWA has one active interconnection with a neighboring water system, HDWD, located at the southeast corner of the intersection of State Route 247 and Luna Vista Road (Florida) (APN 0629-181-01). This interconnection was dormant for several years and resumed intermittent operation in 2019. This interconnection allows BDVWA to transfer water to HDWD.

Existing Facility Deficiencies

The BDVWA and Goat Mountain systems have water supply, quality, efficiency, and reliability deficiencies that would be addressed through system consolidation and other improvements proposed herein. Some existing storage and pumping facilities are aging, and are in need of repair and replacement. Some portions of the BDVWA system cannot receive water supplied to the area through the existing recharge basin. These deficiencies include:

1. Operability of only two sources of water (Well Nos. 3 and 8) for the BDVWA system's Zones A and B; one of these sources (Well No. 3) has elevated concentrations of uranium. Well Nos. 2 and 4, located within Zone B, are not active due to elevated concentrations of uranium. The system does not currently have means of proper blending or treatment for reducing the concentration of uranium below drinking water standards in Zones A and B.
2. Systems' current configurations do not allow conveyance of water from BDVWA's C and D Zones to Zones A or B, or between GM and BDVWA systems. Wells serving BDVWA's Zones A and B are not capable of receiving water from BDVWA's existing groundwater recharge basin (Pipes Wash at Winters Road). BDVWA's current system configuration is not capable of providing water to customers within BDVWA's Zones A and B that originates from the recharge basin.
3. Systems' current configurations do not allow conveyance of water from BDVWA's Zone B to BDVWA's Zone C.

4. Structural and coating deficiencies in some of the B1 and B2 storage tanks within the BDVWA system.
5. Failure of the Goat Mountain system's Well No. 2 (steel casing deterioration).
6. Inefficient operation, configuration, and condition of pumps/motors at production wells and booster pump stations.
 - o Oversized horsepower and production rates at wells within the BDVWA system.
 - o Deterioration of the A-Booster Pump Station (APN after several decades of service. Reconfiguration of yard piping at A-Booster Station and B Reservoir site.
 - o Reconfiguration of the C-Booster Pump Station to allow for more flexible and efficient operation.
7. Vulnerability to damage to wells and pipeline segments from flooding, vandalism, and other hazards.

2.2 PROJECT PURPOSE AND OBJECTIVES

The purpose of the Project is to correct the deficiencies listed above by:

- Replacing the A-Booster Pump Station (APNs 0629-062-20 and 0629-062-21), recoating and other repairs to the existing B-1 and B-2 Reservoirs, yard piping reconfiguration, and minor electrical improvements.
- Raising wellheads and reducing the horsepower and flow rates at most of BDVWA's active wells.
- Enclosing BDVWA's Well No. 8 in a building to attenuate hazard risk
- Consolidating the BDVWA and GM water systems
 - o Installation of pipelines to connect the two systems, improve redundancy, and remove dead-ends
 - o Adjustments to the extents of current pressure zones, including installation and removal of pressure reducing stations
 - o Installation of a pump and motor within an existing pump station (APN 0630-021-50) to convey water from GM's Zone E-1 to BDVWA's Zone D-1
- Constructing a new booster pump station and associated conveyance/interconnection Facilities
 - o Constructing a pump station that would transfer water from proposed BDVWA Zone D-1 (hydraulic grade line (HGL) 3360) to Zone B (HGL 3680) (APN 0631-041-25), including a new electrical service to the parcel.
 - o Construct a new second interconnection with HDWD at the pump station location
 - o Construct new distribution pipelines within BDVWA Zone D-1 to the proposed pump station
- Installing a transmission pipeline to convey water directly from BDVWA's Zone D-1 to the Zone B Reservoir Site (APNs 0629-062-20 and 0629-062-21)
 - o Includes pipeline installation beneath Pipes Wash along Winters Road/Tracy Blvd Connecting the proposed transmission pipeline to deliver water from BDVWA system Well Nos. 2, 3, 4, and 8, and from the existing interconnection with HDWD directly to the B Reservoir site, following permitted resumption of operation of Well Nos. 2 and 4 for potable purposes.

- Resuming operation of BDVWA's Well Nos. 2 and 4 as potable water sources
- Destroying and replacing Goat Mountain system's Well No. 2

The objective of the project will be to design, construct, and operate these improvements with minimal impact upon the public and the environment.

2.3 PROJECT LOCATION AND SETTING

The Bighorn-Desert View Water Agency (BDVWA) encompasses the unincorporated communities in the county known as Flamingo Heights, Landers, and Johnson Valley. Landers is the largest of these communities, including 2,982 residents. BDVWA's service area is located at the northeastern base of the San Bernardino Mountains and slopes generally to the north and east, ranging in elevation from approximately 3,500 feet to 2,900 feet. Pipes Wash runs generally south to north through the eastern portion of BDVWA's service area.

Water service is provided to approximately 2,000 active residential customers, 460 inactive customers, and 102 bulk-hauling customers within its fifty-two (52) square-mile service area, located in the eastern desert area of San Bernardino County. BDVWA operates two (isolated) separate water systems made up of nine active groundwater wells in the Ames-Means Valley Groundwater Basin and one well in the Johnson Valley Groundwater Basin, including the Goat Mountain (GM) system.

BDVWA's service area encompasses approximately 51 square miles in eastern San Bernardino County and includes the unincorporated communities of Flamingo Heights, Landers, and Johnson Valley. State Route 247 (SR-247, Old Woman Springs Road) travels a primarily north/south route along BDVWA's western border. The Town of Yucca Valley is located approximately 1-mile to the south of BDVWA's southern border. San Bernardino is located approximately 48-miles to the southwest. Vicinity and location maps of BDVWA's service area are provided in Figure 1 and Figure 2.

Public water systems located adjacent to BDVWA include Hi-Desert Water District (HDWD), PWS No. CA3610073, to the south and Joshua Basin Water District, Public Water System (PWS) No. CA3610025, to the southeast. CSA 70, Zone W4 (Pioneertown), PWS No. CA3600196, is located approximately 4-miles south of BDVWA's service area. Locations of these local water purveyors relative to BDVWA's service area are provided in Figure 2.

HDWD currently has approximately over 10,000 active service connections. With a total service area of 57-square miles, the District operates 16 storage tanks, 13 wells, and maintains over 297 miles of pipeline. It provides potable water services to the Town of Yucca Valley and a portion of the unincorporated area of San Bernardino County with an average elevation of elevation 3,369 feet asl. Yucca Valley is the primary community in the HDWD service area and has a population of 21,748 (2017).

2.4 PROJECT CHARACTERISTICS

2.4.1 Project Facilities

Potable Water Supplies

BDVWA owns and operates eight potable wells within the BDVWA system, of which six are active. These wells are the sole source of potable water for the BDVWA system. Five of the active wells (Well Nos. 3, 6, 7, 8, and 9) pump into the BDVWA's system. Well No. 10 only delivers water to Reservoir JV, which is distributed to customers in the JV zone by customer water hauling.

BDVWA owns and operates three potable wells within the Goat Mountain system, of which two are active (Well Nos 1 and 3). Well No. 2 is inactive due to damage to its steel casing. These wells are the sole sources of potable water for the Goat Mountain system. The Goat Mountain system's wells pump directly to the system's R1 Reservoir.

BDVWA Well No. 2, 3, 4, 6, 7, 8, 9 are located in the Ames Valley Groundwater Basin which covers 110,000 acres (169.7 square miles) of the High Desert Region (DWR, 2003). The basin overlies the Pioneertown, Pipes, Reche and Giant Rock subbasins of the greater Morongo Groundwater Basin.

BDVWA Well Nos. 2, 3 and 4 are located in the Pipes subbasin which receives inflow from the Pioneertown subbasin. This subbasin is known to contain elevated levels of uranium. BDVWA Well No. 8 is also in the Pipes subbasin but receives inflow from Hondo Wash area and shows no detectable level of uranium. BDVWA Well Nos. 6, 7, 9 and Goat Mountain Well Nos. 1 and 3 are located in the Reche subbasin. The Goat Mountain service area overlies the Goat Mountain subbasin but no active production wells exist in that area. The Ames/Reche Groundwater Storage Facility (i.e. recharge basin) is located in the Reche subbasin.

BDVWA Well No. 10 is located outside the project area defined by this Final Initial Study/ Mitigated Negative Declaration as it is located in the Johnson Valley Groundwater Basin.

Storage Tanks

The BDVWA system has nine existing potable water storage tanks (reservoirs). The BDVWA system's tanks are in generally good condition, with the exceptions of Reservoirs B1, B2, and C1. Reservoirs B1 and B2 are welded steel tanks that are approaching the end of their useful life (approximately 50 years).

The Goat Mountain system has three existing potable water storage tanks (reservoirs). Potable water produced from Well Nos. 1 and 3 is delivered to Reservoir R1. The site's R1 Booster Station then delivers the water through the GM distribution system to Reservoirs R2A and R2B, from which water is conveyed by gravity to Zone A South. Water delivered to Zone A North is conveyed directly from Reservoir R1. Well Nos. 1 and 3 and Reservoir R1 are located at APNs 0630-021-50 and 0630-021-66, located southwest of the intersection of Landers Lane and Reche Road, just south of the post office.

Booster Pumps

The BDVWA system operates two booster pump stations: the A-Booster Station and the C-Booster Station. Each pump station has two pumps, however only one pump from each pump station can operate at a time due to electrical supply limitations. The A-Booster Station delivers water from the Reservoirs B1 through B4 to Zone A. The C-Booster Station delivers water from Zone D to Zone C and Reservoirs C1 and C2.

The Goat Mountain system operates one booster pump station, Pump Station R1. The pump station has two pumps, which utilize lead-lag operation. Pump Station R1 delivers water from Reservoir R1 to Reservoirs R2A and R2B. Pump Station R1 has a vacant third pump can.

Distribution System

The BDVWA system has approximately 108-miles of distribution pipelines. The majority of the BDVWA system pipeline is 6-inches in diameter. Diameters of 8, 10, 12, and 20-inch are also present. Pipeline materials include asbestos cement (AC) and PVC. The 20-inch pipeline is cement mortar lined and coated steel. Pressure is regulated between the system's pressure zones by 14 pressure-reducing stations located throughout the system.

The Goat Mountain system has approximately 50 miles of distribution pipelines. The majority of the Goat Mountain system pipeline is 6-inches in diameter. Diameters of 8- and 12-inch are also present. All of the pipelines are AC pipe. Pressure is regulated between the system's pressure zones by four pressure-reducing stations located throughout the system.

2.4.2 Construction

Proposed projects are divided into three components:

- Projects to be implemented by BDVWA using BDVWA funds
- Projects in Phase 1 of improvements to be implemented by BDVWA using funds from DFA, USDA, and/or the Integrated Regional Water Management Plan.
- Projects in Phase 2 of improvements to be implemented by BDVWA using funds from DFA and/or USDA

Projects proposed to be implemented by BDVWA with BDVWA funds generally involve rehabilitation, replacement, and/or minor improvements to existing BDVWA and Goat Mountain system facilities be implemented directly by BDVWA in the near future or as part of BDVWA's capital improvements program. These improvements include the following:

- Resuming operation of the existing interconnection between the HDWD and BDVWA water systems, located southeast of the intersection of SR-247 and Luna Vista Road (northwest corner of APN 0629-181-01). The site receives power from the grid, and also has a manual transfer switch that would be used during system testing and during some extended power outages.
- Reduction of horsepower and flow rates at most of BDVWA's Well Nos. 6, 7, 8, 9, and 10, including minor electrical and site piping improvements.

- Raise wellhead elevations at existing BDVWA Well Nos. 6, 7, 8, and 9.
- Enclose existing BDVWA Well No. 8 in a block wall building with a reinforced concrete foundation (APN 0629-451-03)
- Modify existing BDVWA pressure reducing stations (PRV) Nos. 1, 2, 3, and/or 6 to allow a metered and controlled flow from BDVWA's B Zone to BDVWA's C Zone.
- Install a pump to waste feature at BDVWA's Well No. 3 (APNs 0629-421-26 and 0629-421-09, with associated mechanical piping, yard piping, and sump excavation.
- Replace existing A Booster Station at the same site (APNs 0629-062-20 and 0629-062-21) modify yard piping and electrical facilities at the site. The new A Booster Station to have comparable capacities to existing station. The new, aboveground station will be enclosed in a building with a reinforced concrete foundation, replacing the existing below-grade installation.

Projects proposed to be implemented as part of Phase 1 are primarily focused on improvements to existing facilities and/or projects that are located on BDVWA-owned properties. These projects include improvements to existing wells, tanks, and booster station sites in the BDVWA and Goat Mountain systems. It also includes the addition of a third pump in the existing R-1 Booster Station. The Phase 1 improvements would consist of the following tasks:

- Destroying GM Well No. 2 (APN 0630-021-66) and replacing it with a new at the same site on an adjacent parcel (APN 0630-021-50), including yard piping, a new well-house, and electrical improvements on-site. The new well will have a commensurate pumping rate as existing Well No. 2, approximately 175 gallons per minute (gpm). A pump to waste feature will be added to Well Nos. 1 and to the new well for maintenance and water quality, resulting in intermittent discharge to an on-site sump. The new well house will consist of a blockwall building with a reinforced concrete foundation, located on the western portion of the property and generally obscured from public view by other existing buildings on site. The proposed well will have a finished depth of approximately 500 feet below ground surface (bgs). During drilling, exploratory drilling could extend to approximately 800 feet bgs. The well destruction and well drilling and equipping are addressed in a Notice of Exemption filed by BDVWA (SCH No. 2020050052). The project intends to utilize funds from the Integrated Regional Water Management Plan (IRWM). This project is presented here as these improvements correlate to the overall operation of the BDVWA and GM systems, and as all piping and site improvements may not be completed with IRWM funding.
- Installation of a third pump inside the existing R1 booster pump building located at APN 0630-021-50, which is southwest of the intersection of Landers Lane and Reche Road, just south of the post office. The new pump and motor will be located within an existing, vacant pump can, and will discharge to an existing pipeline located along Landers Lane, in the D-1 pressure zone. This pump and motor installation will allow water to be transferred from the GM system's wells and R1 storage tank to the BDBWA D Zone, and also supply water to BDVWA's A and B zones through the transmission pipeline and pump station proposed in Phase 3 (see below). This pump station will allow water from GM's wells, which can receive water supplied by the existing recharge basin to be conveyed to the BDVWA system. This will

increase the groundwater sustainability and system reliability of the BDVWA system, better utilize the recharge basin. Initially, the new pump and motor will allow conveyance to BDVWA's Zones C and D. Following the installation of the Phase 3 improvements, water from the new pump and motor can be conveyed to BDVWA's Zones A and B. The pump station improvements also include replacing three valves immediately upstream of the existing pump station. Make coating and structural improvements to the existing R1 Reservoir, located at APN 0630-021-50, which is southwest of the intersection of Landers Lane and Reche Road, just south of the post office.

Phases 2 would encompass the remaining components of the consolidation of BDVWA and GM systems that are not completed in Phase 1. This would include the improvements to consolidate the distribution systems, including pipelines and pressure reducing stations, as well as the administrative and permitting processes that will be a part of system consolidation. The various elements of Phase 2 of the Project will include the following tasks:

- Consolidation of BDVWA and GM Systems
 - 1,000 linear foot 8-inch interconnecting pipeline proceeding east from an existing 6-inch pipeline in Ira Avenue, crossing Yucca Mesa Road, and connecting to an 8-inch pipeline running north/south east of Yucca Mesa Road.
 - 1,000 linear foot 8-inch interconnecting pipeline proceeding east along Stearman Road from an existing north/south 8-inch pipeline in Becker Road and connecting to an 8-inch pipeline running north/south east of Gibraltar Street.
 - The Goat Mountain system has two pipelines that run parallel to each other for a 650-foot length along Yucca Mesa Road. As currently configured, these pipelines are on separate pressure zones. Under the proposed configuration, both pipelines would operate on the expanded Zone E-1. Proposed improvements to this area would connect the two adjacent pipes at two locations and abandon one of the existing pipelines.
 - Five 1,300 linear foot pipeline loops along Alta Avenue and Kuna Avenue would be installed to loop distribution system piping along the border of existing Zones E-1 and F. Three of the loops would be in Zone E-1, with the remaining two in Zone F. The proposed loops would prevent dead-ends in the two pressure zones while avoiding having areas with parallel pipelines on separate pressure zones.
 - Two new pressure reducing stations between expanded Zone E-1 and the renamed Zone F, located near the intersections of Lorraine Road and Alta Avenue, and Philippi Lane and North Kuna Avenue.
 - New pressure reducing station between the renamed Zone D-1 and expanded Zone E-1, located near on Yucca Mesa Road, north of Reche Road.
- Following consolidation, BDVWA will relinquish its water supply permit for the Goat Mountain system, and will apply for/receive a revised or renewed permit from the Division of Drinking Water of the State Water Resources Control Board for the enlarged BDVWA system that encompasses the existing service areas of BDVWA and GM.

Phases 3 would focus on pumping and conveyance systems to transport water from the current GM system and from the D-1 zone directly to Zone B, and indirectly to Zones A, C, and D; and also on the development of a second interconnection with HDWD. The various elements of Phase 3 of the Project will include the following tasks:

- Construction of a pump station and second interconnection with HDWD located at APN 0631-031-25, located south of the intersection of Winters Road and Rainbow Road
 - The pump station would be located within a new blockwall building, enclosed by a chainlink fence and gate. The site would normally be visited daily by BDVWA operators, and more frequently and by more people during repairs. A new power supply from Southern California Edison (SCE) would be brought to the site. Some nearby power poles would need to be replaced or upgraded to improve the service from single phase power to three phase power. New yard piping would connect the pump station building with water from the nearby HDWD and BDVWA pressure zones. The pump station would transfer water between the proposed BDVWA Zone D-1 (HGL 3360) to Zone B (HGL 3680). A duplex pumping system would be installed within the building to convey water to BDVWA's Zone B. Each pump would have 20hp motors and would operate at a constant speed. Normal operation would have one pump operating most of every day. The duty/standby pump designations would changer periodically (e.g. daily, weekly)
 - The second interconnection with HDWD (Second Location) would also be located within the pump station building. The interconnection would connect BDVWA's Zone D and HDWD's Pressure Zone 3495E. Pressure reducing valves and a booster pump would enable water transfers between HDWD and BDVWA. In the initial years, the transfers between BDVWA and HDWD will be limited, and may only occur during system testing and emergencies. The use of the intersystem transfer may increase over time.
 - Removal and recycling of existing, abandoned concrete pads.
 - New manual transfer switch for portable generator, which will generally be used during system testing and during extended grid power outages.
 - HDWD's distribution system in the vicinity of the proposed second interconnection area has limited conveyance capacity and minimal demand to receive water delivered by BDVWA. Pump(s) would be required to deliver water to HDWD. Pressure-reducing facilities) would be required at this location (to deliver water to BDVWA's Zone D due to pressure zone HGL differences.
- BDVWA Distribution system improvements
 - Installation of approximately 5,000 linear feet of pipeline to connect the existing BDVWA D-1 distribution system to the proposed pump station. This would would remove up to three dead ends at this portion of the BDVWA system (Boo Lane, Warren Vista Avenue, Rainbow Drive). Some right of way acquisition may be required along these alignments.
- Installation of a transmission/blending pipeline to convey water on a nearly continuous basis from the BDVWA D-1 Zone to the BDVWA Zone B. From Zone B, the water could be conveyed to any other zone in the consolidated BDVWA/GM system.
- Installation of a transmission pipeline along Winters Road, crossing Pipes Wash and State Route 247, and continuing north and east to BDVWA's Zone B Reservoirs. The proposed pipeline would be installed in most areas using a cut and cover trenching method. Typical water pipeline depths would be no more than five feet bgs. Across Pipes Wash, the pipeline will be installed using horizontal directional drilling or a similar trenchless installation method. Some intermediate surface excavations will be temporarily made to allow the trenchless pipeline installation to continue across the wash. Excavations will return to pre-surface contours.

- A new pipeline will be installed to deliver water directly from the existing interconnection with HDWD and from BDVWA system Well Nos. 2, 3, 4, and 8 directly to the B Reservoir site. This pipeline will connect to the proposed transmission pipeline from the new pump station on the east side of Pipes Wash. This new pipeline will allow blending between the GM system’s wells, BDVWA’s Zone D-1, the interconnections with HDWD, and from BDVWA’s Well Nos. 2, 3, 4, and 8.
- As a result of the pipeline and booster station installations, the use of BDVWA’s Well Nos. 2, 3, 4, and 8 will reduce. This will reduce the volume of groundwater extracted from BDVWA’s Zone B. Groundwater extraction from the GM wells, and from BDVWA’s Well Nos. 6, 7, and 9 will increase.

2.4.3 Project Operations

Best Management Practices

Project construction would include a range of environmental Best Management Practices (BMPs), to avoid adverse effects on people and the environment. BMPs are developed to address anticipated effects from various construction activities and would be implemented pre-construction, during construction, and post-construction, as specified in Table 1.

Table 1. Best Management Practices to be Implemented for the Project

Number	Title	BMP Description
BMP-1	Best Management Practices for Construction Air Quality	The contractor will use construction equipment that minimizes air emissions to the extent feasible such that overall fleet emissions are equal to or less than emissions compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
BMP-2	Best Management Practices for Construction Emissions, Including Fugitive Dust Emissions	The implementation of construction BMPs to limit construction emissions, particularly fugitive dust emissions, includes the following actions: <ul style="list-style-type: none"> • All exposed areas of bare soil (e.g., parking areas, staging areas, soil piles) should be watered twice per day to minimize fugitive dust emissions. • All haul trucks transporting soil, sand, or other loose material off-site should be covered or maintain at least two feet of free board space. Any haul trucks traveling along freeways or major roadways should be covered. • All visible mud or dirt track-out onto adjacent public roads should be removed using wet power-vacuum street sweepers at least once per day. The use of dry power sweeping should be prohibited. • All vehicle speeds on unpaved roads should be limited to 15 miles per hour (mph). • Idling times should be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13 CCR § 2485). Clear

Number	Title	BMP Description
		<p>signage regarding this requirement should be provided for construction workers at all access points.</p> <ul style="list-style-type: none"> All construction equipment should be maintained and properly tuned in accordance with manufacturer's specifications. All equipment should be checked by a certified visible emissions evaluator and determined to be running in proper condition before it is operated. <p>The project would implement these measures as required.</p>
BMP-3	<p align="center">Best Management Practices for Sediment Control</p>	<p>BDVWA and GM and/or its contractor(s) will implement site specific BMPs to control sediments during construction activities, which may include but not be limited to:</p> <ul style="list-style-type: none"> Install, implement, and maintain BMPs consistent with the California Storm Water Quality Association Best Management Practice Handbook (California Storm Water Quality Association (CASQA) 2015) or equivalent to minimize the discharge of pollutants, consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit 2009-0009-DWQ, as amended by 2010-0014-DWQ & 2012-0006-DWQ applicable to the State of California. Implement practices to reduce erosion of exposed soil, including stabilization of soil stockpiles, watering for dust control, establishment of perimeter silt fences, and/or placement of fiber rolls. Minimize soil disturbance area. Implement other practices to maintain water quality, including use of silt fences, stabilized construction entrances, and storm-drain inlet protection. Where feasible, limit construction to dry periods. Revegetate or repave disturbed areas. BMPs will be regularly monitored for effectiveness using appropriate methods (visual observation, sampling) at appropriate intervals (e.g., daily or weekly) and corrected immediately if determined to not be effective.
BMP-4	<p align="center">Best Management Practices for Hazardous Materials</p>	<p>BDVWA and GM and/or its contractor(s) will implement site-specific hazardous materials BMPs during construction activities, which may include but not be limited to:</p> <ul style="list-style-type: none"> Develop (before initiation of construction activities) and implement (during construction and operational activities) a spill prevention and emergency response plan to handle potential spills of fuel or other pollutants. Install, implement, and maintain BMPs consistent with the California Storm Water Quality Association Best Management Practice Handbook (California Storm Water Quality Association (CASQA) 2015) or equivalent to minimize the discharge of pollutants, consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit 2009-0009-DWQ, as amended by 2010-0014-DWQ & 2012-0006-DWQ applicable to the State of California.

Number	Title	BMP Description
		<ul style="list-style-type: none"> • Implement practices to minimize the contact of construction materials, equipment, and maintenance supplies with stormwater. • Limit fueling and other activities involving hazardous materials to designated areas only; provide drip pans under equipment and conduct daily checks of vehicle condition. • Require the proper disposal of trash and any other construction-related waste. • Ensure that any dewatered groundwater is not polluted prior to discharging into the local stormwater infrastructure or use; if dewatered groundwater becomes polluted, dispose of it off-site at an appropriate facility.

2.5 PERMITS AND APPROVALS

- Bureau of Land Management
 - Change in right-of-way agreement with a Department of Interior, National Environmental Policy Act (NEPA) Categorical Exemption
- United States Department of Agriculture, Rural Development
 - Project financing approval
- State Water Resources Control Board, Division of Drinking Water
 - Permit renewal for Bighorn-Desert View Water Agency, with consolidation of Goat Mountain system
 - Relinquishment of permit for Goat Mountain
- State Water Resources Control Board, Division of Financial Assistance
 - Project financing approval
- State Water Resources Control Board, Division of Water Quality
 - General Stormwater Permit enrollment
- California Department of Transportation (Caltrans)
 - Encroachment permits for crossings of SR-247
- California Department of Fish & Wildlife
 - Lake or Streambed Alteration (LSA) Notification for Pipes Wash crossing
- Regional Water Quality Control Board (No. 7, Colorado River Region)
 - Waste Discharge Requirement for Pipes Wash crossing
 - Surface discharge waiver for percolation discharge of well pumping during construction and testing
- County of San Bernardino Public Works Department: Encroachment Permit for pipelines within County right-of-way (ROW)
- San Bernardino County Department of Public Health, Environmental Health Services
 - Well destruction permit (GM Well No. 2)
 - Well drilling permit for proposed well site (GM replacement well)
- San Bernardino County Flood Control District: Pipes Wash crossing (if there is encroachment upon APN 0629-152-12, located at western side of Pipes Wash at Tracy Blvd.)
- Mojave Desert Air Quality Management District (MDAQMD)
 - Portable Generator Permit to Operate or Portable Equipment Registration Program registration by California Air Resources Board

3.0 ENVIRONMENTAL CHECKLIST

- | | |
|---|--|
| 1. Project title | Potable Water System Improvements and Consolidation of Water Systems |
| 2. Lead agency name and address | Bighorn-Desert View Water Agency
622 South Jemez Trail
Yucca Valley, CA 92284 |
| 3. Contact person and phone number | Marina D. West, P.G., General Manager |
| 4. Project location | Flamingo Heights, Landers, and Johnson Valley |
| 5. Project sponsor's name and address | Bighorn-Desert View Water Agency
622 S. Jemez Trail
Yucca Valley, CA 92284 |
| 6. General plan designation | General Commercial (CG), Institutional (IN), Neighborhood Commercial (CN), Resource Conservation (RC), Rural Commercial (CR), Rural Living (RL), Service Commercial (CS), and Special Development (SD) |
| 7. Zoning | Homestead Valley/General Commercial (HV/CG), Homestead Valley/Institutional (HV/IN), Homestead Valley/Neighborhood Commercial (HV/CN), Homestead Valley/Resource Conservation (HV/RC), Homestead Valley/Rural Commercial (HV/CR), Homestead Valley/Rural Living (HV/RL), Homestead Valley/Service Commercial (HV/CS), and Homestead Valley/Special Development (HV/SD) |
| 8. Description of project | See Chapter 2, Project Description |
| 9. Surrounding land uses and setting | The main land uses are residential and small commercial |
| 10. Other public agencies whose approval is required | San Bernardino County, State Water Resources Control Board, Division of Drinking Water, State Water Resources Control Board, Division of Financial Assistance - Funding Agency, Bureau of Land Management - Property Owner |
| 11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.? | Yes |

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology /Soils
- Greenhouse Gas Emissions
- Hazards & Hazardous Materials
- Hydrology / Water Quality
- Land Use / Planning
- Mineral Resources
- Noise
- Population / Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities/Service Systems
- Wildfire

DETERMINATION:

On the basis of this initial evaluation:

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

Signature

Date

3.1 AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:

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

3.1.1 Regulatory Setting

State Laws, Regulations, and Policies

In 1963, the California State Legislature established the California Scenic Highway Program, a provision of the Streets and Highways Code, to preserve and enhance the natural beauty of California (California Department of Transportation (Caltrans) 2015). The state highway system includes designated scenic highways and those that are eligible for designation as scenic highways.

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (SBC 2007) contains goals and policies to protect the aesthetic values of the County, including the protection of its scenic corridors and highways, and recommends incorporating Project design elements that improve visual aesthetics.

3.1.2 Environmental Setting

The Project area is in a semi-rural community in western San Bernardino County. Residential and commercial developments in the local communities dominates the visual setting of the Project. Lands surrounding the developed areas are broad desert slopes and playas that offer a scenic vista around the community. Distant views of the San Bernardino Mountains provide a background. The

visual quality of most of the Project area is variously affected by the existing developments, such as housing developments and roads to be less than scenic.

Visual Character and Quality of the Site

Residential neighborhoods, open desert, dirt roads, and small agricultural areas adjoin the Project corridor.

Light and Glare

Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments. Light that falls beyond the intended area of illumination is referred to as “light trespass.” The most common cause of light trespass is spillover light, which occurs when a lighting source illuminates surfaces beyond the intended area, such as when building security lighting or parking lot lights shine onto neighboring properties. Spillover light can adversely affect light-sensitive uses, such as residences, at nighttime. Both light intensity and fixtures can affect the amount of any light spillover. Modern, energy-efficient fixtures that face downward, such as shielded light fixtures, are typically less obtrusive than older, upward-facing light fixtures.

Glare is caused by light reflections from pavement, vehicles, and building materials such as reflective glass, polished surfaces, or metallic architectural features. During daylight hours, the amount of glare depends on the intensity and direction of sunlight.

The most intense lighting in or near the Project sites is from the surrounding residential and commercial buildings. These structures are continuous light sources, including the nighttime hours. Parking lot lighting and vehicle headlights illuminate the surrounding roadways.

3.1.3 Discussion of Impacts

- a) **Less Than Significant Impact.** The Project would not permanently alter views of scenic vistas around the local communities or surroundings. The pipelines would be installed underground and would not be visible after construction. Building surfaces will be painted to blend with the desert surroundings.
- b) **No Impact.** The Project would not permanently damage scenic resources. There are no state scenic highways or resources within, adjacent, or near the Project area.
- c) **Less Than Significant Impact.** The Project would have minimal effect on the visual character in a portion of the Project area, generally focused at and near the new pump station to be located at Winters Road and Rainbow Drive (APN 0631-031-25). At this site, a new building and fence will be located on generally vacant land. The site is located within a rural residential area. Existing electrical power to the area is via overhead wiring and poles, which have already partially obstructed views. Electrical power will be extended to the building, and nearby SCE wiring and poles may be improved or replaced to improve the quality of power delivered to the site (i.e. single phase to three phase power). The new building will be equipped with a thin, yagi-type pole for communication with other BDVWA facilities. The yagi-type pole may extend up to 8 feet above the top of the building’s roofline. The building’s roof

may be equipped with solar panels as part of its initial construction or as a follow-up improvement.

At the GM well, reservoir, and booster station site southwest of the intersection of Reche Road and Landers Lane (APNs 0630-021-66 and 0630-021-50), the existing GM Well No. 2 well house and concrete cradles for the already-removed pneumatic tank will be removed. A new well house will be constructed on the southwest portion of the site, which will be located approximately 200 feet west of Landers Lane, and mostly obscured by the existing R-1 reservoir, existing R-1 booster station, existing office building, and existing equipment building. The post office immediately north of the site will further obscure the site. Other improvements on this site (R-1 Booster Station Improvements) will occur within the existing building and will have a de minimis change on exterior visual character. Exterior lighting will be limited to emergency periods, vehicle lighting for rare, after hours personnel visits, and photocell operated lighting for security.

At the existing A-Booster station, B-Reservoir, and BDVWA office site (Kickapoo and Mesa Vista Street (APNs 0629-062-20 and 0629-062-21), the recoated reservoirs will have a similar exterior appearance pre- and post-construction. The existing A-Booster station is located underground. The replacement booster station will be above-ground. The booster station site is surrounded by existing storage tanks on the north, east, and south sides. To the west is BLM lands. The new pump station would not further any visual impairment that the existing tanks have already created.

For the overall Project, construction activities would result in temporary visual effects due to the presence of equipment and staged materials in the Project area and vegetation removal and ground disturbance activities, which would be visible from some residences and commercial areas and for travelers along nearby roads. These activities would take place in a developed area and are similar to other construction activities that periodically occur. No long-term visual changes would take place because the pipelines would be underground and the surface would be restored to its current, or better, condition.

- d) Less Than Significant Impact. The Project would not create a substantial new source of light or glare. Most project improvements involve installation of underground pipelines, which do not produce glare or light. Improvements to and replacements of existing storage tanks and pump stations will not change their already negligible light emissions and glare. No nighttime construction would take place.

The construction of new pump station at APN 0631-031-25 would normally have no exterior lighting or a glare that would affect a nearby dwelling, although night time inspections or repairs could be needed during emergencies, which would produce light. The closest residences or otherwise occupied buildings are approximately 150 feet away from the proposed pump station building.

3.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

3.2.1 Regulatory Setting

State Laws, Regulations, and Policies

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is a non-mandated State program for counties and cities to preserve agricultural land, and discourage the premature conversion of agricultural land to urban uses.

The California Department of Conservation (CDC) provides Williamson Act maps and maps of important farmland for counties in California, including San Bernardino County. Each map indicates areas of urban/built-up land in addition to illustrating the locations of various agricultural-related (Williamson Act or farmland designation) categories (CDC 2016b).

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (SBC 2007) contains goals and policies to protect the agricultural use of the County, including the zoning of land for such purposes.

3.2.2 Environmental Setting

Project is not located in area covered by San Bernardino County Important Farmland 2016 survey. No Soil Survey Geographic Database (SSURGO) coverage available for project area. The main soil types for the area are Cajon-Arizo and Wasco-Helendale-Bryman with small areas of Rock outcrop-Gullied land-Bull Trail-Avawatz-Arrastre, Trigger-Rock outcrop-Calvista, and Upspring-Sparkhule-Rock outcrop in State Soil Geographic (STATSGO) dataset. All excavation will be made in the existing BDVWA property, easements and public right-of way (ROW) or on land not categorized as prime farmland, farmland of statewide importance or unique farmland.

3.2.3 Discussion of Impacts

- a) No Impact. The Project area is located on existing BDVWA and GM properties, BLM easements and public ROWs and public/semi-public facilities land not used for agriculture. Therefore, it would not convert farmland.
- b) No Impact. The Project area is located on existing BDVWA and GM properties, BLM easements and public ROWs and public/semi-public facilities land. It would not conflict with existing zoning for agricultural use, or a Williamson Act contract.
- c) No Impact. The Project area is located on existing BDVWA and GM properties, BLM easements and public ROWs and public/semi-public facilities land. No forest land is located within the Project area.
- d) No Impact. The Project would not affect forest land or uses and would not convert forest land.
- e) No Impact. The Project would not cause other changes to the environment that could convert farmland or forest lands to non-farmland or non-forest uses. It is not considered a growth-inducing Project because the new pipeline has been designed to meet pressure, fire flow, and redundancy requirements and would not accommodate an unplanned increase in growth in or near the local communities.

3.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors affecting a substantial number of people?			X	

3.3.1 Regulatory Setting

Federal and State Laws, Regulations, and Policies

The Clean Air Act (CAA) is implemented by the U.S. Environmental Protection Agency (USEPA) and sets ambient air limits, the National Ambient Air Quality Standards (NAAQS), for six criteria pollutants: particulate matter of aerodynamic radius of 10 micrometers or less (PM₁₀), particulate matter of aerodynamic radius of 2.5 micrometers or less (PM_{2.5}), carbon monoxide (CO), nitrogen dioxide (NO₂), ground-level ozone, and lead. Of these criteria pollutants, particulate matter and ground-level ozone pose the greatest threats to human health.

The California Air Resources Board (CARB) sets standards for criteria pollutants in California that are more stringent than the NAAQS and include the following additional contaminants: visibility-reducing particles, hydrogen sulfide, sulfates, and vinyl chloride. The Project is located in the desert portion of San Bernardino County (Figure 1). The Mojave Desert Air Quality Management District (MDAQMD) manages air quality and the General Conformity Rule within this area.

General Conformity Rule

Section 176(c) of the CAA provides that federal agencies cannot engage, support, or provide financial assistance for licensing, permitting, or approving any project unless the project conforms to the applicable State Implementation Plans (SIP). Under CAA Section 176(c) requirements, USEPA promulgated 40 Code of Federal Regulations (CFR) Part 51, Subpart W, and 40 CFR Part 93, Subpart B, “Determining Conformity of General Federal Actions to State or Federal Implementation Plans”

(see 58 Federal Register (FR) 63214 (November 30, 1993), as amended; 75 FR 17272 (April 5, 2010) and 75 FR 17274.) These regulations, commonly referred to as the General Conformity Rule, apply to all federal actions except for those federal actions that are specifically excluded from review (e.g., stationary-source emissions) or are related to transportation plans, programs, and projects under Title 23 U.S. Code (USC) or the Federal Transit Act, which are subject to Transportation Conformity.

In states that have an approved SIP revision adopting General Conformity regulations, 40 CFR Part 51, Subpart W, applies; in states that do not have an approved SIP revision adopting General Conformity regulations, 40 CFR Part 93, Subpart B, applies. The Project sites are located in an area of California with approved SIPs adopting General Conformity regulations.

The General Conformity Rule is used to determine if federal actions meet the requirements of the CAA and the applicable SIP by ensuring that air emissions related to the action do not:

- Cause or contribute to new violations of a NAAQS;
- Increase the frequency or severity of any existing violation of a NAAQS; or
- Delay timely attainment of a NAAQS or interim emission reduction.

A conformity determination under the General Conformity Rule is required if the federal agency determines that the action would occur in a nonattainment or maintenance area; no specific exemptions apply to the action; the action is not included in the federal agency’s “presumed to conform” list; emissions from the proposed action are not within the approved emissions budget for an applicable facility; and the total direct and indirect emissions of a pollutant (or its precursors) are at or above the de minimis levels established in the General Conformity Rule (75 FR 17274). Applicable de minimis levels are shown in Table 2.

Table 2. Attainment Status of the State and Federal Ambient Air Quality Standards

Ambient Air Quality Standard	MDAQMD
One-hour Ozone (Federal) – standard has been revoked, this is historical information only	Proposed attainment in 2014; historical classification Severe-17 (portion of MDAQMD outside of Southeast Desert Modified based on information reported by local authorities for 2018 Air Quality Management Areas (AQMA) is unclassified/attainment)
Eight-hour Ozone (Federal 84 ppb (1997))	Subpart 2 Nonattainment; classified Severe-15 (portion of MDAQMD outside of Western Mojave Desert Ozone Nonattainment Area is unclassifiable/attainment)
Eight-hour Ozone (Federal 75 ppb (2008))	Nonattainment, classified Severe-15
Eight-hour Ozone (Federal 70 ppb (2015))	Expected nonattainment; classification to be determined
Ozone (State)	Nonattainment; classified Moderate
PM₁₀ 24-hour (Federal)	Nonattainment; classified Moderate
PM_{2.5} Annual (Federal)	Unclassified/attainment
PM_{2.5} 24-hour (Federal)	Unclassified/attainment
PM_{2.5} (State)	Nonattainment (portion of MDAQMD outside of Western Mojave Desert Ozone Nonattainment Area is unclassified/attainment)
PM₁₀ (State)	Nonattainment
Carbon Monoxide (State and Federal)	Unclassifiable/Attainment

Ambient Air Quality Standard	MDAQMD
Nitrogen Dioxide (State and Federal)	Unclassifiable/Attainment
Sulfur Dioxide (State and Federal)	Attainment/unclassified
Lead (State and Federal)	Unclassifiable/Attainment
Particulate Sulfate (State)	Attainment
Hydrogen Sulfide (State)	Unclassified (Searles Valley Planning Area is nonattainment)
Visibility Reducing Particles (State)	Unclassified

Source: MDAQMD 2016

Six methods are available for demonstrating conformity:

1. Document that the emissions from the action are identified and accounted for in the SIP;
2. Obtain a statement from the applicable state or local air quality agency indicating that the emissions from the action, along with all other emissions in the area, would not exceed the budget for those emissions in the SIP;
3. Obtain from the local Metropolitan Planning Organization a statement indicating that the emissions are included in transportation plan modeling;
4. Obtain agreement from the state to include the emissions in the SIP;
5. Conduct air quality modeling to demonstrate that the emissions would not cause or contribute to a violation of the NAAQS; this modeling option is not available for areas in nonattainment for ozone or NO₂ and some PM_{2.5} areas; or
6. Mitigate or offset the increase in emissions; offset emissions must be offset to zero for ozone precursors, nitrogen dioxide and PM, not to the de minimis levels.

In addition, federal activities may not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emissions reductions toward attainment. The Project is subject to review under the General Conformity Rule. At this time a formal General Conformity determination is not presented, but a comparison to de minimis thresholds is discussed as an indication of the potential General Conformity applicability and/or determination which will need to occur prior to the start of construction.

Table 3. Applicable Significance 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
Sulfur Oxides (SO _x)h	25	137
Particulate Matter (PM ₁₀)	15	82
Particulate Matter (PM _{2.5})	12	65
Hydrogen Sulfide (H ₂ S)	10	54
Lead (Pb)	0.6	3

Source: MDAQMD 2016

Toxic Air Pollutants

USEPA and CARB regulate various stationary sources, area sources, and mobile sources. USEPA has regulations involving performance standards for specific sources that may release toxic air contaminants (TACs), known as hazardous air pollutants (HAPs) at the federal level. In addition, USEPA has regulations involving emission criteria for off-road sources such as emergency generators, construction equipment, and vehicles. CARB has been granted permission to establish emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB also establishes passenger vehicle fuel specifications. Airborne Toxic Control Measures (ATCMs), including the following relevant measures, are implemented to address sources of TACs:

- ATCM for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower (hp) and Greater.

Local Laws, Regulations, and Policies

The MDAQMD has adopted several plans to address ozone and particulate matter issues in the planning area (Table 4).

Table 4. MDAQMD Attainment Plans

Name of Plan	Date of Adoption	Standard(s) Targeted	Applicable Area	Pollutant(s) Targeted	Attainment Date*
Federal 8-Hour Ozone Attainment Plan (Western Mojave Desert Nonattainment Area)	9-Jun-08	Federal eight hour ozone (84 ppb)	Western Mojave Desert Nonattainment Area (MDAQMD portion)	NO _x and VOC	2019 (revised from 2021)
2004 Ozone Attainment Plan (State and Federal)	26-Apr-04	Federal one hour ozone	Entire District	NO _x and VOC	2007
Triennial Revision to the 1991 Air Quality Attainment Plan	22-Jan-96	State one hour ozone	Entire District	NO _x and VOC	2005
Mojave Desert Planning Area Federal Particulate Matter Attainment Plan	31-Jul-95	Federal daily and annual PM ₁₀	Mojave Desert Planning Area	PM ₁₀	2000
Post 1996 Attainment Demonstration and Reasonable Further Progress Plan	26-Oct-94	Federal one hour ozone	Southeast Desert Modified AQMA	NO _x and VOC	2007
Reasonable Further Progress Rate-Of-Progress Plan	26-Oct-94	Federal one hour ozone	Southeast Desert Modified AQMA	NO _x and VOC	2007
1991 Air Quality Attainment Plan	26-Aug-91	State one hour ozone	San Bernardino County portion	NO _x and VOC	1994

The MDAQMD maintains a set of Rules and Regulations to implement these plans. During construction, for example, “The owner or operator of any Construction/Demolition source shall:

- a) Use periodic watering for short-term stabilization of Disturbed Surface Area to minimize visible fugitive dust emissions. For purposes of this Rule, use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered sufficient to maintain compliance;
- b) Take actions sufficient to prevent project-related track out onto paved surfaces;
- c) Cover loaded haul vehicles while operating on Publicly Maintained paved surfaces;
- d) Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than thirty days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate Visible Fugitive Dust emissions;
- e) Cleanup project-related track out or spills on Publicly Maintained paved surfaces within twenty-four hours; and
- f) Reduce non-essential Earth-Moving Activity under High Wind conditions. For purposes of this Rule, a reduction in Earth-Moving Activity when visible dusting occurs from moist and dry surfaces due to wind erosion shall be considered sufficient to maintain compliance.”

-Rule 403a – The San Bernardino County General Plan (SBC 2007) contains goals and policies to protect and improve air quality in the plan area through cost-effective and sustainable means, while also assuring county’s compliance with state and federal air quality standards.

3.3.2 Environmental Setting

The primary pollution sources in the vicinity of the Project area are vehicles and nearby residential and commercial activities. The nearest sensitive receptors are residences in the community, which are scattered throughout the Project vicinity. The Project area does not contain ultramafic soils and is not in an area known to contain naturally occurring asbestos (Van Gosen and Clinkenbeard 2011).

3.3.3 Discussion of Impacts

- a) Less Than Significant Impact. The Project would not conflict with or obstruct implementation of the applicable air quality plan. Minimal and temporary air emissions, as discussed under item b) below, would be consistent with applicable air quality plans and regulations for the region. In order to limit the production of fugitive dust during implementation of the Project, construction activities will be conducted in accordance with MDAQMD Rules 403 - Fugitive Dust and 403.2 - Fugitive Dust Control for the Mojave Desert Planning Area. This includes using water trucks to minimize the production of visible dust emissions to 20 percent opacity in areas where grading, blasting or vegetation removal occurs, within the staging areas, and on any unpaved roads utilized during Project construction. The proposed booster station will only operate under extended emergency or maintenance events.

Less Than Significant Impact. The Project would not 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 (including releasing emissions which

exceed quantitative thresholds for ozone precursors). As discussed under item a), the Project would result in temporary minor construction-related emissions. It would not result in a cumulatively considerable net increase of any criteria pollutant. The Project would cause short-term air quality effects as a result of construction activities.

The proposed booster station located at Winters Road and Rainbow Drive, would be equipped with a manual transfer switch, which would enable a portable generator to power the site when grid power is unavailable for an extended period, and during system testing. The manual transfer switch at the existing interconnection between HDWD and BDVWA would also be used more frequently, but would also be used only during some extended grid power outages and during system testing.

Overall, the Project would not result in significant long-term or cumulatively considerable increases in air quality pollutant emissions.

- b) **Less Than Significant Impact.** The Project would not expose sensitive receptors to substantial pollutant concentrations. The interconnection locations, where portable generators would be used from time to time, are not located near sensitive receptors, such as a school, hospital, or park.
- c) **Less Than Significant Impact.** The Project would not create objectionable odors affecting a substantial number of people. Temporary construction activities would involve the use of gasoline or diesel-powered equipment that emits exhaust fumes and asphalt paving, which has a distinctive odor during application. These activities would take place intermittently throughout the workday during the construction period, and the associated odors are expected to dissipate within the immediate vicinity of the work area. Persons near the work area may find these odors objectionable. However, the infrequency of the emissions, rapid dissipation of the exhaust into the air, and short-term nature of the construction activities would ensure a substantial number of people are not affected by odors generated during construction. The portable generators will only operate if no power is available from the electrical grid during extended periods. The usage of the existing generator at the R-1 site will generally be unchanged as a result of the Project.

3.4 BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?			X	
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

3.4.1 Regulatory Setting

Federal Laws, Regulations, and Policies

Endangered Species Act

The Endangered Species Act (ESA) (16 USC § 1531 et seq.; 50 CFR Parts 17 and 222) provides for conservation of species that are endangered or threatened throughout all or a substantial portion of their range, as well as protection of the habitats on which they depend. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. In general, USFWS manages terrestrial and freshwater species, whereas NMFS manages marine and anadromous species.

Section 9 of the ESA and its implementing regulations prohibit the “take” of any fish or wildlife species listed under the ESA as endangered or threatened, unless otherwise authorized by federal regulations. The ESA defines the term “take” to mean “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (16 USC § 1532). Section 7 of the ESA (16 USC § 1531 et seq.) outlines the procedures for federal interagency cooperation to conserve federally-listed species and designated critical habitats. Section 10(a)(1)(B) of the ESA provides a process by which nonfederal entities may obtain an incidental take permit from USFWS or NMFS for otherwise lawful activities that incidentally may result in “take” of endangered or threatened species, subject to specific conditions.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC Chapter 7, Subchapter II) protects migratory birds. Most actions that result in take, or the permanent or temporary possession of, a migratory bird, or the parts, nests, or eggs of such a bird, constitute violations of the MBTA. The MBTA also prohibits destruction of occupied nests. USFWS is responsible for overseeing compliance with the MBTA.

Executive Order 11990, Protection of Wetlands

Executive Order (EO) 11990 provides for protection of wetlands from federal or federally approved projects when a practicable alternative is available. If impacts on wetlands cannot be avoided, all practicable measures to minimize harm must be included. US Army Corps of Engineers (COE) is the administering agency. **State Laws, Regulations, and Policies**

California Fish and Game Code

The California Fish and Game Code (F&G) includes various statutes that protect biological resources, including the Native Plant Protection Act of 1977 (NPPA) and the California Endangered Species Act (CESA). The NPPA (F&G §§ 1900-1913) authorizes the Fish and Game Commission to designate plants as endangered or rare and prohibits take of any such plants, except as authorized in limited circumstances.

CESA (F&G §§ 2050–2098) prohibits state agencies from approving a project that would jeopardize the continued existence of a species listed under CESA as endangered or threatened. F&G § 2080 prohibits the take of any species that is state listed as endangered or threatened, or designated as a candidate for such listing. The California Department of Fish and Wildlife (CDFW) may issue an

incidental take permit authorizing take of listed and candidate species if that take is incidental to an otherwise lawful activity, subject to specified conditions. F&G §§ 3503, 3513, and 3800 protect native and migratory birds, including their active or inactive nests and eggs, from all forms of take. In addition, F&G §§ 3511, 4700, 5050, and 5515 identify species that are fully protected from all forms of take. F&G Section 3511 lists fully protected birds, § 5515 lists fully protected fish, § 4700 lists fully protected mammals, and § 5050 lists fully protected amphibians.

Local Laws, Regulations, and Policies

The Conservation Element of the San Bernardino County General Plan (SBC 2007) outlines many goals and polices pertinent to biological resources. General themes of include preservation and management of terrestrial and aquatic habitats, and riparian corridors; adaptive management of special status species; conservation and management of mature trees; and restoration of natural ecological functions. The General Plan constructs a framework of policies to achieve these goals through pre-project design considerations, the use of biotechnical alternatives, established setbacks and work exclusionary-zones, removal of invasive species and promotion of native species, and compensatory mitigation measures (SBC 2007).

3.4.2 Environmental Setting

The project area consists of four natural vegetation communities: desert scrub, desert wash, Joshua tree, and urban (Ironwood Consulting, Inc. 2020). Sensitive species are known to have habitat within the project area including desert tortoise and burrowing owl. Wildlife surveys were completed between April 20, 2020 and July 15, 2020 by qualified wildlife biologists and ecologists (Appendix A).

Protected Plants

The Project site contains many types of native desert plants, including Joshua trees, which are protected under the County of San Bernardino Development Code Desert Native Plant Protection Ordinance (Ironwood Consulting Inc. 2020). The Project would be required to comply with the County of San Bernardino Desert Native Plant Protection Ordinance. The removal of any trees listed under Section 88.01.060 would be required to comply with Section 88.01.050, which requires the project applicant to apply for a Tree or Plant Removal Permit prior to removal from the Project site.

Sensitive Species

Desert tortoise sign was documented during the desert tortoise survey. Observations include two desert tortoise scats, one desert tortoise scute, and one recently dead tortoise from predation.

Migratory Birds and Raptors

Prior to any brushing, clearing and/or grading activities during the breeding season of nesting migratory birds and raptors (January 1st and August 31st), a survey must be performed by a qualified biologist that documents that no actively nesting migratory birds or raptors would be affected. If active migratory bird or raptor nests are detected, an area 300 ft. from the nest shall be staked and posted to prohibit all clearing, grubbing and construction work within the perimeter until the qualified biologist determines that the nests are no longer occupied. See mitigation measure BR-1 below.

3.4.3 Discussion of Impacts

- a) Less than Significant Impact. The Project is not expected to have a substantial adverse effect, either directly or through habitat modifications, on any candidate, sensitive, or status species.
- b) Less than Significant Impact. Joshua trees are present throughout the project area. Joshua trees will be avoided where possible. If avoidance is not possible, trees will be salvaged for transplantation at a nursery or restoration site.
- c) No Impact. The Project will not have a substantial adverse effect on any federally protected wetlands. No wetlands and/or areas where water would pool were observed within or near the Project site.
- d) No Impact. The Project will not interfere with the movement of fish or wildlife species or impede the use of native wildlife nursery sites. No sensitive habitats or wildlife movement corridors were noted in the Project area during general biological resources assessment. The Project is primarily within roadway right-of-ways, transportation corridors, or existing tank, well, pump station, and office sites that are already disturbed, fenced, and in operation.
- e) No Impact. The Project is not likely to affect biological resources and would not conflict with any local policies or ordinances protecting biological resources. Joshua Trees will be protected in place and not removed in compliance with the County of San Bernardino Development Code Desert Native Plant Protection Ordinance. Construction and maintenance of the proposed Project would not result in the immediate loss of habitat or vegetation, nor would it displace any wildlife immediately.
- f) No Impact. No local, regional, state, or federal habitat conservation plans have been adopted for the Project area.

BDVWA will confirm this through the implementation of three mitigation measures, BR-1 through BR-3, described in Section 6 of this document.

3.5 CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in § 15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?				X
c) Disturb any human remains, including those interred outside of dedicated cemeteries?				X

3.5.1 Regulatory Setting

Federal Laws, Regulations, and Policies

If federal funding in the form of State Revolving Funds are applied to this project, the National Environmental Policy Act requires that the National Historic Preservation Act and the Archeological and Historic Preservation Act (AHPA) applies to this project.

The National Historic Preservation Act (NHPA) embodies a long-standing national policy to preserve historic sites, buildings, structures, districts and objects of national, state, tribal, local, and regional significance and, among other things, to protect such historic properties from adverse impacts caused by activities undertaken or funded by federal agencies. The NHPA is administered by the Department of the Interior (DOI) and the Advisory Council on Historic Preservation (the Council). The Council implements section 106 of the NHPA and has promulgated regulations for consultation regarding how to determine the effects of federal agency undertakings on historic properties. 36 C.F.R. Part 800. Although under certain circumstances the Council may become directly involved in such consultations, the procedures generally call for consultation between the federal agency and relevant state or tribal historic preservation officers (SHPOs and THPOs) and other interested parties.

The intent of the AHPA is to limit the loss of important historical data that would result from federal, or federally authorized, construction activities. Unlike section 106 of the NHPA, which principally addresses adverse effects to historic properties identified within a project area prior to project initiation, the requirements of the AHPA are typically invoked when historic properties are discovered after the project has begun and potential adverse effects may occur.

State Laws, Regulations, and Policies

CEQA and CEQA Guidelines

Section 21083.2 of the California Public Resources Code (Public Resources Code) requires that the lead agency determine whether a project may have a significant effect on unique archaeological resources. A unique archaeological resource is defined in the Public Resources Code as an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it:

- Contains information needed to answer important scientific research questions, and there is demonstrable public interest in that information;
- Has a special or 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.

Measures to avoid, conserve, preserve, or mitigate significant effects on these resources are also provided under Public Resources Code § 21083.2.

Section 15064.5 of the CEQA Guidelines notes that “a project with an effect 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.” Substantial adverse changes include physical changes to the historical resource or to its immediate surroundings, such that the significance of the historical resource would be materially impaired. CEQA lead agencies are expected to identify potentially feasible measures to mitigate significant adverse changes in the significance of a historical resource before they approve such projects. Historical resources are those that are:

- Listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR) (Public Resources Code §5024.1[k]);
- Included in a local register of historic resources (Public Resources Code §5020.1) or identified as significant in an historic resource survey meeting the requirements of Public Resources Code §5024.1(g); or
- Determined by a lead agency to be historically significant.

CEQA Guidelines § 15064.5 also prescribes the processes and procedures found under Health and Safety Code § 7050.5 and Public Resources Code § 5097.95 for addressing the existence of, or probable likelihood of, Native American human remains, as well as the unexpected discovery of any human remains within the Project site. This includes consultation with the appropriate Native American tribes.

CEQA Guidelines § 15126.4 provides further guidance about minimizing effects to historical resources through the application of mitigation measures. Mitigation measures must be legally binding and fully enforceable.

California Register of Historical Resources

Public Resources Code § 5024.1 establishes the CRHR. The register lists all California properties considered to be significant historical resources. The CRHR includes all properties listed as or determined to be eligible for listing in the National Register of Historic Places (NRHP), including properties evaluated under Section 106 of the National Historic Preservation Act (NHPA). The criteria for listing are similar to those of the NRHP. Criteria for listing in the CRHR include resources that:

- Are associated with the events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- Are associated with the lives of persons important in our past;
- Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

The regulations set forth the criteria for eligibility as well as guidelines for assessing historical integrity and resources that have special considerations.

Local Regulations and Policies

The San Bernardino County General Plan Update for 2007 (SBC 2007) contains policies related to cultural and paleontological resources under the Conservation Element. The Plan contains an overarching goal to protect and interpret the cultural resources within the County. There are two objectives of the goal: to maintain an inventory of the cultural resources within the county, and to conduct a cultural resources review of new projects to ensure that known or previously unidentified cultural and paleontological resources are protected. There are, furthermore, three policies to support the goal. The policies include the involvement of Native American tribes when ancestral sites are found within a development project; requiring that cultural resources are taken into account when new planning documents are prepared; and requiring appropriate review, protection, and mitigation of impacts to cultural and paleontological resources. A key component of the goal is the establishment of a Cultural Resources Committee to help with implementing the policies and ensure that cultural resources are protected.

3.5.2 Environmental Setting

A Phase I Cultural Resources Assessment and Paleontological Resources Assessment for the Project area were conducted by PaleoWest (Appendices B & C, respectively¹). The study included a records search of the California Historical Resources Information System, tribal outreach, and a field survey. The field survey resulted in the finding of eighteen historic period cultural resources within the area of potential effects (APE). The observed cultural resources include one building remnant, one refuse scatter, four isolated finds, and twelve historic period road segments. None of the eighteen identified cultural resources within the APE are recommended eligible for listing on the National Register of Historic Places (PaleoWest 2020).

¹ In conformity to BLM policy, reports of cultural resource investigations that involve public land are not distributed without specific permission.

3.5.3 Discussion of Impacts

- a) No Impact. No historical resources as defined in § 15064.5 of the CEQA Guidelines were identified within or adjacent to the Project sites. Therefore, the project would not cause a substantial adverse change to a historical resource. If previously undocumented cultural resources are identified during earthmoving construction activities, a qualified archaeologist must be contacted to assess the nature and significance of the find. Construction activities shall be diverted if necessary.
- b) No Impact. No archeological resources as defined in § 15064.5 of the CEQA Guidelines were identified within the Project site. Therefore, the Project would not cause a substantial adverse change to an archeological resource.
- c) No Impact. No human remains were identified in the Project footprint and there was no evidence found in the course of preparing the cultural resources assessment that the area has been used as a cemetery or burial ground in the past. The Project is not expected to disturb human remains. Regardless, it is always possible that human remains may be present at subsurface levels.

State law prescribes measure that must be taken in the event that any human remains are discovered. Section 7050.5 of the California Health and Safety Code requires that the County Coroner shall be immediately notified of the discovery and no further excavation or disturbance of the site or nearby area may occur (100-foot buffer) until the County Coroner has determined, within two working days of notification of the discovery, the nature of the remains. If the Coroner determines that the remains are, or are believed to be, Native American, he or she is required to notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant (MLD) from the deceased Native American. The MLD shall complete their inspection within 48 hours of being granted access to the site. The MLD would then determine, in consultation with the property owner, the disposition of the human remains. Compliance with state and federal law would ensure that no impacts occur to any human remains that may be discovered on site.

Although no cultural resources are anticipated to be impacted by the Project, BDVWA has, at the request of the San Manuel Band of Mission Indians, included mitigation measure CR-1 to the project regarding resource discovery. See Section 3.18 for this mitigation measures.

3.6 ENERGY

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?				X
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

3.6.1 Regulatory Setting

State Laws, Regulations, and Policies

CEQA and CEQA Guidelines

The goal of conserving energy implies the wise and efficient use of energy. The means of achieving this goal include:

1. decreasing overall per capita energy consumption,
2. decreasing reliance on fossil fuels such as coal, natural gas and oil, and
3. increasing reliance on renewable energy sources.

In order to assure that energy implications are considered in project decisions, the California Environmental Quality Act requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy (see Public Resources Code section 21100(b)(3)). Energy conservation implies that a project's cost effectiveness be reviewed not only in dollars, but also in terms of energy requirements. For many projects, cost effectiveness may be determined more by energy efficiency than by initial dollar costs. A lead agency may consider the extent to which an energy source serving the project has already undergone environmental review that adequately analyzed and mitigated the effects of energy production.

3.6.2 Environmental Setting

During construction, equipment operators would limit idling time to five-minutes which would minimize inefficient fossil fuel use. For normal operations, there would be three impacts that would partially offset each other. Overall, the Project will result in an increase in energy consumption. As part of the BDVWA funded improvements, the sizes of the pumps and motors in most of BDVWA's wells would be reduced. This would attenuate instantaneous power demands (kW), but would result

in those pumps and motors operating for more hours during the day. Overall system efficiency would improve slightly.

The proposed booster station and the expansion of the R-1 booster station would involve new demands for electricity. The new station, located at Winters Road and Rainbow Drive, would include new pumps and motors, each with approximately 20hp. Typical pump station operation would have one pump operating during most hours of the day. This booster station would also be supplied water from the proposed third pump at the existing R-1 site. This pump would be supplied by a 20hp motor. Water pumped from the proposed booster station aims to commensurately reduce water pumped from the wells in the BDVWA B Zone. The water to be pumped would be extracted from the GM wells and from the BDVWA Well Nos. 6, 7, and 9, where groundwater has a lower surface elevation than the wells in the BDVWA Zone B. Therefore, the energy required to supply water to the A and B Zones would increase.

3.6.3 Discussion of Impacts

- a) No Impact. The Project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
- b) No Impact. The Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

3.7 GEOLOGY/SOILS

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				X
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

3.7.1 Regulatory Setting

Federal Laws, Regulations, and Policies

The National Earthquake Hazards Reduction Act

The National Earthquake Hazards Reduction Act of 1977 (Public Law 95-124) and creation of the National Earthquake Hazards Reduction Program (NEHRP) established a long-term earthquake risk reduction program to better understand, predict, and mitigate risks associated with seismic events. Four federal agencies are responsible for coordinating activities under NEHRP; U.S. Geological Survey (USGS); National Science Foundation (NSF); Federal Emergency Management Agency (FEMA); and National Institute of Standards and Technology (NIST). Since its inception, NEHRP has shifted its focus from earthquake prediction to hazard reduction. The current program objectives (NEHRP 2016) are as follows:

- Developing effective measures to reduce earthquake hazards;
- Promoting the adoption of earthquake hazard reduction activities by federal, state, and local governments, national building standards and model building code organizations, engineers, architects, building owners, and others who play a role in planning and constructing buildings, bridges, structures, and critical infrastructure or “lifelines”;
- Improving the basic understanding of earthquakes and their effects on people and infrastructure through interdisciplinary research involving engineering, natural sciences, and social, economic, and decision sciences; and
- Developing and maintaining the USGS seismic monitoring system (Advanced National Seismic System); the NSF-funded project aimed at improving materials, designs, and construction techniques (George E. Brown Jr. Network for Earthquake Engineering Simulation); and the global earthquake monitoring network (Global Seismic Network).

Implementation of NEHRP objectives is accomplished primarily through original research, publications, and recommendations and guidelines for state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

State Laws, Regulations, and Policies

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code § 2621 et seq.) was passed to reduce the risk to life and property from surface faulting in California. The Alquist-Priolo Act prohibits construction of most types of structures intended for human occupancy on the surface traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as “active,” and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones. Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are “sufficiently active” and “well defined.” Before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (Public Resources Code §§ 2690–2699.6) establishes statewide minimum public safety standards for mitigation of earthquake hazards. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: The state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other seismic hazards, and cities and counties are required to regulate development within mapped seismic hazard zones. In addition, the act addresses not only seismically induced hazards but also expansive soils, settlement, and slope stability. Under the Seismic Hazards Mapping Act, cities and counties may withhold the development permits for a site within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.

California Building Standards Code

Title 24 CCR, also known as the California Building Standards Code (CBC), specifies standards for geologic and seismic hazards other than surface faulting. These codes are administered and updated by the California Building Standards Commission. The CBC specifies criteria for open excavation, seismic design, and load-bearing capacity directly related to construction in California.

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (SBC 2007) contains a number of goals related to geology and soils, including measures related to minimizing risks associated with seismic and geologic hazards, and measures to reduce erosion and soil transport.

3.7.2 Environmental Setting

The Project site is located in San Bernardino County at the southern end of the Mojave Desert geomorphic province. The Mojave Desert province is a broad interior region of isolated mountain ranges separated by expanses of desert plains. It has an interior enclosed drainage and many playas. There are two important fault trends that control topography, a prominent NW-SE trend and a secondary east-west trend (apparent alignment with Transverse Ranges is significant). The Mojave Desert province is wedged in a sharp angle between the Garlock fault (southern boundary of the Sierra Nevada geomorphic province) and the San Andreas Fault, where it bends west from its northwest trend. The northern boundary of the Mojave Desert is separated from the prominent Basin and Range geomorphic province by the eastern extension of the Garlock fault. Typical stratigraphy includes pre- Mesozoic and Mesozoic (between approximately 250 and 65 million years old) igneous intrusive and metamorphic rocks, Cenozoic (less than 65 million years old) marine and non-marine sedimentary units, and Quaternary (less than approximately 2 million years old) sedimentary deposits (NV5 2018a).

BDVWA service area is located on Old Woman Springs, Emerson Lake, and Joshua Tree USGS 7.5 minute quadrangles. Surrounding features include Emerson Fault and Emerson Lake located to the northeast, Metamorphic gneissic Parlett Mountains located to the east, and Pipes Wash located on

eastern side of BDVWA's service area. Johnson Valley Fault runs along Old Woman Springs Road (SR-247) in the Project area.

Cajon-Arizo soils have moderate to high hazard of blowing, slight to moderate water erosion. Wasco-Helendale-Bryman soils have slight to high hazard of blowing, slight to high water erosion.

3.7.3 Discussion of Impacts

- a) Less than Significant Impact. The Project area is located within an Alquist-Priolo Fault Zone issued by the State Geologist (CGS 2019). The Project would not include any habitable structures. However, the design of the proposed pipelines and buildings will incorporate measures to accommodate potential seismic activity. Specific standards that may be used for the Project include proper fill compositions and compaction, and use of appropriate pipeline materials, dimensions, and flexible joints. Based on the incorporation of applicable standards into construction and design, potential impacts associated with strong seismic ground shaking will be less than significant. The Project would not expose people to seismic-related soil or geologic hazards.
- b) Less than Significant Impact. The Project would not result in substantial soil erosion or the loss of topsoil. Construction activities would result in temporary soil disturbance throughout the Project area. The majority of soil disturbance would occur in previously disturbed areas without native topsoil. Along the pipeline alignments, excavated soil would be used to backfill the trenches and to restore disturbed areas to pre-disturbance conditions (contours and vegetation). The Project is not expected to result in the loss of topsoil because very little native topsoil is present, and topsoil would be used along the pipeline alignment to restore disturbed areas to pre-disturbance conditions.
- c) No Impact. The Project is located in areas that are unlikely to experience liquefaction, landslide, or slope instability (NV5 2019).
- d) No Impact. The project site is underlain predominantly by granular alluvial soils with gravel and rock fragments. These materials are generally considered to have very low to low expansion potential (NV5 2019).
- e) No Impact. The Project does not involve construction of septic tanks or alternative wastewater disposal systems.
- f) No Impact.

3.8 GREENHOUSE GAS EMISSIONS

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X

3.8.1 Regulatory Setting

Federal Laws, Regulations, and Policies

At the federal level, USEPA has developed regulations to reduce greenhouse gas (GHG) emissions from motor vehicles and has developed permitting and reporting requirements for large stationary emitters of GHGs. On April 1, 2010, USEPA and the National Highway Traffic Safety Administration (NHTSA) established a program to reduce GHG emissions and improve fuel economy standards for new model year 2012–2016 cars and light trucks. On August 9, 2011, USEPA and the NHTSA announced standards to reduce GHG emissions and improve fuel efficiency for heavy-duty trucks and buses.

On October 5, 2009, EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance, was issued by the Council on Environmental Quality (CEQ). The EO required federal agencies to set a 2020 GHG emissions reduction target within 90 days, increase energy efficiency, reduce fleet petroleum consumption, conserve water, reduce waste, support sustainable communities, and leverage federal purchasing power to promote environmentally responsible products and technologies.

On December 18, 2014, the CEQ released revised draft guidance on the consideration of GHG emissions and climate change in National Environmental Policy Act (NEPA) review. This is an update to guidance issued in draft form in February 2010. The guidance encourages agencies to include a quantitative assessment of GHG emissions for projects expected to have direct GHG emissions of 25,000 metric tons (MT) or more on an annual basis. The guidance states that the assessment of direct and indirect climate change effects should account for upstream and downstream emissions and includes guidance on biogenic sources of GHG emissions from land management actions. The guidance provides recommendations that projects conducting a cost-benefit analysis should include the federal social cost of carbon estimates.

State Laws, Regulations, and Policies

In recent years, California has enacted a number of policies and plans to address GHG emissions and climate change. In 2006, the California State Legislature enacted AB 32, the Global Warming Solutions Act, which set the overall goals for reducing California's GHG emissions to 1990 levels by 2020. EOs S-3-05 and B-16-2012 further extend this goal to 80 percent below 1990 levels by 2050. CARB has completed rulemaking to implement several GHG emission reduction regulations and continues to investigate the feasibility of implementing additional GHG emission reduction regulations. These include the low carbon fuel standard, which reduces GHG emissions associated with fuel usage, and the renewable portfolio standard, which requires electricity suppliers to increase the amount of electricity generated from renewable sources to 33 percent by 2020. The CBC (Title 24) governs construction of buildings in California. Parts 6 and 11 of Title 24 are relevant for energy use and green building standards, which reduce the amount of indirect GHG emissions associated with buildings.

CARB approved the First Update to the AB 32 Scoping Plan on May 22, 2014 (CARB 2014). This update defines climate change priorities for the next 5 years and also sets the groundwork to reach long-term goals set forth in EOs S-3-05 and B-16-2012. The update also highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals and evaluates how to align the State's longer term GHG reduction strategies with other state policy priorities for water, waste, natural resources, clean energy, transportation, and land use. The update outlines that the Water Board will implement measures to maintain water supply reliability and reduce GHG emissions.

In April 2015, Governor Brown issued EO B-30-15 which established a GHG reduction target of 40 percent below 1990 levels by 2030. This is a target between previously established targets of achieving 1990 levels by 2020 and 80 percent below 1990 levels by 2050. The executive order also directs the state to incorporate climate change impacts in the Five-Year Infrastructure Plan, updating the state's climate adaptation strategy, and implement measures under existing agency and departmental authority to reduce GHG emissions.

Local Laws, Regulations, and Policies

San Bernardino County Regional Greenhouse Gas Reduction Plan

In San Bernardino County, San Bernardino Council of Governments (SBCOG) develops guidance for conforming to State GHG targets. In 2014 SBCOG (then called San Bernardino Associated Governments), issued the San Bernardino County Regional Greenhouse Gas Reduction Plan (SBC 2014). This Reduction Plan summarizes the actions that each city has selected in order to reduce GHG emissions, state-mandated actions, GHG emissions avoided in 2020 associated with each local and state action, and each city's predicted progress towards their selected GHG reduction goal.

3.8.2 Environmental Setting

Climate change results from the accumulation in the atmosphere of GHGs, which are produced primarily by the burning of fossil fuels for energy. Because GHGs (carbon dioxide (CO₂), methane (CH₄), and nitrous oxide) persist and mix in the atmosphere, emissions anywhere in the world affect the climate everywhere in the world. GHG emissions are typically reported in terms of carbon dioxide

equivalents (CO₂e) which converts all GHGs to an equivalent basis taking into account their global warming potential compared to CO₂.

Anthropogenic (human-caused) emissions of GHGs are widely accepted in the scientific community as contributing to global warming. Temperature increases associated with climate change are expected to adversely affect plant and animal species, cause ocean acidification and sea level rise, affect water supplies, affect agriculture, and harm public health.

Global climate change is already affecting ecosystems and societies throughout the world. Climate change adaptation refers to the efforts undertaken by societies and ecosystems to adjust to and prepare for current and future climate change, thereby reducing vulnerability to those changes. Human adaptation has occurred naturally over history; people move to more suitable living locations, adjust food sources, and more recently, change energy sources. Similarly, plant and animal species also adapt over time to changing conditions; they migrate or alter behaviors in accordance with changing climates, food sources, and predators.

Many national, as well as local and regional, governments are implementing adaptive practices to address changes in climate, as well as planning for expected future impacts from climate change. Some examples of adaptations that are already in practice or under consideration include conserving water and minimizing runoff with climate-appropriate landscaping, capturing excess rainfall to minimize flooding and maintain a constant water supply through dry spells and droughts, protecting valuable resources and infrastructure from flood damage and sea level rise, and using water-efficient appliances. In 2014, the USEPA adopted a Climate Change Adaptation Plan, which identifies vulnerabilities from climate change, and provides guiding principles for adaptation and performance measures, California has an adopted statewide Climate Adaptation Strategy and its update, the Safeguarding California Plan, which combined summarize climate change impacts, recommend adaptation strategies, and make realistic sector-1 specific recommendations for the nine sectors identified in the plans, including water and energy sectors.

In 2013, the transportation sector of the California economy was the largest source of emissions, accounting for approximately 37 percent of the total emissions. On-road vehicles accounted for more than 90 percent of emissions in the transportation sector. The industrial sector accounted for approximately 20 percent of the total emissions, and emissions from electricity generation were about 20 percent of the total. The rest of the emissions are made up of various sources (CARB 2017).

3.8.3 Discussion of Impacts

- a) Less Than Significant Impact. The Project would not generate greenhouse gas emissions, either directly or indirectly that would have a significant effect on the environment. The Project would not increase the generation of emissions after construction is complete because water production and distribution operations would be similar to the current operations. The replaced pipeline could improve distribution operations and potentially reduce the long-term operational emissions, which could result in a slight decrease in GHG emissions over the long term. GHG emissions resulting from construction activities would be short term and minor. The emergency power generator would only be operated during extended power outages and scheduled maintenance and testing.

- b) No Impact. The Project would not generate significant emissions of GHGs and, therefore, would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing the emission of greenhouse gases.

3.9 HAZARDS & HAZARDOUS MATERIALS

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				X

3.9.1 Regulatory Setting

Hazardous materials and hazardous wastes are subject to extensive federal, state, and local regulations to protect public health and the environment. These regulations provide definitions of hazardous materials, establish reporting requirements, set guidelines for handling, storage, transport, and disposal of hazardous wastes, and require health and safety provisions for workers and the public. The major federal, state, and regional agencies enforcing these regulations are

USEPA; Occupational Safety and Health Administration (OSHA); California Department of Toxic Substances Control (DTSC); California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA); California Governor’s Office of Emergency Services (Cal OES); State Water Resources Control Board (SWRCB); Central Valley Regional Water Quality Control Board (Central Valley RWQCB); and MDAQMD.

Federal Laws, Regulations, and Policies

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also called the Superfund Act; 42 USC § 9601 et seq.) is intended to protect the public and the environment from the effects of past hazardous waste disposal activities and new hazardous material spills. Under CERCLA, USEPA has the authority to seek the parties responsible for hazardous materials releases and to ensure their cooperation in site remediation. CERCLA also provides federal funding (through the “Superfund”) for the remediation of hazardous materials contamination. The Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499) amends some provisions of CERCLA and provides for a Community Right-to-Know program.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act of 1976 (RCRA; 42 USC § 6901 et seq.), as amended by the Hazardous and Solid Waste Amendments of 1984, is the primary federal law for the regulation of solid waste and hazardous waste in the United States. These laws provide for the “cradle-to-grave” regulation of hazardous wastes, including generation, transportation, treatment, storage, and disposal. Any business, institution, or other entity that generates hazardous waste is required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed of.

USEPA has primary responsibility for implementing RCRA, but individual states are encouraged to seek authorization to implement some or all RCRA provisions. California received authority to implement the RCRA program in August 1992. DTSC is responsible for implementing the RCRA program in California, in addition to California’s own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law.

Spill Prevention, Control, and Countermeasure Rule

USEPA's Spill Prevention, Control, and Countermeasure (SPCC) Rule (40 CFR, Part 112) apply to facilities with a single above-ground storage tank (AST) with a storage capacity greater than 660 gallons, or multiple tanks with a combined capacity greater than 1,320 gallons. The rule includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires specific facilities to prepare, amend, and implement SPCC Plans.

Occupational Safety and Health Administration

OSHA is responsible at the federal level for ensuring worker safety. OSHA sets federal standards for implementation of workplace training, exposure limits, and safety procedures for the handling of

hazardous substances (as well as other hazards). OSHA also establishes criteria by which each state can implement its own health and safety program.

State Laws, Regulations, and Policies

Safe Drinking Water and Toxic Enforcement Act of 1986 - Proposition 65

The Safe Drinking Water and Toxic Enforcement Act of 1986, more commonly known as Proposition 65, protects the state's drinking water sources from contamination with chemicals known to cause cancer, birth defects, or other reproductive harm. Proposition 65 also requires businesses to inform the public about exposure to such chemicals in the products they purchase, in their homes or workplaces, or that are released into the environment. In accordance with Proposition 65, the California Governor's Office publishes, at least annually, a list of such chemicals. The Office of Environmental Health Hazard Assessment (OEHHA), an agency under the California Environmental Protection Agency (CalEPA), is the Lead Agency for implementation of the Proposition 65 program. Proposition 65 is enforced through the California Attorney General's Office; however, district and city attorneys and any individual acting in the public interest may also file a lawsuit against a business alleged to be in violation of Proposition 65 regulations.

California Occupational Safety and Health Administration

Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations in California. Cal/OSHA regulations pertaining to the use of hazardous materials in the workplace (CCR Title 8) include requirements for safety training, availability of safety equipment, accident and illness prevention programs, warnings about exposure to hazardous substances, and preparation of emergency action and fire prevention plans. Hazard communication program regulations that are enforced by Cal/OSHA require workplaces to maintain procedures for identifying and labeling hazardous substances, inform workers about the hazards associated with hazardous substances and their handling, and prepare health and safety plans to protect workers at hazardous waste sites. Employers also must make material safety data sheets available to employees and document employee information and training programs. In addition, Cal/OSHA has established maximum permissible radiofrequency (RF) radiation exposure limits for workers (Title 8 CCR § 5085(b)) and requires warning signs where RF radiation may exceed the specified limits (Title 8 CCR § 5085(c)).

California Accidental Release Prevention

The purpose of the California Accidental Release Prevention (CalARP) program 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. In accordance with this program, businesses that handle more than a threshold quantity of regulated substance are required to develop a risk management plan (RMP). This RMP must provide a detailed analysis of potential risk factors and associated mitigation measures that can be implemented to reduce accident potential. Certified Unified Program Agencies (CUPAs) implement the CalARP program through review of RMPs, facility inspections, and public access to information that is not confidential or trade secret.

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (SBC 2007) contains a Hazardous Materials Element, which specifies a variety of goals and policies related to the appropriate handling, storage, and transport of hazardous materials, hazardous waste disposal, and protection of soils and water quality from hazardous materials.

3.9.2 Environmental Setting

The general geographic and site description of the Project are provided in Section 2.3, Project Location and Setting.

The San Bernardino County Operational Area Multi-Jurisdictional Multi-Hazard Mitigation Plan is a countywide plan that identifies risks and ways to minimize damage by natural and manmade disasters.

Existing Hazards and Hazardous Materials

No potential or confirmed state or federal Superfund sites are located in or within a 1-mile radius or immediately adjacent to the Project sites. There are no Formerly Used Defense Sites (FUDS) within a 1-mile radius of the Project sites.

3.9.3 Discussion of Impacts

- a) **Less Than Significant Impact.** The Project would not create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Small amounts of hazardous materials would be used during construction activities for equipment maintenance (e.g., fuel and solvents) and re-paving roads and parking areas where needed. Hazardous materials may also be stored in staging areas, which would be located in paved areas or previously disturbed areas along easements.

Use of hazardous materials would be limited to the construction phase and would comply with applicable local, state, and federal standards associated with the handling and storage of hazardous materials. Generators and pumps would use fuels and lubricants; however, a HMRP plan would be written to address any potential release of these materials.

- b) **Less Than Significant Impact.** The Project would not create a substantial hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The Project will comply with applicable local, state, and federal standards associated with the handling and storage of hazardous materials.
- c) **Less Than Significant Impact.** The Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste. Although a school and day care center is within a half mile of the pump station, any spills of hazardous materials would be contained on site in compliance with the HMRP plan.

- d) No Impact. The Project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, therefore, would it not create a significant hazard to the public or the environment.
- e) No Impact. The Project area is not located within an airport land use plan or near a public or private airport.
- f) No Impact. The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Construction activities would require temporary lane or road closures and detours around the work areas. Adequate road access would be available in the event of an emergency to allow vehicles to drive around the work area, which would ensure the Project does not prevent emergency access to the residences or conflict with an emergency response or evacuation plan.
- g) No Impact. The Project would not expose people or structures to a substantial risk of loss, injury or death involving wildland fires over the long term. The fire hazard rating of the area would not be altered by the Project. Water supply reliability and storage capacity would be improved in the area. The specific improvements of the project (increased storage volume, interconnections and hydrants) would results in more water available for use for extinguishing wildland fires.

3.10 HYDROLOGY / WATER QUALITY

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?				X
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:			X	
i) result in substantial erosion or siltation on- or off-site;				X
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;				X
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				X
iv) impede or redirect flood flows?				X
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

3.10.1 Regulatory Setting

Federal Laws, Regulations, and Policies

Clean Water Act

The CWA is the primary federal law that protects the quality of the nation’s surface waters, including lakes, rivers, and coastal wetlands. The key sections pertaining to water quality regulation for the Project are CWA § 303 and § 402.

Section 303(d) - Listing of Impaired Water Bodies

Under CWA § 303(d), states are required to identify “impaired water bodies” (those not meeting established water quality standards), identify the pollutants causing the impairment, establish priority rankings for waters on the list, and develop a schedule for development of control plans to improve water quality. USEPA then approves the state’s recommended list of impaired waters or adds and/or removes water bodies.

Section 402 - National Pollutant Discharge Elimination System (NPDES) Permits for Stormwater Discharge

CWA § 402 regulates construction-related stormwater discharges to surface waters through the NPDES. The NPDES is officially administered by USEPA. In California, USEPA has delegated its authority to the SWRCB; the SWRCB in turn delegates implementation responsibility to the nine RWQCBs, as discussed with regard to the Porter-Cologne Water Quality Control Act below.

The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual (activity- or project-specific) permits.

Municipal Separate Stormwater Sewer System (MS4) Permitting Program

The SWRCB regulates stormwater discharges from MS4s through its Municipal Storm Water Permitting Program. Permits are issued under two phases depending on the size of the urbanized area/municipality. Phase I MS4 permits are issued for medium (population between 100,000 and 250,000 people) and large (population of 250,000 people or more) municipalities, and are often issued to a group of co-permittees within a metropolitan area. Phase I permits have been issued since 1990. In 2003, the SWRCB issued the first statewide Phase II MS4 General Permit, which applies to smaller municipalities (generally population less than 100,000 but greater than 50,000, or as specified by SWRCB).

Section 404, 401 – Dredge and fill permits

Pipes Wash has been the subject of an Approved Jurisdictional Determination (File Nos. SPL-2010-00824-MAS, dated July 14, 2010 and SPL-2010-00824-VN dated April 30, 2019) by the Los Angeles District of US Army COE and has been found to not be Waters of the United States. This indicates that there is no need for a Section 404 permit or 401 certification.

Waste Discharge Requirements

Pipes Wash may be considered a Waters of the State of California. The Project would therefore require a Waste Discharge Requirements approval from the Regional Water Quality Control Board (R7, Colorado River Region).

Federal Emergency Management Agency

FEMA produces flood insurance rate maps that identify special flood hazard areas. The maps further classify these areas into “zones” that broadly characterize the potential risk of an area being inundated by a 100-year or 500-year flood in any given year.

Wild and Scenic Rivers Act

In 1968, Congress created the National Wild and Scenic Rivers System Act to designate and preserve certain rivers in a free-flowing condition for the enjoyment of present and future generations. Designated wild and scenic rivers have outstanding natural, cultural, and recreational values and are administered by a federal or state agency. Rivers are classified as wild, scenic, or recreational with the wild classification indicating river areas that are not impounded, only accessible by trail, and have unpolluted waters and essentially primitive watersheds or shorelines. The scenic and recreational classifications indicate rivers with perhaps more development or accessibility and/or past impoundment or diversion.

State Laws, Regulations, and Policies

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (known as the Porter-Cologne Act), passed in 1969, dovetails with the CWA (see discussion of the CWA above). It established the SWRCB and divided the state into nine regions, each overseen by an RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state’s surface water and groundwater supplies. However, much of the SWRCB’s daily implementation authority is delegated to the nine RWQCBs, which are responsible for implementing CWA §§ 401, 402, and 303(d). In general, the SWRCB manages water rights and regulates statewide water quality, whereas the RWQCBs focus on water quality within their respective regions.

The Porter-Cologne Act requires the RWQCBs to develop water quality control plans (also known as Basin Plans) that designate beneficial uses of California’s major surface water bodies and groundwater basins and establish specific narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a water body - i.e., the reasons why the water body is considered valuable. Water quality objectives reflect the standards necessary to protect and support those beneficial uses. Basin Plan standards are primarily implemented by regulating waste discharges so that water quality objectives are met. Under the Porter-Cologne Act, Basin Plans must be updated every 3 years.

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (SBC 2007) contains a number of goals related to hydrology and water quality, including conservation of surface and ground water supplies; safeguard and maintenance of natural waterways, levees, and drainage facilities to ensure water quality; and reduction of flood hazards.

3.10.2 Environmental Setting

The Project area has no integrated natural drainage other than constructed stormwater conveyance structures.

A flood map search (FEMA 2011) for Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel ID numbers 06071C6650H, 06071C7375H, 06071C7400H, 06071C7425H, 06071C8105H, 06071C8110H, and 06071C8130H confirms the area has not been mapped by FEMA for flood zone hazards, and is therefore classified as an “Area of Undetermined Flood Hazard.” The County of San Bernardino also has no flood zone hazard mapping for this area.

The Project area is not situated over a U.S. Environmental Protection Agency sole source aquifer (USEPA 2016).

3.10.3 Discussion of Impacts

- a) No Impact. The Project would not violate any water quality standards or waste discharge requirements. The Project would improve system reliability.
- b) No Impact. The Project would not affect groundwater recharge and groundwater supplies because the Project would obtain its water from the same sources as the existing systems and not additionally deplete groundwater supplies. The project is located within an adjudicated basin and will operate within permitted pumping rates.
- c) Less Than Significant Impact. The Project 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 substantial erosion or siltation on- or off-site or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. The Project would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff and would not impede or redirect flood flows. The pipelines would be located underground. Minor increases of impervious surfaces at the pump stations and pump station would slightly
- d) No Impact. The Project is not within a tsunami, or seiche zones and therefore the Project would not risk release of pollutants due to project inundation.
- e) No Impact. The Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

3.11 LAND USE / PLANNING

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?				X
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or adopted for the purpose of avoiding or mitigating an environmental effect?				X

3.11.1 Regulatory Setting

Local Laws, Regulations, and Policies

San Bernardino County General Plan

The San Bernardino County General Plan, which was adopted in 2007 guides development in unincorporated San Bernardino County (SBC 2007). The general plan land use designation for the Project sites and immediate vicinity are General Commercial (CG), Neighborhood Commercial (CN), Rural Commercial (CR), Service Commercial (CS), Institutional (IN), Resource Conservation (RC), Rural Living (RL), and Special Development (SD). All of these land use designations are rural designations, indicating that the area is intended to support rural uses and have public services and infrastructure provided during the General Plan’s planning period. See Figure 6 for locations of land uses.

San Bernardino County Zoning Code

The San Bernardino County Zoning Code (SBC 2018) establishes land use zones and standards and regulations for development in those zones, within unincorporated San Bernardino County. Figure 7 shows zoning of the Project sites and immediately adjacent areas. Zoning types are located within the following zoning districts: General Commercial (CG), Institutional (IN), Neighborhood Commercial (CN), Resource Conservation (RC), Rural Commercial (CR), Rural Living (RL), Service Commercial (CS), and Special Development (SD) (SBC 2018).

3.11.2 Environmental Setting

The main land uses in the vicinity of the Project are residential and resource conservation. Land ownership in and adjacent to the Project area is mostly either private or government owned land. The Project area is not in a Coastal Zone Management Area or near a Wild and Scenic River (or its watershed area), Designated National Monument, or National Park.

3.11.3 Discussion of Impacts

- a) No Impact. The Project would not physically divide an established community. The Project generally involves construction of underground pipelines under existing roads and would, excluding limited temporary construction phase impacts, not impact housing or transportation systems. Two adjacent water systems would be consolidated into one.
- b) No Impact. The Project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or adopted for the purpose of avoiding or mitigating an environmental effect. The use of public land for the purposes of this project are fully compatible with the BLM, Desert Renewable Energy Conservation Plan (2019).

3.12 MINERAL RESOURCES

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

3.12.1 Regulatory Setting

State Laws, Regulations, and Policies

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act of 1975 (SMARA) requires that the State Mining and Geology Board identify, map, and classify aggregate resources throughout California that contain regionally significant mineral resources. Designations of land areas are assigned by the CDC and CGS following analysis of geologic reports and maps, field investigations, and using information about the locations of active sand and gravel mining operations (Miller 1993). Local jurisdictions are required to enact planning procedures to guide mineral conservation and extraction at particular sites, and to incorporate mineral resource management policies into their general plans.

Local Laws, Regulations, and Policies

The Conservation Element of the San Bernardino County General Plan (SBC 2007) provides goals and policies related to the conservation, development, and utilization of mineral resources.

3.12.2 Environmental Setting

The Project area does not contain any known mineral resources or locally important mineral resource recovery sites. It is in a rural developed area.

3.12.3 Discussion of Impacts

- a) No Impact. The Project is not in an area of known mineral resource potential. There are no mineral resource recovery sites delineated in a land use plan within the project area (San Bernardino County 2007).

- b) No Impact. Most excavations would be backfilled with excavated soil. If the Project would require the use of additional soil for backfilling trenches and re-paving roads, these resources would come from local sources and native materials, not resulting in the loss of availability of a valuable mineral resource.

3.13 NOISE

Would the project result in:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance,			X	
b) Generation of excessive groundborne vibration or groundborne noise levels?				X
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

Noise

In the CEQA context, noise can be defined as unwanted sound. Sound is characterized by various parameters, including the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound level, or sound intensity. The decibel (dB) scale is used to quantify sound intensity. Because sound pressure can vary enormously within the range of human hearing, a logarithmic scale is used to keep sound intensity numbers at a convenient and manageable level. The human ear is not equally sensitive to all frequencies in the spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive, creating the A-weighted decibel (dBA) scale.

Different types of measurements are used to characterize the time-varying nature of sound. Below are brief definitions of these measurements and other terminology used in this chapter.

- Decibel (dB) is a measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- A-weighted decibel (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- Maximum sound level (L_{max}) is the maximum sound level measured during a given measurement period.
- Minimum sound level (L_{min}) is the minimum sound level measured during a given measurement period.

- Equivalent sound level (L_{eq}) is the equivalent steady-state sound level that, in a given period, would contain the same acoustical energy as a time-varying sound level during that same period.
- Day-night sound level (L_{dn}) is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels during the period from 10:00 p.m. to 7:00 a.m. (typical sleeping hours). This weighting adjustment reflects the elevated sensitivity of individuals to ambient sound during nighttime hours.
- Community noise equivalent level (CNEL) is the energy average of the A-weighted sound levels during a 24-hour period, with 5 dB added to the A-weighted sound levels between 7:00 p.m. and 10:00 p.m. and 10 dB added to the A-weighted sound levels between 10:00 p.m. and 7:00 a.m.

In general, human sound perception is such that a change in sound level of 3 dB is barely noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving the sound level. Table 5 presents approximate noise levels for common noise sources, measured adjacent to the source.

Table 5. Examples of Common Noise Levels

Common Outdoor Activities Noise Level (dBA)	Noise Level (dBA)
Jet flyover at 1,000 feet	110
Gas lawnmower at 3 feet	100
Diesel truck at 50 feet traveling 50 miles per hour	90
Noisy urban area, daytime	80
Gas lawnmower at 100 feet, commercial area	70
Heavy traffic at 300 feet	60
Quiet urban area, daytime	50
Quiet urban area, nighttime	40
Quiet suburban area, nighttime	30

Source: Caltrans 2009

Ground-borne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration may be composed of a single pulse, a series of pulses, or a continuous oscillatory motion. The frequency of a vibrating object describes how rapidly it is oscillating, measured in Hertz (Hz). Most environmental vibrations consist of a composite, or “spectrum,” of many frequencies. The normal frequency range of most ground-borne vibrations that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz. Vibration information for this analysis has been described in terms of the peak particle velocity (PPV), measured in inches per second, or of the vibration level measured with respect to root-mean-square vibration velocity in decibels (VdB), with a reference quantity of 1 micro-inch per second.

Vibration energy dissipates as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. High-frequency vibrations reduce much more rapidly than do those characterized by low frequencies, so that in a far field zone distant from a source, the vibrations with lower frequency amplitudes tend to dominate. Soil properties also affect the propagation of vibration. When ground-borne vibration interacts with a building, a ground-to-foundation coupling loss usually results but the vibration also can be amplified by the structural resonances of the walls and floors. Vibration in buildings is typically perceived as rattling of windows, shaking of loose items, or the motion of building surfaces. In some cases, the vibration of building

surfaces also can be radiated as sound and heard as a low-frequency rumbling noise, known as ground-borne noise.

Ground-borne vibration is generally limited to areas within a few hundred feet of certain types of industrial operations and construction/demolition activities, such as pile driving. Road vehicles rarely create enough ground-borne vibration amplitude to be perceptible to humans unless the receiver is in immediate proximity to the source or the road surface is poorly maintained and has potholes or bumps. Human sensitivity to vibration varies by frequency and by receiver. Generally, people are more sensitive to low-frequency vibration. Human annoyance also is related to the number and duration of events; the more events or the greater the duration, the more annoying it becomes.

3.13.1 Regulatory Setting

Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies for construction-related noise and vibration apply to the Project. However, the Federal Transit Administration (FTA) Guidelines for Construction Vibration in Transit Noise and Vibration Impact Assessment state that for evaluating daytime construction noise impacts in outdoor areas, a noise threshold of 90 dBA L_{eq} should be used for residential areas (FTA 2006).

For construction vibration effects, the FTA guidelines use an annoyance threshold of 80 VdB for infrequent events (fewer than 30 vibration events per day) and a damage threshold of 0.3 inch per second (in/sec) PPV for engineered concrete and masonry structures and 0.12 in/sec PPV for buildings extremely susceptible to vibration damage (FTA 2006).

State Laws, Regulations, and Policies

California requires each local government entity to implement a noise element as part of its general plan. California Administrative Code, Title 4, presents guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The state land use compatibility guidelines are listed in Table 6.

Table 6. State Land Use Compatibility Standards for Community Noise Environment

Land Use Category	Community Noise Exposure - L_{dn} or CNEL (db)						
	50	55	60	65	70	75	80
Residential – Low Density Single Family, Duplex, Mobile Homes	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Residential - Multi-Family	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Transient Lodging – Motels, Hotels	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Schools, Libraries, Churches, Hospitals, Nursing Homes	██████████	██████████	██████████	██████████	██████████	██████████	██████████

Land Use Category	Community Noise Exposure - L _{dn} or CNEL (db)						
	50	55	60	65	70	75	80
Auditoriums, Concert Halls, Amphitheaters	[Bar chart showing noise exposure levels for Auditoriums, Concert Halls, Amphitheaters]						
Sports Arenas, Outdoor Spectator Sports	[Bar chart showing noise exposure levels for Sports Arenas, Outdoor Spectator Sports]						
Playgrounds, Neighborhood Parks	[Bar chart showing noise exposure levels for Playgrounds, Neighborhood Parks]						
Golf Courses, Riding Stables, Water Recreation, Cemeteries	[Bar chart showing noise exposure levels for Golf Courses, Riding Stables, Water Recreation, Cemeteries]						
Office Buildings, Business Commercial and Professional	[Bar chart showing noise exposure levels for Office Buildings, Business Commercial and Professional]						
Industrial, Manufacturing, Utilities, Agriculture	[Bar chart showing noise exposure levels for Industrial, Manufacturing, Utilities, Agriculture]						
Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.						
Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.						
Normally Unacceptable	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.						
Clearly Unacceptable	New construction or development generally should not be undertaken.						

Local Laws, Regulations and Policies

San Bernardino County Noise Ordinance

The San Bernardino County Noise Ordinance (San Bernardino County Code, General Performance Standards) provides daytime and nighttime noise standards, and identifies exemptions to these noise standards. Construction-related noise would occur between the hours of seven a.m. and seven p.m. Monday through Saturday. In addition, any mechanical device, apparatus or equipment related to or connected with emergency activities or emergency work would be exempt from the noise ordinance. The daytime exterior noise standard in residential areas is an hourly L_{eq} of 55 dB. The nighttime residential area exterior noise standard for L_{eq} is 45 dB. (SBC 2007).

San Bernardino County General Plan

The San Bernardino County General Plan (SBC 2007) contains a number of goals and policies related to noise, including to protect citizens of San Bernardino County from exposure to excessive noise; to control and abate environmental noise; and to protect existing noise-producing industries from encroachment by noise-sensitive land-uses. The General Plan establishes detailed noise thresholds based on land use, indoor vs. outdoor, and day vs. night. Construction noise within the County is subject to San Bernardino County Code requirements, specifically in General Performance Standards, as described above.

3.13.2 Environmental Setting

The Project area is in a rural developed setting with some noise sources typical of residential and commercial uses and local roads. Generally, the noise levels in the Flamingo Heights, Landers, and Johnson Valley region are relatively low compared to urbanized areas, with pockets of higher noise such as in the commercial areas. Vehicles using nearby roads and day-to-day residential and commercial activities are the primary noise sources. In addition, periodic noise sources such as construction activities are present in the communities. Residences near the Project area may be sensitive to high noise levels.

3.13.3 Discussion of Impacts

- a) **Less Than Significant Impact.** The Project would not create a de minimis increase in ambient noise levels in the Project vicinity above existing levels. Permanent noise impacts would be associated with improvements to the existing R-1 booster station (Reche Road/Landers Lane) and the development of the new booster station at Winters Road/Rainbow Drive. Both pump stations will be fully enclosed block wall buildings, and will not be located near sensitive receptors.

At the R-1 Booster Station, the pump will be submerged and will this not make noise. The motor will be a constant, above grade motor whose noise will be attenuated by the existing block wall structure and distance to the parcel's property line.

At the proposed booster station at Winters Road/Rainbow Drive, one pump will normally operate. The noise generated will be 75 dB at 5 feet. However, with building enclosure, the noise level will be approximately 25dB just outside the building. The building will be located approximately 25' to 40' to property lines. During extended power outages, a portable generator would generate noise. Noise would also increase due to operator visits, which would be approximately once daily. During emergency or repair periods, the visit frequency would increase.

- b) **No Impact.** The Project would not result in the generation of excessive ground-borne vibration or ground-borne noise levels.
- c) **No Impact.** The Project is not in located the vicinity of a private airstrip.

3.14 POPULATION / HOUSING

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

3.14.1 Regulatory Setting

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (SBC 2007) contains goals and policies related to the provision of adequate housing in the County; promotion of infill developments; and revitalization of neighborhoods through public facility improvements, including water supply.

3.14.2 Environmental Setting

BDVWA lies within Block Groups 1, 2, and 3 of Census Tract 104.23 and Block Groups 1 and 2 of Census Tract 104.24. BDVWA currently serves approximately 1,977 active residential customers, 507 infrequent/inactive customers, and 102 bulk-hauling customers within its service area.

Near term future growth in the greater Flamingo Heights, Landers, and Johnson Valley region is not expected to be significant. There are no anticipated projects, such as a housing development, that would cause a large growth in the number of customers for BDVWA. With the population projected as relatively stable, a growth rate of approximately 0.5% per year is anticipated.

This annual growth rate was also used to project population within BDVWA's service area through 2047. Table 7 summarizes the projected population through 2047.

Table 7. Population Growth Projection

Year	2017	2027	2037	2047	Annual Growth
Population	5,328	5,355	5,381	5,408	0.5%

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

3.14.3 Discussion of Impacts

- a) No Impact. The proposed pipelines, booster station improvements, storage tank repairs, and other improvements would improve existing water service, quality, reliability, and sustainability in the area. It is not designed to encourage new, unplanned development. The Project would not induce growth.
- b) No Impact. The Project would not displace existing people or housing.

3.15 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?				X
Police protection?				X
Schools?				X
Parks?				X
Other public facilities?				X

3.15.1 Regulatory Setting

State Laws, Regulations, and Policies

California Fire Code

The California Fire Code (Title 24 CCR Part 9) establishes minimum requirements to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. Chapter 33 of the code contains the following requirements for fire safety during construction and demolition:

3304.4 Spontaneous ignition. Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container.

3308.1 Program superintendent. The owner shall designate a person to be the fire prevention program superintendent who shall be responsible for the fire prevention program and ensure that it is carried out through completion of the Project. The fire prevention program superintendent shall have the authority to enforce the provisions of this chapter and other provisions as necessary to secure the intent of this chapter. Where guard service is provided, the superintendent shall be responsible for the guard service.

3308.2 Prefire plans. The fire prevention program superintendent shall develop and maintain an approved prefire plan in cooperation with the fire chief. The fire chief and the fire code official shall be notified of changes affecting the utilization of information contained in such prefire plans.

3310.1 Required access. Approved vehicle access for firefighting shall be provided to all construction or demolition sites. Vehicle access shall be provided by either temporary or permanent roads, capable of support vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available.

3316.1 Conditions of use. Internal-combustion-powered construction equipment shall be used in accordance with all of the following conditions:

- Equipment shall be located so that exhausts do not discharge against combustible material.
- Equipment shall not be refueled while in operation.
- Fuel for equipment shall be stored in an approved area.

3.15.2 Environmental Setting

The Flamingo Heights, Landers, and Johnson Valley region is served by various public facilities in and near the community. No public facilities are located within the Project area. Local facilities include Landers Elementary School (located approximately 1.6 miles from the Project area), Yucca Mesa Elementary School (located approximately 2.3 miles from the Project area), and Yucca Valley Fire Station (located approximately 2.3 miles from the Project area).

3.15.3 Discussion of Impacts

- a) No Impact. The Project would not affect public services in the local communities, increase the demand for public services, or require construction of new governmental facilities.

3.16 RECREATION

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

3.16.1 Regulatory Setting

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (SBC 2007) contains goals and policies for protection of open areas and greenbelts for enjoyment by residents; promotion of development and preservation of adequate recreational facilities and parks; and maintenance of trails and parkways.

3.16.2 Environmental Setting

No recreational facilities are located in or near the Project area, although pedestrians, bicyclists, four-wheel-drive vehicles, and quads may use the local roads for recreation or other travel purposes.

3.16.3 Discussion of Impacts

- a) No Impact. The Project would not affect the use of or access to parks or other recreational facilities in the local communities or affected unincorporated areas. Local roads affected during construction will be returned to a pre-construction equivalent or better surface condition.
- b) No Impact. The Project does not involve construction or expansion of recreational facilities.

3.17 TRANSPORTATION

Would the project:

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

Following are definitions of key traffic and transportation terms used in this section, based on the San Bernardino County General Plan (San Bernardino County 2007) and the San Bernardino County General Plan Final Environmental Impact Report (San Bernardino County 2007), which in turn refer to the Highway Capacity Manual, 4th edition (Transportation Research Board 2000).

Level of Service – A qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Roadway level of service (LOS) is defined according to methodologies presented in the Highway Capacity Manual (Transportation Research Board 2000). Using the Highway Capacity Manual procedures, the quality of traffic operation is graded using six designations, LOS A through F (See Table 8).

Table 8. Level of Service Definitions

Level of Service	Description
A	Primarily free-flow operations at average travel speeds, usually 90 percent of the freeflow speed for the given street class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.
B	Reasonably free-flow operations at average travel speeds, usually 70 percent of the freeflow speed for the given street class. The ability to maneuver within the traffic stream is only slightly restricted and control delay at signalized intersections are not significant.
C	Stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the free-flow speed for the street class.
D	Borders on a range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or a combination of these factors. Average travel speeds are about 40 percent of the free-flow speed.
E	Characterized by significant delays and average travel speeds of 33 percent or less of the free-flow speed. Such operations are caused by a combination of adverse progression, high signal delay, high volumes, extensive delays at critical intersections and inappropriate signal timing.
F	Characterized by urban street flow at extremely low speeds, typically one-third to one fourth of the free-flow speed. Intersection congestion is likely at critical signalized locations, with high delays, high volumes and extensive queuing.

Source: San Bernardino County General Plan Final EIR (2007)

Delay - The additional travel time experienced by a vehicle or traveler that results from the inability to travel at optimal speed, and stops due to congestion or traffic control.

Volume-to-capacity ratio - The ratio of traffic flow rate (usually expressed as vehicles per hour) to capacity for a transportation facility. For example, a volume-to-capacity ratio of 1.00 indicates the roadway facility is operating at its capacity.

Thoroughfares - provide for mobility within the County, carrying through traffic on continuous routes and providing transportation links between major residential, employment, commercial, and retail areas. Access to abutting private property and intersecting local streets is generally restricted.

Local streets - These roads provide direct access to abutting property and connect with other local streets and collectors. Local streets are typically developed as two-lane, undivided roadways and provide access to abutting private property and intersecting streets.

3.17.1 Regulatory Setting

State Laws, Regulations, and Policies

Caltrans manages the state highway system and ramp interchange intersections. The state agency is also responsible for highway, bridge, and rail transportation planning, construction, and maintenance.

Local Regulations and Policies

The Circulation Element of the San Bernardino County General Plan (SBC 2007) provides the framework for San Bernardino County decisions concerning the countywide transportation system. It also provides for coordination with the cities and unincorporated communities within the county, with the Metropolitan Transportation Plan adopted by the San Bernardino Area Council of Governments, and with State and Federal agencies that fund and manage transportation facilities within the county.

3.17.2 Environmental Setting

Construction schedules will be limited to minimize traffic effects in major areas of concern, such as schools or churches. There are several school bus stops located along the proposed route. In school bus stop areas, construction hours will be limited to avoid effects to student transportation.

3.17.3 Discussion of Impacts

- a) Less Than Significant Impact. The project could potentially temporarily increase traffic in construction areas. Traffic effects to existing roads during construction will be minimal. The proposed pipelines will be constructed at a proper schedule to avoid minimize disturbance to school and transit bus routes, and during traditional church services.
- b) Less than Significant Impact. Vehicle miles traveled in the project area will not be affected by the construction phase of the Project. The Project does not involve creating or altering existing roadways. Vehicle miles traveled would temporarily increase during construction due to construction activity, i.e. crews and materials entering and leaving work areas
- c) No Impact. The Project would not involve activities that could increase hazards due to a design feature or incompatible uses.
- d) Less Than Significant Impact. Construction activities would not result in inadequate emergency access. No road construction or permanent modifications are proposed as part of the project. Some construction activities would require temporary lane or road closures and detours around the work areas. Adequate road access would be available in the event of an emergency to allow vehicles to drive around the work area, which would ensure the Project does not prevent emergency access to the residences or conflict with an emergency response or evacuation plan. Local (San Bernardino County Department of Public Works) and state (Caltrans) encroachment permits would be obtained for the work within public rights of way.

3.18 TRIBAL CULTURAL RESOURCES

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

3.18.1 Regulatory Setting

State Laws, Regulations, and Policies

CEQA and CEQA Guidelines

Assembly Bill (AB) 52, which was approved in September 2014 and which went into effect on July 1, 2015, requires that state lead agencies consult with any California Native American tribe that is traditionally and culturally affiliated with the geographic area of a project, if so requested by the tribe. The bill, chaptered in Public Resources Code § 21084.2, also specifies that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource (TCR) is a project that may have a significant effect on the environment.

TCRs are further defined under Public Resources Code § 21074 as follows:

- A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; and
- A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “nonunique archaeological resource” as

defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Mitigation measures for TCRs must be developed in consultation with the affected California Native American tribe pursuant to newly chaptered § 21080.3.2 of the Public Resources Code, or according to § 21084.3. Section 21084.3 of the Public Resources Code identifies mitigation measures that include avoidance and preservation of TCRs and treating TCRs with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource.

3.18.2 Environmental Setting

The Native American Heritage Commission (NAHC) was contacted regarding the Project and a Sacred Lands File Search was completed. No Sacred Lands were identified in the Project area. The NAHC also provided a list of potentially interested and affiliated Native American individuals and groups. All of these groups were contacted for further information and potential concerns regarding cultural resources within the Project area.

BDVWA offered consultation in compliance with AB52 to three Native American tribes: San Manuel Band of Mission Indians, Morongo Band of Mission Indians, and the Twenty-nine Palms Band of Mission Indians. The San Manuel Band of Mission Indians (SMBMI) was the only tribe to request consultation with BDVWA on the project. As requested by SMBMI, BDVWA provided the SMBMI copies of the Project's cultural resources report (PaleoWest), geotechnical investigation report (NV5), and preliminary design drawings (NV5). The consultation efforts included several telephonic discussions between BDVWA staff and consultants and SMBMI cultural resources staff. At the request of SMBMI, BDVWA (PaleoWest) conducted a shovel-test pit field investigation to explore the potential for cultural resources in the vicinity of the existing B Reservoir/A-Booster Station/ and BDVWA office site located at Kickapoo Trail and Mesa Vista Street (APNs 0629-062-20 and 0629-062-21) No cultural resources were identified and the results were shared with SMBMI. BDVWA offered SMBMI a resource discovery mitigation measure as part of the consultation process. SMBMI edited the proposed measure, resulting in the mitigation measure CR-1 proposed below. On 02 December 2020, SMBMI (R. Nordness) notified BDVWA (M. West) that SMBMI believed the AB52 consultation process to be satisfactorily complete.

3.18.3 Discussion of Impacts

- a) i) No Impact. The Project site is not 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).
- ii) Less than Significant with Mitigation Incorporated. Tribal cultural resources listed or eligible for listing on the California Register of Historical Resources were not identified in the Project area (See Section 3.18.2 for additional information on identification efforts). However, in the unlikely event that cultural or tribal cultural resources are encountered during Project construction, Mitigation Measure CR-1 contained in Section 6.0 shall be implemented. This mitigation measures was reviewed with and incorporates edits from the San Manuel Band of Mission Indians as part of BDVWA's AB52 consultation efforts.

3.19 UTILITIES/SERVICE SYSTEMS

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				X
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?				X
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				X
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				X

3.19.1 Regulatory Setting

State Laws, Regulations, and Policies

The Division of Drinking Water (DDW) of the State Water Resources Control Board regulates drinking water standards throughout California, utilizing and augmenting federal standards. DDW is the regulatory agency of BDVWA and issues State drinking water permits. DDW has issued water supply permits to BDVWA for the BDVWA system (PWS No. CA361009), and the Goat Mountain system (PWS No. CA3610060).

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (SBC 2007) contains goals and policies generally to ensure adequate quality and quantity of water is delivered to residents, and that adequate sewer and other

services are provided to residents, and encourages waste reduction to decrease the amount of solid waste disposed in landfills.

San Bernardino County's Department of Public Health (Environmental Health Services) permits well drilling and destruction. Such permits will be sought in the implementation of this project for the replacement of GM Well No. 2.

3.19.2 Environmental Setting

BDVWA is a special district of the state of California formed in 1969 to provide potable water service to its customers. BDVWA currently serves approximately 1,977 active residential customers, 507 infrequent/inactive customers, and 102 bulk-hauling customers within its service area. BDVWA serves two separate potable water systems within its service area: the BDVWA system (Public Water System (PWS) No. CA361009), and the Goat Mountain system (PWS No. CA3610060). The State Water Resources Control Board's Division of Drinking Water, District 13 (DDW), is the regulatory agency for both water systems.

3.19.3 Discussion of Impacts

- a) No Impact. The Project involves installation of a new water pipelines in existing road ROWs, BDVWA and GM -owned property, easements and public land (BLM), which would involve temporary construction impacts. The water tank improvements are proposed to address deterioration of coating systems and structural concerns. The well and booster station improvements are designed to increase system reliability, water quality, redundancy, and sustainability. Existing utilities in the roads and other areas would be avoided, to the extent feasible, and if relocation is needed, BDVWA and GM will coordinate with the appropriate provider to ensure minimal disruptions to other services.
- b) No Impact. Water supply for the BDVWA and GM system would come from existing sources and not require any new resources. If water supply is needed for dust control, it would be provided by existing service providers and would not exceed allotted limits. The proposed Project would enable BDVWA to better utilize the existing recharge basin located at Winters Road and Pipes Wash. Reliance on localized groundwater sources that are not supplied by the recharge basin (i.e. BDVWA Zones A and B) will be diminished through the construction of the transmission/blending pipeline, booster station improvements, and well replacement. The ability to use existing sources (BDVWA Well Nos. 2 and 4) could resume following the installation of the blending pipeline. The resumption of use of the existing interconnection with HDWD and the development of the second interconnection with HDWD will increase water supply reliability for both systems.

The proposed pipelines and pump stations have been sized to accommodate existing and planned water supply requirements of the BDVWA and GM water system. Although water supply demand may increase as new development increases in the community, the Project is not designed to accommodate unplanned growth. The pipelines and pump stations would improve the service capability of the BDVWA, GM, and HDWD systems, and ensure its water distribution system meets the pressure, fire flow, and redundancy requirements necessary for operation.

- c) No Impact. The project area is not currently served by a community wastewater collection, treatment or disposal system. Wastewater is treated and disposed of at septic tanks and leach lines on individual lots. Wastewater generation rates and disposal methods will not change as a result of the Project.
- d) No Impact. Solid waste generated during construction would be properly disposed or recycled in a nearby landfill or disposal facility with capacity to receive the waste. Some materials removed during construction and demolition (e.g. concrete, steel, wood) will be diverted to a certified recycling center. During operation, there would be no measurable increase in solid waste generation. The project does not include processes that would generate solid waste.
- e) No Impact. Any hazardous materials used during construction would be properly disposed in accordance with California Department of Resource Recycling and Recovery. In most Project locations, existing infrastructure will be abandoned in place. The project does not include processes that would generate or utilize hazardous waste.

3.20 WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				X
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X

3.20.1 Regulatory Setting

State Laws, Regulations, and Policies

CAL FIRE Wildland Fire Management

The Office of the State Fire Marshal and the California Department of Forestry and Fire Protection (CAL FIRE) administer state policies regarding wildland fire safety. Construction contractors must comply with the following requirements in the Public Resources Code during construction activities at any sites with forest-, brush-, or grass-covered land:

- Earthmoving and portable equipment with internal combustion engines must be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (Public Resources Code § 4442).
- Appropriate fire-suppression equipment must be maintained from April 1 to December 1, the highest-danger period for fires (Public Resources Code § 4428).
- On days when a burning permit is required, flammable materials must be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the

construction contractor must maintain the appropriate fire suppression equipment (Public Resources Code § 4427).

- On days when a burning permit is required, portable tools powered by gasoline23 fueled internal combustion engines must not be used within 25 feet of any flammable materials (Public Resources Code § 4431).

CEQA and CEQA Guidelines

Senate Bill 1241 (Kehoe, 2012) required the Office of Planning and Research, the Natural Resources Agency, and CalFire to develop “amendments to the initial study checklist of the [CEQA Guidelines] for the inclusion of questions related to fire hazard impacts for projects located on lands classified as state responsibility areas, as defined in section 4102, and on lands classified as very high fire hazard severity zones, as defined in subdivision (i) of section 51177 of the Government Code.”

3.20.2 Environmental Setting

Wildfire Hazards

Fire Hazard Severity Zone

The region surrounding the Project site is zoned as having moderate to high fire hazard severity. The nearest fire station within BDVWA’s service area is the San Bernardino County Fire Station 42 Yucca Valley located at 58612 Aberdeen Dr, Yucca Valley, CA 92284.

Fire Threat

The region surrounding the Project site is classified as having moderate to high fire threat.

3.20.3 Discussion of Impacts

- a) No Impact. The Project would not substantially impair an adopted emergency response plan or emergency evacuation plan.
- b) No Impact. The Project would not exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors.
- c) Less Than Significant Impact. The Project does not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. The Project does include the use of permanently placed and temporary electricity generators to ensure the operability of pump stations and wells during power outages. A new SCE power service will be supplied to the proposed booster station at Winters Road/Rainbow Drive. Nearby existing poles may be upgraded to provide three phase power to the site, which could reduce the potential for fire slightly. The proposed interconnections HDWD and other facilities will improve water service reliability and redundancy. The fire suppression capacities of the consolidated water system will not diminish as a result of the project.

- d) No Impact. The Project would not 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.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

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

3.21.1 Discussion

- a) Less than Significant Impact. Based upon the analysis performed in this Final Initial Study, the Project does not have the potential to significantly affect biological or cultural resources or degrade the quality of the environment. To ensure no unanticipated impacts to biological or cultural resources occur, mitigation measures are proposed in the enclosed Mitigation Monitoring and Reporting Program. See Section 6.0.
- b) No Impact. Based upon the analysis, performed in this Final Initial Study, the Project is not expected to have a cumulatively considerable impact to past, present, or future projects. No projects are proposed for the area that would cumulatively contribute to the short term, less than significant effects expected from the Project.
- c) Less than Significant Impact. Based upon the analysis, performed in this Final Initial Study, the construction phase of the Project would result in several temporary effects to human beings including temporary increases in air pollutants and noise. No long-term negative impacts are anticipated. The Project is expected to improve the overall water supply reliability, quality, redundancy, and sustainability for BDVWA, GM, and HDWD.

4.0 COMMENT LETTERS AND RESPONSES

5.0 LIST OF PREPARERS

- Mark Murphy, R.G., Ph.D., Senior Water Resources Scientist, NV5, Inc.
- Rebecca Davey, Environmental Specialist, NV5, Inc.
- James F. Owens, P.E., Associate, NV5, Inc.

- Tiffany Clark, PaleoWest Archaeology
- Gloriella Cardenas, PaleoWest Archaeology

- Ironwood Consulting, Inc.

6.0 MITIGATION MONITORING AND REPORTING PROGRAM

6.1 PURPOSE OF PROJECT

The purpose of the Project is to correct the deficiencies listed in Section 1 by:

- Replacing the A-Booster Pump Station (APNs 0629-062-20 and 0629-062-21), recoating and other repairs to the existing B-1 and B-2 Reservoirs, yard piping reconfiguration, and minor electrical improvements.
- Raising wellheads and reducing the horsepower and flow rates at most of BDVWA's active wells.
- Enclosing BDVWA's Well No. 8 in a building to attenuate hazard risk
- Consolidating the BDVWA and GM water systems
 - Installation of pipelines to connect the two systems, improve redundancy, and remove dead-ends
 - Adjustments to the extents of current pressure zones, including installation and removal of pressure reducing stations
 - Installation of a pump and motor within an existing pump station (APN 0630-021-50) to convey water from GM's Zone E-1 to BDVWA's Zone D-1
- Constructing a new booster pump station and associated conveyance/interconnection Facilities
 - Constructing a pump station that would transfer water from proposed BDVWA Zone D-1 (hydraulic grade line (HGL) 3360) to Zone B (HGL 3680) (APN 0631-041-25), including a new electrical service to the parcel.
 - Construct a new second interconnection with HDWD at the pump station location
 - Construct new distribution pipelines within BDVWA Zone D-1 to the proposed pump station
- Installing a transmission pipeline to convey water directly from BDVWA's Zone D-1 to the Zone B Reservoir Site (APNs 0629-062-20 and 0629-062-21)
 - Includes pipeline installation beneath Pipes Wash along Winters Road/Tracy Blvd Connecting the proposed transmission pipeline to deliver water from BDVWA system Well Nos. 2, 3, 4, and 8, and from the existing interconnection with HDWD directly to the B Reservoir site, following permitted resumption of operation of Well Nos. 2 and 4 for potable purposes.
- Resuming operation of BDVWA's Well Nos. 2 and 4 as potable water sources
- Destroying and replacing Goat Mountain system's Well No. 2

6.2 REGULATORY FRAMEWORK

California Public Resources Code Section 21081.6 and California Code of Regulations Title 14, Chapter 3, Section 15097 require public agencies to adopt mitigation monitoring or reporting plans when they approve projects under an MND. The reporting and monitoring plans must be adopted when a public agency makes its findings pursuant to CEQA so that the mitigation requirements can be made conditions of project approval.

6.3 FORMAT OF THIS PLAN

The MMRP describes the construction phase measure included in the proposed project and identified in the IS/MND. This MMRP also includes a summary statement of the impact discussed in the IS/MND to correspond with the mitigation measure. The mitigation measure is followed by an implementation description, the criteria used to determine the effectiveness of the mitigation, the timeframe for implementation, and the party responsible for monitoring implementation of the measure.

Implementation of each mitigation measure is ultimately the responsibility of the CEQA Lead Agency; during construction, the delegated responsibility is shared by BDVWA and construction contractors. The mitigation measure in this plan contains a “Verified By” signature line, which will be signed by BDVWA when the measure has been fully implemented and no further actions or monitoring are necessary for the implementation or effectiveness of the measure.

6.4 IMPACTS AND ASSOCIATED MITIGATION MEASURES

6.4.1 BR-1 – Preconstruction Burrowing Owl and Nesting Bird Survey

If vegetation removal or ground disturbance activities occur during the nesting season (January 1st to August 31st), a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the work area. The survey shall be conducted no more than two weeks prior to the initiation of construction. If construction activities are delayed or suspended for more than two weeks after the preconstruction survey, the site shall be resurveyed.

If nesting birds are found, the nest sites shall not be disturbed until after the young have fledged, as determined through additional monitoring by a qualified biologist. Further, to prevent nest abandonment and mortality of chicks and eggs, no construction activities shall occur within 300 feet of an active nest unless a smaller buffer zone is authorized by a qualified biologist in consultation with the CDFW and the USFWS (the size of the construction buffer zone may vary depending on the species of nesting birds present). A qualified biologist shall delineate the buffer zone with construction tape or pin flags that shall remain in place until the young have fledged, as determined through additional monitoring by a qualified biologist.

The qualified biologist shall monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. If any active nests associated with migratory bird species or raptors are encountered during Project construction, construction activities within the 300-foot zone will be delayed until nesting activities have ceased as determined by a focused survey to be performed by the qualified biologist. Guidance from CDFW shall be requested if the nestlings within an active nest appear disturbed. The qualified biologist shall have the authority to stop any work determined to be adversely affecting the nesting activity. The qualified biologist shall report any “take” of active nests to CDFW.

Implementation: Prior to initiating construction activity, BDVWA will retain a qualified biologist to perform pre-construction surveys for burrowing owls and nesting birds protected under the Migratory Bird Treaty Act and Section 3503 of the California Fish and Wildlife Code. A qualified biologist shall monitor nests during construction. Should listed species be encountered, authorization from the USFWS and CDFW shall be obtained.

Timing: Within two weeks of the start of construction activity and during construction activity.

Effectiveness Criteria: The biologist’s report(s) on pre-construction surveys. Reports shall be maintained in the project file.

Monitoring: BDVWA will prepare and keep on file documentation verifying the implementation of the above-referenced measure. These files shall be provided to the State Water Resources Control Board following completion of construction upon request.

Verified By:

BDVWA

Project Manager

Date:

6.4.2 BR-2 – Preconstruction Desert Tortoise Survey

Pre-construction surveys for desert tortoise shall be conducted by a qualified biologist no more than two weeks prior to the commencement of Project-related ground disturbance. Pre-construction surveys shall encompass all areas within the potential footprint of disturbance for the Project, as well as a reasonable buffer around these areas. Should desert tortoise be encountered, CDFW and USFWS shall be contacted to discuss additional mitigation measures which may be required.

Implementation: Prior to initiating construction activity, BDVWA will retain a qualified biologist to perform pre-construction surveys for desert tortoise.

Should listed species be encountered, authorization from the USFWS and CDFW shall be obtained.

Timing: Within two weeks of the start of construction activity.

Effectiveness Criteria: The biologist’s report(s) on pre-construction surveys. Reports shall be maintained in the project file.

Monitoring: BDVWA will prepare and keep on file documentation verifying the implementation of the above-referenced measure. These files shall be provided to the State Water Resources Control Board following completion of construction upon request.

Verified By:

BDVWA

Project Manager

Date:

6.4.3 BR-3 – Construction Phase Desert Tortoise Best Management Practices

Clearing of the Project area including blading of new access or work areas shall be minimized to the extent possible. Disturbance to shrubs shall be avoided if possible. If shrubs cannot be avoided during equipment operation or vehicle use, wherever possible they should be crushed rather than excavated or bladed and removed.

Construction workers shall participate in a pre-construction desert tortoise awareness training.

Project features that might trap or entangle desert tortoises, such as open trenches, pits, open pipes, etc. shall be covered at the end of each work day or modified to prevent entrapment through the installation of escape ramps or sloped at the ends at a 3:1 ratio.

After completion of the Project, trenches, pits, and other features in which tortoises could be entrapped or entangled, shall be filled in, covered, or otherwise modified so they are no longer a hazard to desert tortoises.

Unleashed dogs shall be prohibited in Project areas.

Temporary fencing, such as chicken wire, snow fencing, chain link, and other suitable materials shall be used in designated areas to reduce encounters with tortoises.

In potential desert tortoise habitat project-related vehicles shall not exceed 15 miles per hour on unpaved roads.

Implementation: The construction contractor shall be responsible for implementing these measures.

Timing: During construction activity.

Effectiveness Criteria: The biologist’s report(s) on pre-construction surveys. Provision and construction crew attendance at pre-construction desert tortoise awareness training(s). Reports shall be maintained in the project file.

Monitoring: BDVWA will prepare and keep on file documentation verifying the implementation of the above-referenced measure. These files shall be provided to the State Water Resources Control Board following completion of construction upon request.

Verified By:

BDVWA

Project Manager

Date:

6.4.4 CR-1 – Resource Discovery

1. In the event that pre-contact cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the San Manuel Band of Mission Indians' Cultural Resources Department (SMBMI) and other affiliated Native American groups shall be contacted. If any such find occurs, SMBMI and other affiliated Native American groups shall be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to allow tribal input with regard to significance and treatment.
2. If significant Native American resources are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan. The drafts of the Monitoring and Treatment Plan shall be provided to SMBMI and other affiliated Native American groups for review and comment. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.
3. If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.
 - o The NAHC-identified Most Likely Descendant (MLD), shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and funerary objects shall be treated and disposed of with appropriate dignity. The MLD, Lead Agency, and landowner agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes. The MLD shall complete its inspection and make recommendations within forty-eight (48) hours of the site visit, as required by California Public Resources Code § 5097.98.
 - o Reburial of human remains and/or funerary objects (those artifacts associated with any human remains or funerary rites) shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The MLD in consultation with the landowner, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains and funerary objects. All parties are aware that the MLD may wish to rebury the human remains and associated funerary objects on or near the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The applicant/developer/landowner should accommodate on-site reburial in a location mutually agreed upon by the Parties.
 - o It is understood by all Parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r).

Implementation: Prior to initiating construction activity, BDVWA will retain a qualified archeologist to assist when potentially significant Native-American historical

resources are discovered during earthmoving and excavation activities. The archeologist shall be prepared to respond immediately to the construction site when potentially significant Native American historical resources are discovered.

Prior to initiating construction activity, BDVWA shall inform the construction contractor that if cultural resources are encountered, the contractor is to immediately stop construction activity within a 60-foot buffer and is to inform BDVWA immediately upon the discovery.

Should potentially significant Native American historical resources be discovered, the discovering party shall immediately notify the Project's archeologist. All construction activity within a 60-foot buffer shall cease until receiving approval to resume work by the archeologist.

Timing: During construction activities that involve excavation or earth moving.

Effectiveness Criteria: The archeologist's report(s) on potentially significant Native American Historical Resources. Reports shall include any related correspondence or documentation received from a Native American Tribe or public agency. Reports shall be maintained in the project file.

Monitoring: BDVWA will prepare and keep on file documentation verifying the implementation of the above-referenced measure. These files shall be provided to the State Water Resources Control Board upon request and following completion of construction.

Verified By:

Bighorn-Desert View Water Agency

Project Manager

Date:

7.0 REFERENCES

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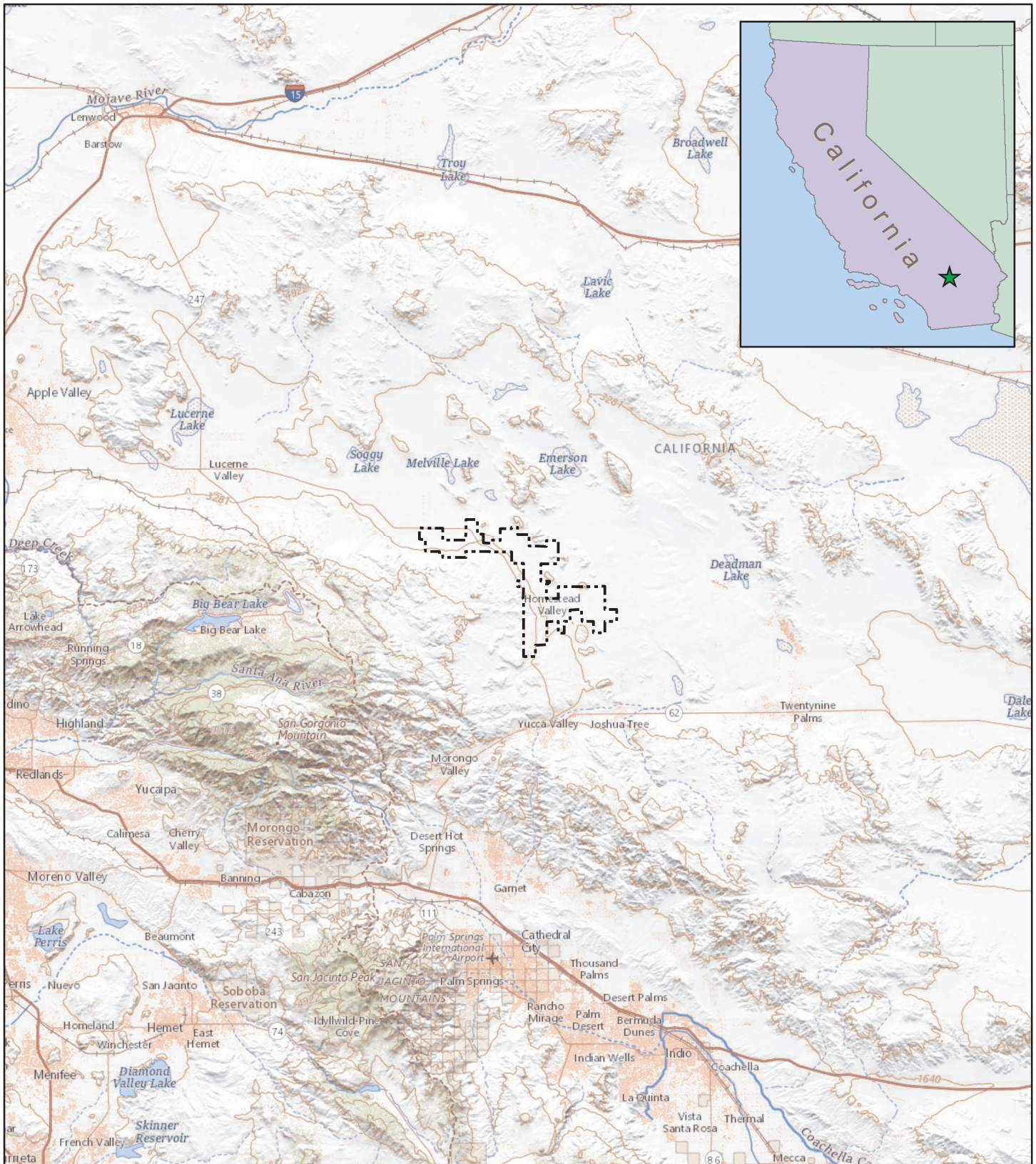
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10

 Miles

Service Layer Credits: USGS The National Map: National Boundaries Dataset, National Elevation Dataset, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; U.S. Census Bureau - TIGER/Line; HERE Road Data



1 W DEER VALLEY ROAD
 BUILDING 2, SUITE 305
 PHOENIX, ARIZONA 85027
 Tel: 623.374.6637 Fax: 623.738.3690

PROJECT VICINITY
 INITIAL STUDY/
 MITIGATED NEGATIVE DECLARATION

FOR:
 BDVWA

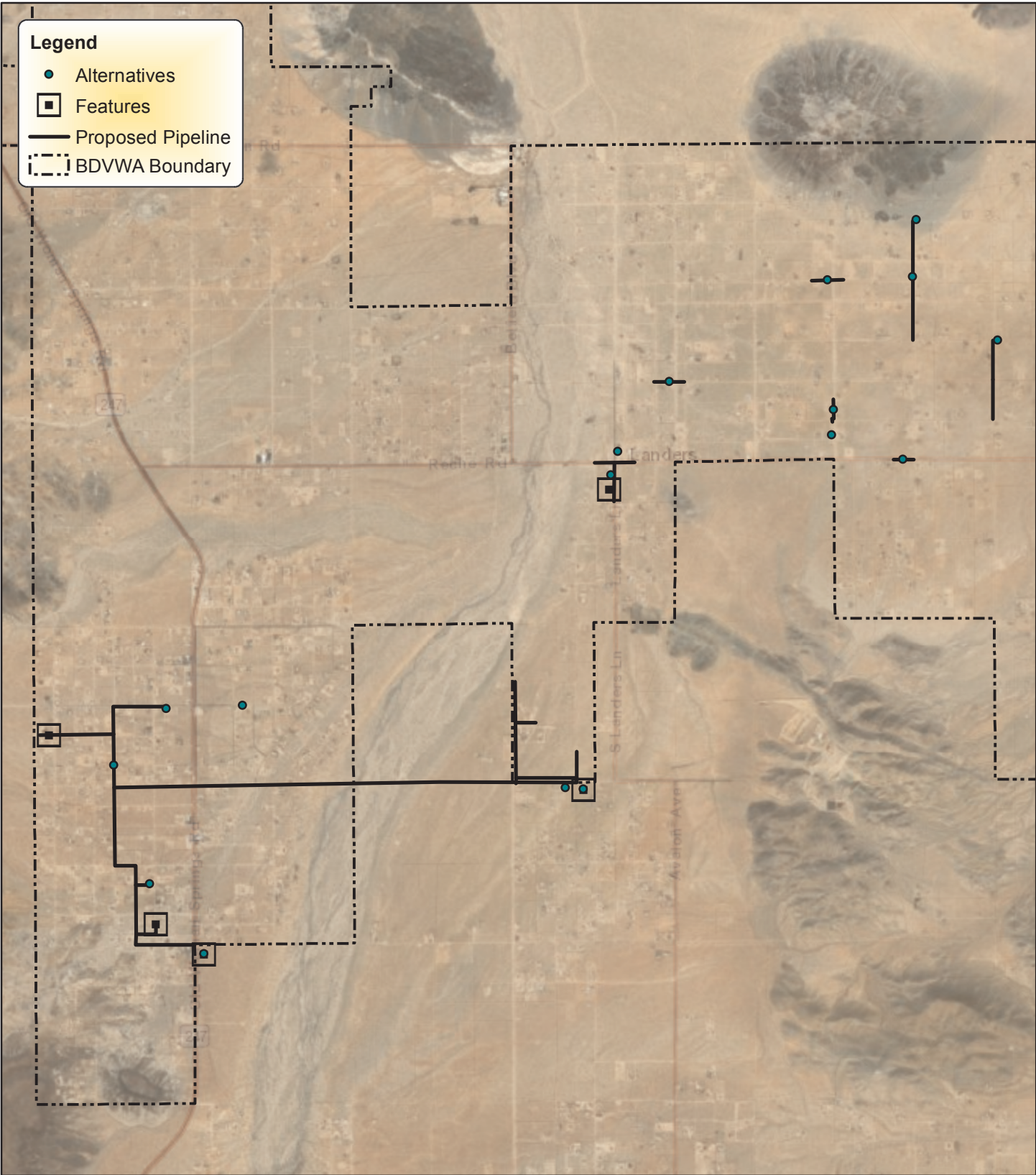
FIGURE 1

DES: RDD DR: RDD CHK:

PROJECT NO. 226815-0000025.07

DATE: 11/27/2019

SHT 1 OF 7



Legend

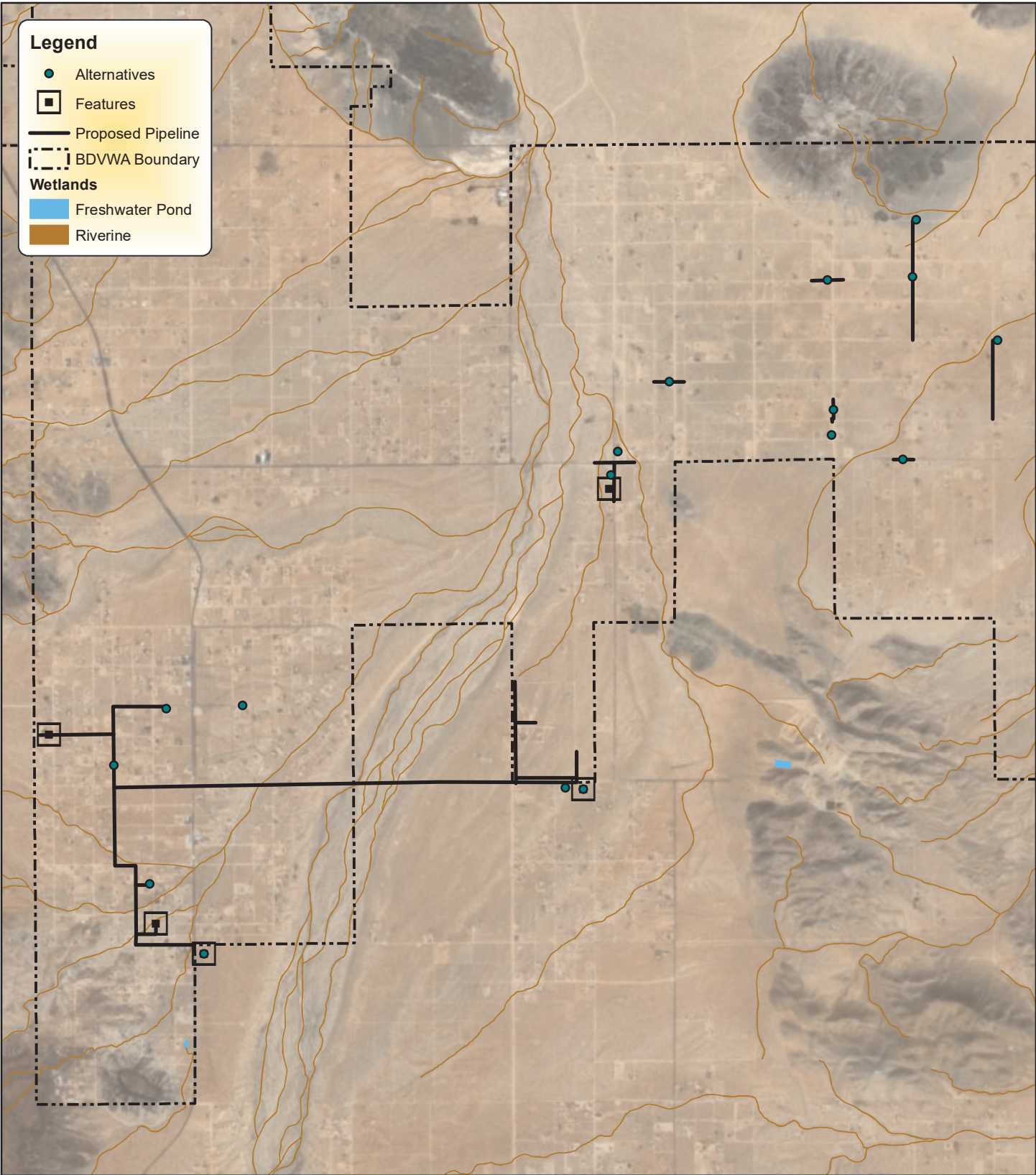
- Alternatives
- ▣ Features
- Proposed Pipeline
- - - BDVWA Boundary

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 Miles

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



	PROJECT LOCATION INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION	FOR: BDVWA		
	FIGURE 2	DES: RDD	DR: RDD	CHK:
	PROJECT NO. 226815-0000025.07	DATE: 11/27/2019	SHT 2 OF 7	



0.9

Miles

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
The National Wetlands Inventory - Version 2

N



1 W DEER VALLEY ROAD
BUILDING 2, SUITE 305
PHOENIX, ARIZONA 85027
Tel: 623.374.6637 Fax: 623.738.3690

NATIONAL WETLANDS INVENTORY MAP
INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

FOR:

BDVWA

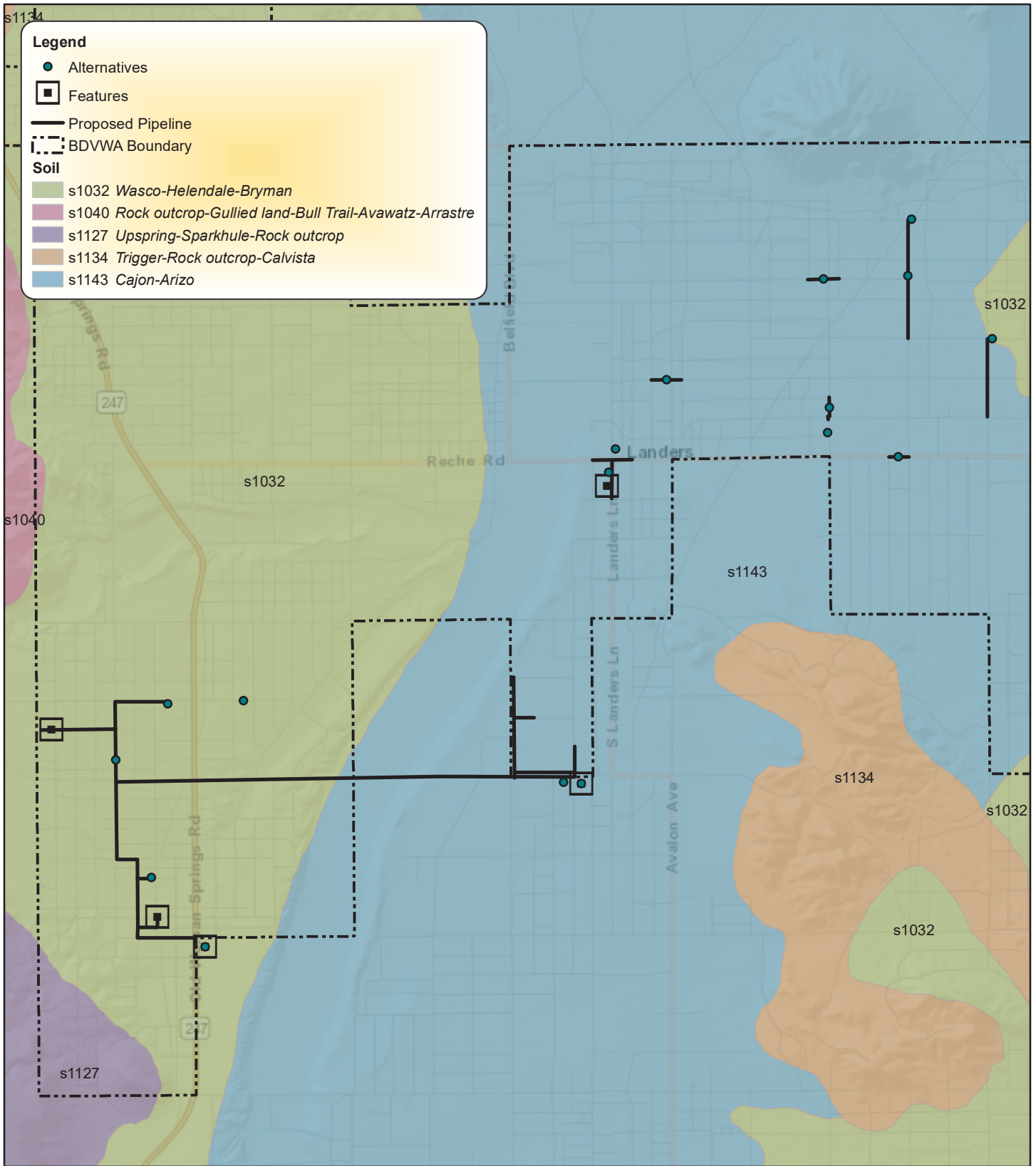
FIGURE 3

DES: RDD DR: RDD CHK:

PROJECT NO. 226815-0000025.07

DATE: 1/31/2020

SHT 3 OF 7



Legend

- Alternatives
- ▣ Features
- Proposed Pipeline
- - - BDVWA Boundary

Soil

- s1032 Wasco-Helendale-Bryman
- s1040 Rock outcrop-Gullied land-Bull Trail-Avawatz-Arrastre
- s1127 Upspring-Sparks-Rock outcrop
- s1134 Trigger-Rock outcrop-Calvista
- s1143 Cajon-Arizo

0.9
Miles

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Soil Survey Staff, National Resource Conservation Service, United States Department of Agriculture, Web Soil Survey.



N|V|5
 1 W DEER VALLEY ROAD
 BUILDING 2, SUITE 305
 PHOENIX, ARIZONA 85027
 Tel: 623.374.6637 Fax: 623.738.3690

SOIL MAP
 INITIAL STUDY/
 MITIGATED NEGATIVE DECLARATION

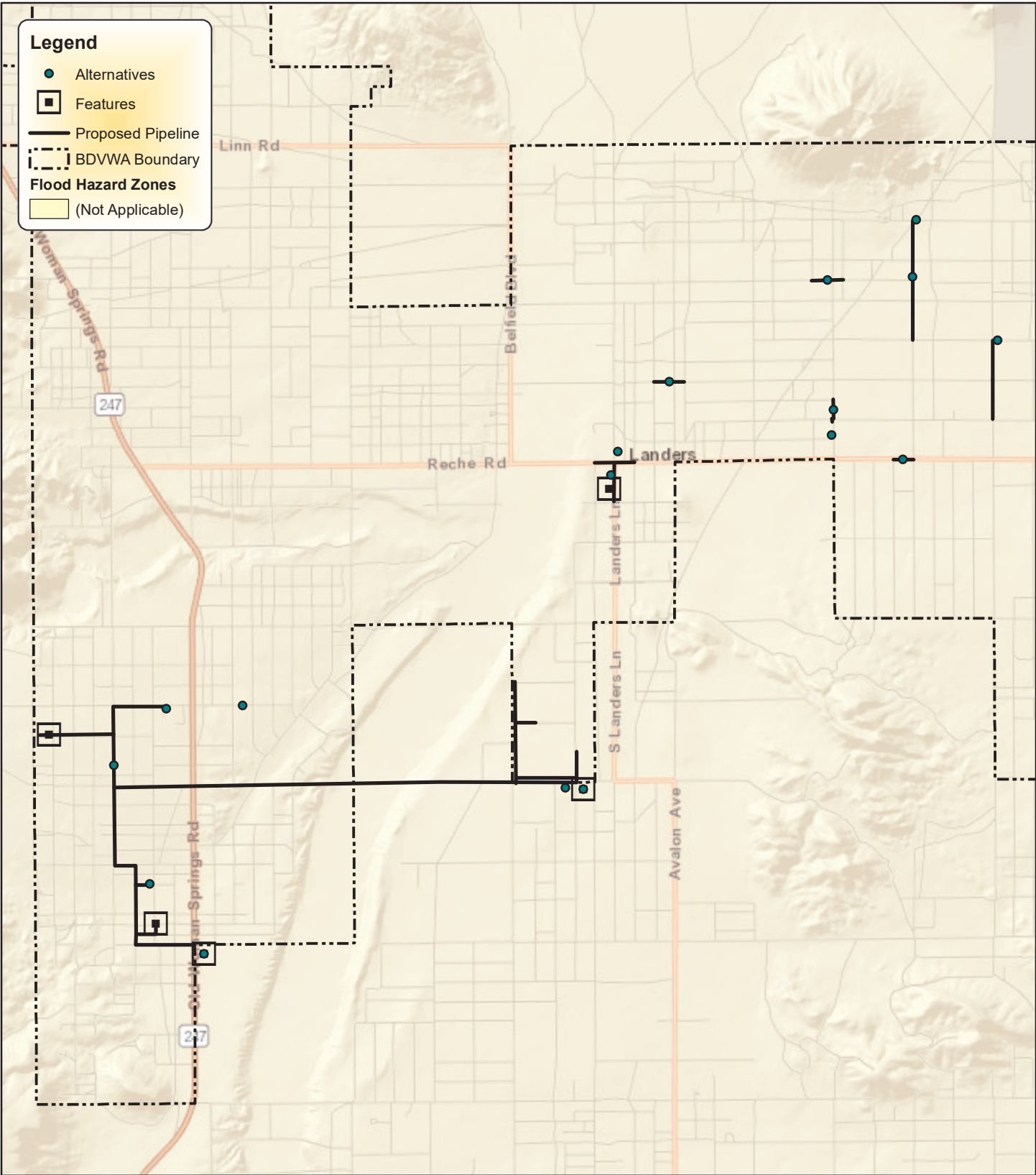
FIGURE 4

PROJECT NO. 226815-0000025.07 DATE: 1/31/2020

FOR:
**BIGHORN-DESERT VIEW
 WATER AGENCY**

DES: RDD DR: RDD CHK:

SHT 4 OF 7



Legend

- Alternatives
- Features
- Proposed Pipeline
- - - BDVWA Boundary

Flood Hazard Zones

- (Not Applicable)

0.9
Miles

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The S_Fld_Haz_Ar t table contains information ab out the flo od hazards within the flo od risk project rea. These zon es are use d by



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FLOOD ZONE MAP
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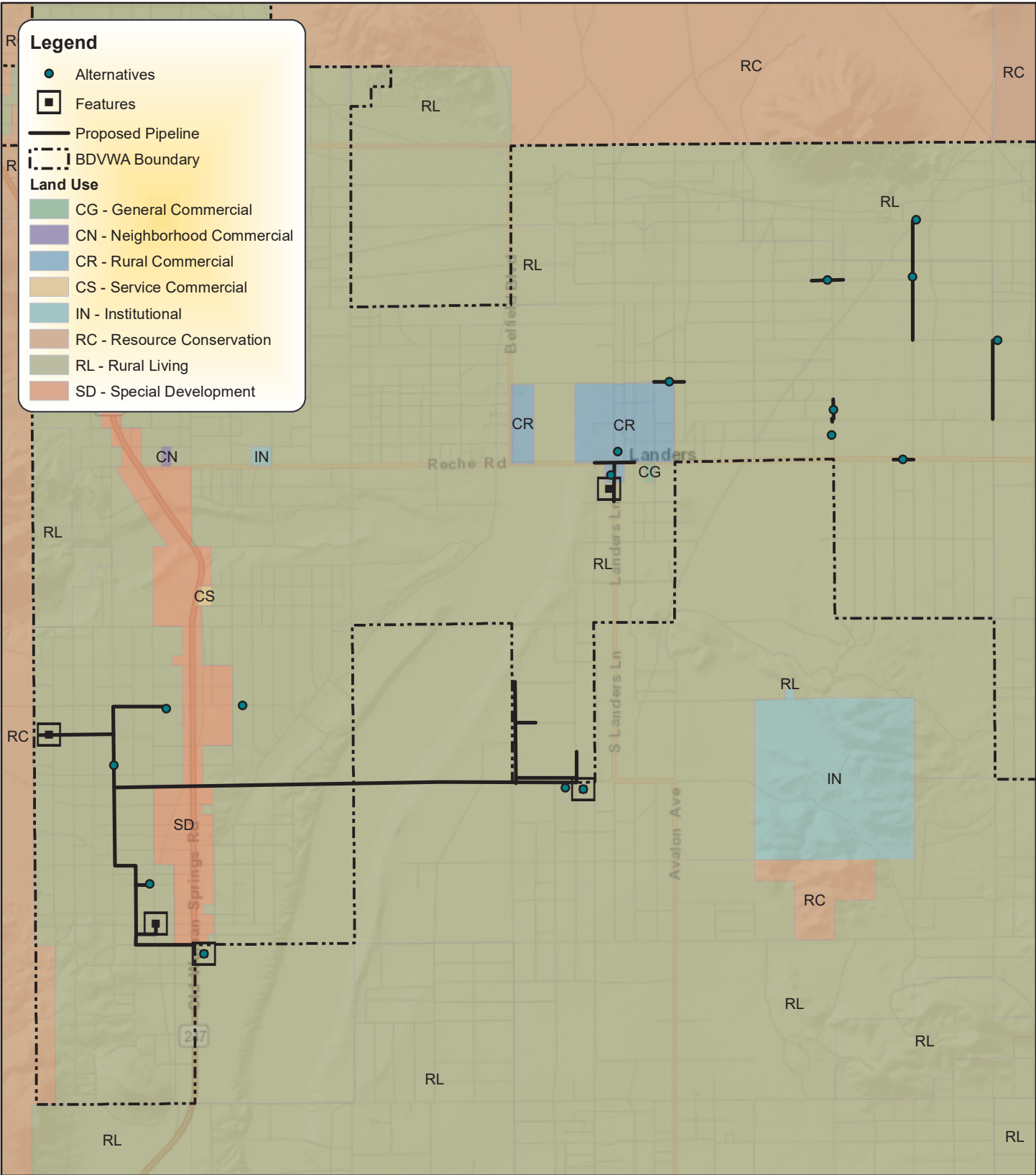
FIGURE 5

PROJECT NO. 226815-0000025.07 DATE: 1/31/2020

FOR:
**BIGHORN-DESERT VIEW
WATER AGENCY**

DES: RDD DR: RDD CHK:

SHT 5 OF 7



Legend

- Alternatives
- ▣ Features
- Proposed Pipeline
- - - BDVWA Boundary

Land Use

- CG - General Commercial
- CN - Neighborhood Commercial
- CR - Rural Commercial
- CS - Service Commercial
- IN - Institutional
- RC - Resource Conservation
- RL - Rural Living
- SD - Special Development

0.9
Miles

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Land Use Districts (Zoning) for the County of San Bernardino, Land Use Services Department. For more information on zoning for the County of San Bernardino, please visit the Land Use Services Zoning and Overlay maps webpage.



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 BUILDING 2, SUITE 305
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LAND USE MAP
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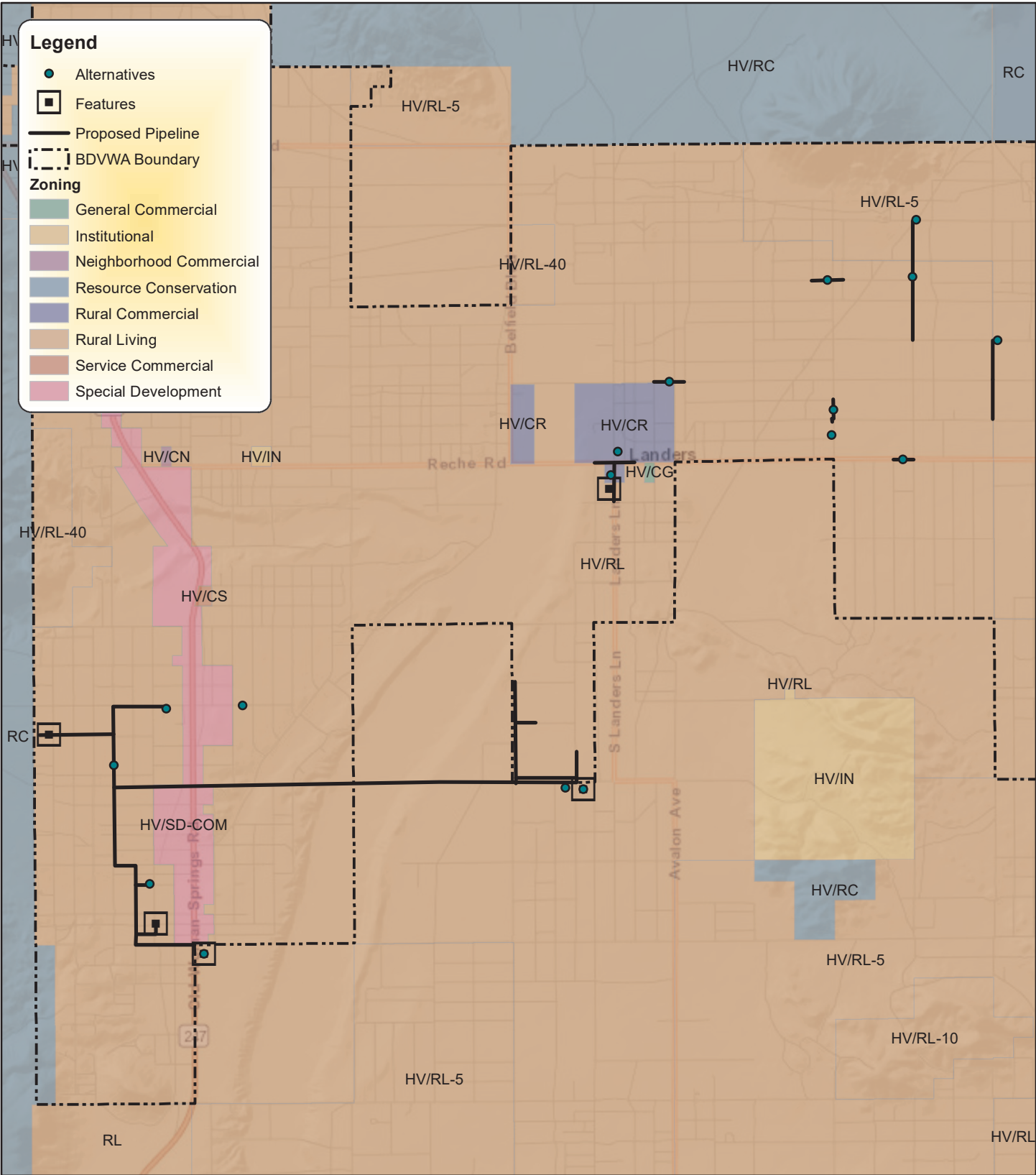
FIGURE 6

PROJECT NO. 226815-0000025.07 DATE: 1/31/2020

FOR:
BDVWA

DES: RDD DR: RDD CHK:

SHT 6 OF 7



Legend

- Alternatives
- Features
- Proposed Pipeline
- - - BDVWA Boundary

Zoning

- General Commercial
- Institutional
- Neighborhood Commercial
- Resource Conservation
- Rural Commercial
- Rural Living
- Service Commercial
- Special Development

0.9
Miles

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County of San Bernardino Land Use Services Department land use districts (zoning)



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ZONING MAP
INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

FIGURE 7

PROJECT NO. 226815-0000025.07 DATE: 1/31/2020

FOR:
BDVWA

DES: RDD DR: RDD CHK:

SHT 7 OF 7

**BIOLOGICAL RESOURCES TECHNICAL REPORT
BIGHORN-DESERT VIEW WATER DISTRICT PROJECT
SAN BERNARDINO COUNTY, CALIFORNIA**



Prepared for
PaleoWest
3990 Old Town Avenue, Suite C101
San Diego, CA 92110

Prepared by:
IRONWOOD CONSULTING INC.
370 Alabama Street, Suite A
Redlands, CA 92373

August 24, 2020

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Appendix A – survey Wildlife Species Observed

Appendix B – survey Plant Species Observed

List of Acronyms

amsl	above mean sea level
bgs	Below the ground surface
BRSA	Biological Resources Study Area
BRTR	Biological Resources Technical Report
BLM	Bureau of Land Management
CDD	California Desert District
CDFG	California Department of Fish and Game (now Wildlife)
CDFW	California Department of Fish and Wildlife
CDFA	California Department of Food and Agriculture
CESA	California Endangered Species Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
Cal-IPC	California Invasive Plant Council
CNPS	California Native Plant Society
CNDDB	California Natural Diversity Database
CRPR	California Rare Plant Rank
FESA	Federal Endangered Species Act
ft	feet
FWS	Fish and Wildlife Service
GIS	Geographic Information Systems
GPS	Global Positioning System
MCL	Midline Carapace Length
MBTA	Migratory Bird Treaty Act
m	meter
NEPA	National Environmental Protection Act
NPS	National Park Service
TCAs	Tortoise Conservation Areas
USFWS	US Fish and Wildlife Service

1 INTRODUCTION

1.1 Project Background

The Bighorn Desert View Water District (BDVWD or District) has proposed to improve its water delivery system which serves residential communities near and within the town of Landers in unincorporated San Bernardino County, California. The proposed water delivery improvement project (project) includes the installation of new water pipelines and associated appurtenances, transmission/blending pipeline improvements, destruction and replacement of an existing well, existing well improvements, and construction and expansion of pump and booster stations.

1.2 Purpose

This Biological Resources Technical Report (BRTR) provides a description of methods and results of biological resource surveys and investigations conducted between April and July 2020 for the project. The BDVWD project Biological Resources Study Area (BRSA, or study area) is located in San Bernardino County, in and around the communities of Landers and Flamenco Heights (see Figures 1 and 2).

The primary purpose of this report is to provide ecological information that will be used as the foundation for impact assessments pursuant to the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). The focus of this report is to consolidate and describe relevant biological resource data. A full assessment of impacts to biological resources can be found in the NEPA/CEQA environmental document. The discussion included herein may also be used to support formal consultation between the District, the County, and U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Federal Endangered Species Act (FESA), and any necessary incidental take authorization from the California Department of Fish and Wildlife (CDFW) with respect to the California Endangered Species Act (CESA).

1.3 Site Location

The project is located within the communities of Flamingo Heights and Landers near the town of Yucca Valley in unincorporated San Bernardino County, California (Figure 1).

The legal location of the survey area is Sections 22-27, 34, and 35 of Township 2 North, Range 5 East and Sections 4, 5, 7-10, 18, 19 and 30 of Township 2 North Range 6 East of the Yucca Valley North, Landers, and Goat Mountain, California U.S. Geological Survey (USGS) topographic quadrangle maps (Figure 1).

The BRSA is located approximately 10 miles north of the town of Yucca Valley. Access to the site is provided via neighborhood roads off of highway 247, and the main wash can be crossed using Tracy road, or on paved Reche road to the north of the project. Most of the project is located on BDVWA-owned land, private property, and San Bernardino County Maintained Road System right-of-way. A 4,700-foot (ft)-long section of the proposed pipeline along Winters Road is located on land managed by the Bureau of Land Management (BLM) (Figure 1).

1.4 Project Summary

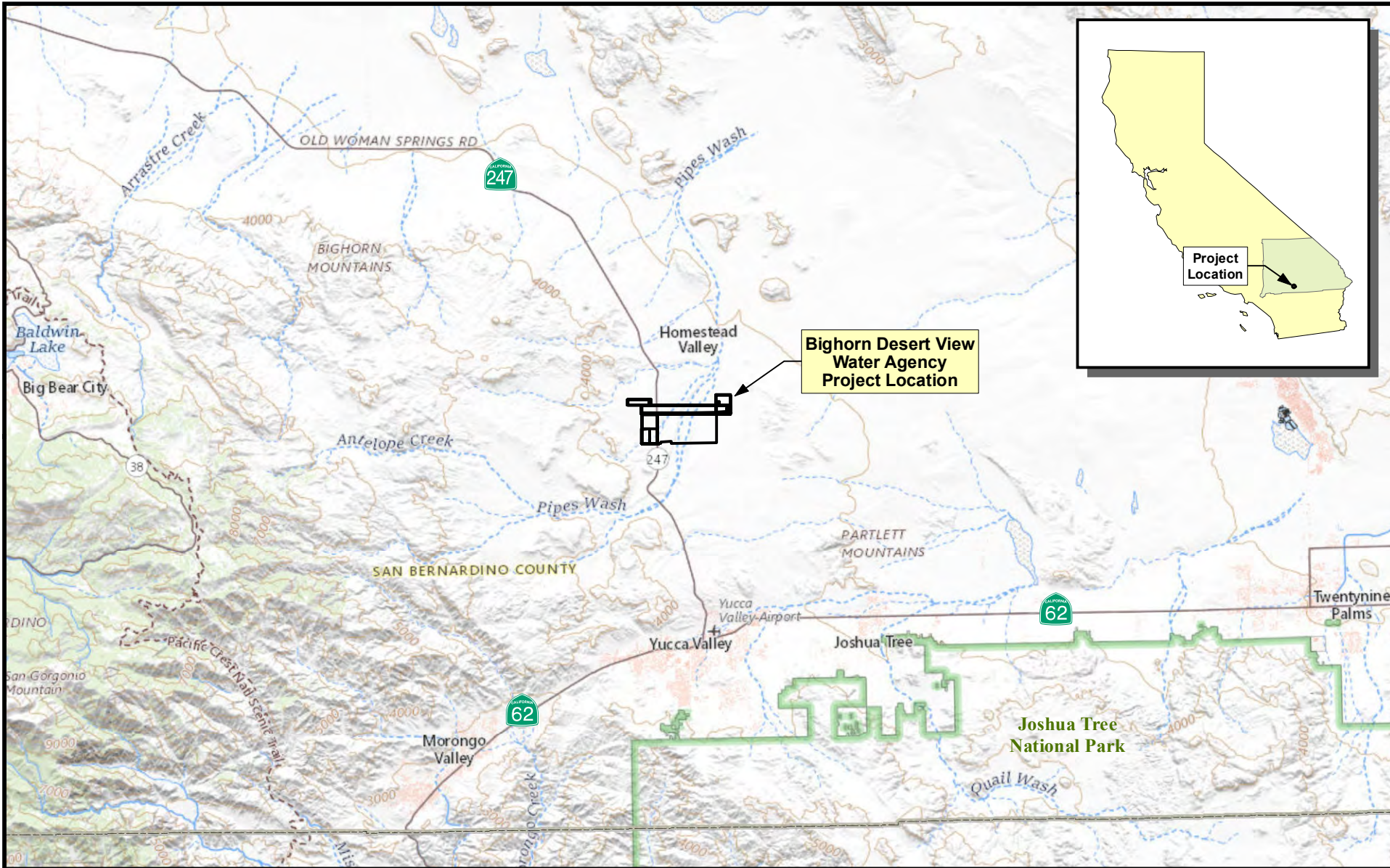
Most of the project elements will be buried with the majority of the new water pipelines installed under existing dirt and paved roadways using an open trench method. The trench will measure 4 to 5 feet (ft) in width with depths no more than 5 ft below the ground surface (bgs). Trenchless installation methods may be used to cross Pipes Wash on private and BLM land. Trenchless installation methods will extend down to approximately 15 ft bgs. Portions of the pipeline that cross California Department of Transportation's State Route (SR) 247 ROW will be installed using jack and bore methods. The depths of the jack and bore pits will be approximately 12 to 15 ft bgs.

Well replacement activities will involve destroying an existing well and well house, removing adjacent concrete cradles and piping, and installing a new well, building, yard piping and conduit, and adjacent pump to waste pit. The proposed pump to water pit will extend down to approximately 6 ft bgs. The well building will have a height of approximately 16 ft above the existing ground surface. The replacement well may extend down to approximately 430 ft bgs.

Grading, over-excavation, and construction activities associated with the construction and expansion of the booster and pump stations are not expected to extend more than 5 ft bgs.

Exceptions to this include activities in the southern portion of the proposed Zone B Pump Station, which is located southeast of the Winters Road and Rainbow Drive intersection (see Figure 1-2). In this area, excavation may extend to approximately 10 ft bgs. The building's southern and eastern walls will be partially buried and will retain native soils, allowing the existing surface contours to be roughly restored following construction. The proposed Zone B Pump Station will have a height of approximately 16 feet above grade at its northern and west sides, and a lower height above grade at its southern and eastern sides. Overhead wiring is proposed near the Zone B Pump Station to update Southern California Edison's power supply.

Temporary work areas are generally within existing roadways or areas immediately adjacent to existing roads, and would be used for construction traffic, detours, and laydown of materials, temporary soil stockpiles, and equipment



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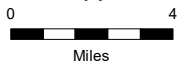
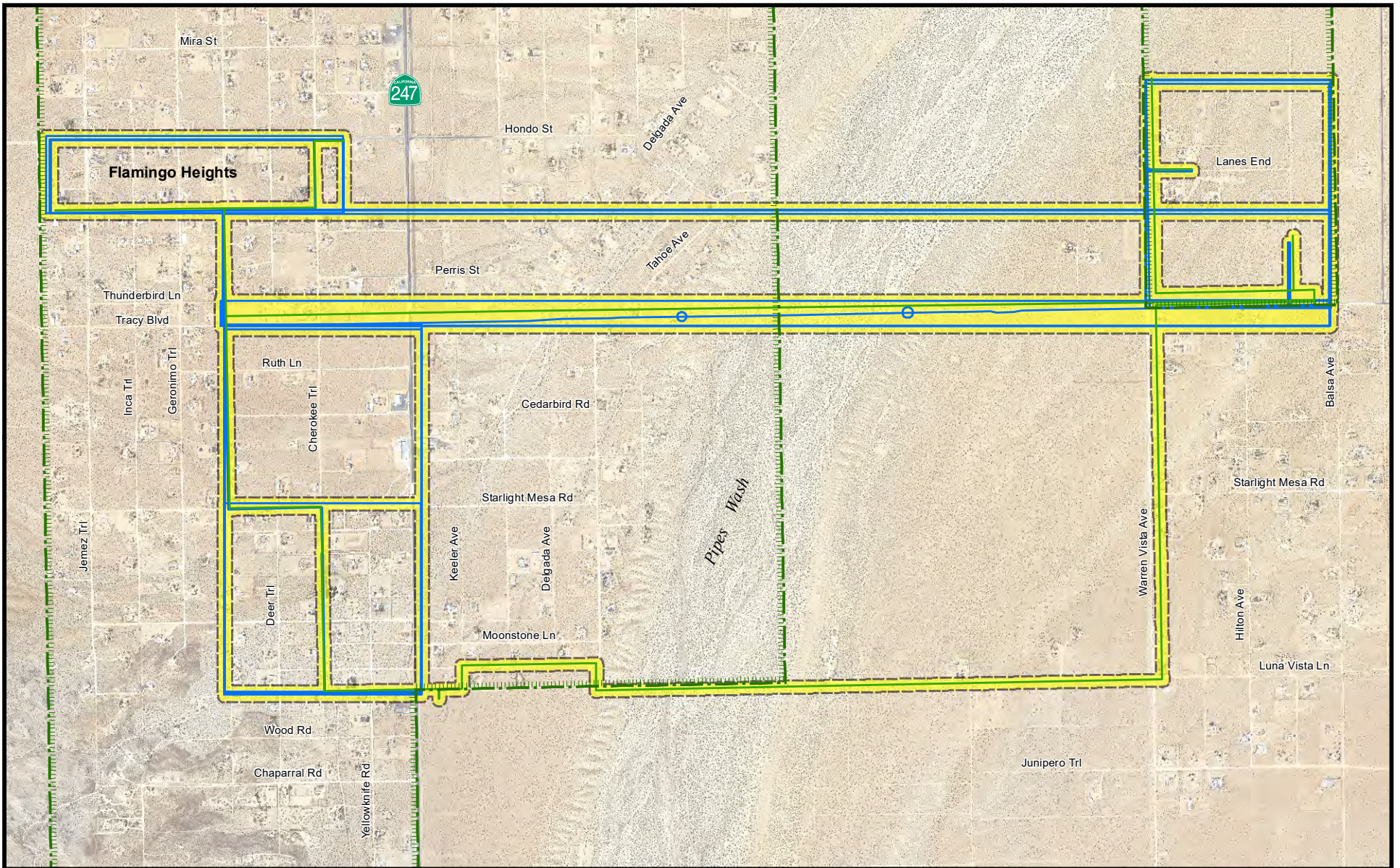
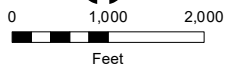


FIGURE 1

Regional Location



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-  Transmission PRUT Lines
-  Alternatives PRUT Lines
-  Survey Area
-  Bighorn Desert View Water Agency Service Boundary

FIGURE 2

BDVWD Project Area

Bighorn Desert View Water Agency

2 SITE CHARACTERISTICS

2.1 Regional Setting

The BRSA is located in the Eastern Transverse Ranges geomorphic province, which is a subprovince of the east-west trending Transverse Ranges geomorphic province of California.

The BRSA is located in the Homestead Valley, between the communities of Flamingo Heights and Landers, north of Yucca Valley, California in the Mojave desert. The elevation within the BRSA ranges from 3,380 feet above mean sea level (amsl) at the bottom of the main wash, to over 3,600 amsl at the northwestern corner of the project, near the base of the Bighorn Mountain range.

The Bighorn Mountains west of the BRSA rise to 7,500 feet at Granite peak, and transition to the San Bernardino Mountains moving west. Dispersed residential developments are located throughout most of the BRSA, with Pipe's Wash, located primarily on BLM administered land, intersects the center of the project area. Dispersed residential parcels are located in the northeastern portion of the BRSA, northeast of Landers.

Most of the site is underlain by alluvium derived from granitic material, with the Yucca Valley at the northeastern edge of the San Bernardino Mountains and eastern edge of the Bighorn Mountains. The topography of the Project site generally slopes downward to the northwest at a moderate overall gradient of 2.5 percent. Steeper grades are present along the incised sides of Pipes wash.

Several dry desert washes (ephemeral desert drainages in which surface flow occurs only during and immediately after storm events) cross the BRSA. The largest of these is Pipes wash, a wide, incised wash that runs from north to south across the BRSA, separating the communities of Flamingo Heights and Landers. This wash drains the Bighorn Mountains west of the project site and is a component of the Morongo Groundwater Basin.

2.2 Hydrology

The BRSA occurs within the Pipes Wash Watershed drainage in the Southern Mojave Hydrologic Basin Planning Area. The watershed areas draining to and through the project site are comprised of 3 sub-basins and associated flow concentration points, as shown in Figure 2. Water flow through majority of the project site originates in the Bighorn Mountains and San Bernardino Mountain foothills, and storm drainage flows north/northeast through the project site. Pipes wash originates in Pipes canyon, west of Pioneertown, and continues north through Landers and toward Twentynine Palms. There are no perennial watercourses within or adjacent to the project site; and all of the washes may experience ephemeral flow.

The BRSA's primary drainage feature is Pipes Wash and its associated tributaries, which runs through the center of the BRSA with an overall average width of approximately 3,000 feet and an area of approximately 1 square mile in the area of the project. The total watershed area at Pipes Wash is approximately 201 square miles.

There are several smaller, distinct ephemeral washes both within and adjacent to Pipes wash, draining the Bighorn Mountains. Much of the rest of the project hydrology is disrupted by rural residential development. Jurisdictional drainages were mapped in a 2019 study and approved jurisdictional determination from the U.S. Army Corps of Engineers (2019).

Groundwater resources underlie the project site, including the Ames Valley and Morongo Groundwater Basin, of which Pipes wash is an associated sub-basin. Nineteen groundwater monitoring wells are located within or within proximity of the project site and have been used to monitor the groundwater at the project site.

2.3 Soils

The BRSA is underlain by two general soil groups mapped at the map unit scale: Wasco-Helendale-Bryman (s1032) on the western side of Pipes Wash, and Cajon-Arizo (s1143) on the eastern side (USDA 2020). Fine-scale soil mapping within the BRSA has not been completed.

Wasco-Helendale-Bryman soils: major components include Bryman soils (34 percent), Helendale soils (25 percent), and Wasco (10 percent) with various other soil components at less than 10 percent.

- Bryman soil are typically deep, well drained soils on terraces and older alluvial fans with slopes of 0 to 15 percent, formed in alluvium from dominantly granitic sources with loamy sand and sandy loam textures ranging from fine to course, and with occasional clay components. Bryman soils are well drained with slow runoff, and moderately slow permeability. Some areas are subject to flooding for 1 to 2 weeks from December to early February. Use for irrigated crops such as alfalfa, small grains and pasture. They are also used for homesites and recreation. Vegetation is mostly creosote bush, bursage, Mormon-tea, Joshua tree, and annual forbs and grasses.
- Helendale soils are typically very deep, well drained soils on fan piedmonts, fan remnants, alluvial fans and terraces with slopes from 0 to 15 percent that formed in alluvium from granitoid rocks. Soils texture is typically loamy sand. Helendale soils are well drained, with negligible to low runoff potential, and moderately high and high saturated hydraulic conductivity. Used for irrigated agriculture and pasture, homesites, military operations, recreation and wildlife habitat. Vegetation is mainly creosote bush, burrobush, Nevada jointfir, Joshua trees and annual forbs and grasses.
- Wasco souls are typically very deep, well drained soils on recent alluvial fans and flood plains with slope between 0 to 5 percent, formed in mixed alluvium derived mainly from igneous and/or sedimentary rock sources with sandy loam textures. Wasco soils are typically well drained with negligible or very low runoff potential and moderately rapid permeability. Used for growing field, forage and row crops. Some areas are used for livestock grazing, wildlife habitat, recreation and homesites. Native vegetation is Atriplex spp., annual grasses and forbs.

Cajon-Arizo soils: major components include Cajon soils (48 percent) and Arizo soils (23 percent) with various other soil components at less than 10 percent.

- Cajon soil are typically very deep, somewhat excessively drained soils on alluvial fans, fan aprons, fan skirts, inset fans, and river terraces with slopes of 0 to 15 percent, formed in sandy alluvium from dominantly granitic sources with sand textures ranging from fine to course. Cajon soils have negligible to slow runoff potential, and rapid permeability. Flooding occurs rarely to never. Used mostly for range, watershed, and recreation. A few areas are irrigated and are used for growing alfalfa and other crops. Cajon soils support desert shrubland vegetation, including creosotebush, saltbush, Mormon-tea, Joshua trees, some Indian ricegrass, annual grasses and forbs.
- Arizo soils are typically very deep, excessively drained soils in alluvial fans, inset fans, fan aprons, and fan skirts stream terraces and floodplains with slopes from 0 to 15 percent that formed in alluvium from granitoid rocks. Soils texture is typically loamy sand. Arizo soils have negligible to moderate runoff potential, and very high to moderate saturated hydraulic conductivity. Used for rangeland wildlife habitat. Arizo soils support desert shrubland and grassland vegetation.

2.4 Rainfall

Measurements of precipitation during winter (October through March) and summer (April through September) periods are important in determining the efficacy of both wildlife and special status plant surveys. Data was obtained from the Western Regional Climate Center (WRCC 2019) for the most proximate and geographically similar station to the Project site: Joshua Tree weather station (approximately 15 miles from the BRSA). Historical rainfall data from 2010 to 2020 were totaled and averaged (Table 1).

Over the period of analysis, the highest winter rainfall occurred in 2019 and highest summer rainfall occurred in 2015. Total precipitation in 2018, the lowest recorded in the last decade, amounted to less than half of that of the previous year. Precipitation during the dry season of 2020, which was when rare plant and wildlife surveys were completed, was the third wettest in the last decade.

Table 1 - Regional Rainfall Totals, 2010 – 2020

Year	October to March (inches)	April to September (inches)	Total (October to April)
2009/10	6.51	0.16	6.67
2010/11	3.72	1.34	5.06
2011/12	0.92	1.77	2.69
2012/13	0.82	1.84	2.66
2013/14	1.64	0.80	2.44
2014/15	1.78	2.41	4.19
2015/16	2.49	1.74	4.23
2016/17	5.30	1.98	7.28
2017/18	1.32	0.43	1.75
2018/19	6.89	1.92	8.81
2019/20	4.04	1.93 ¹	5.97 ²

¹Includes precipitation data for April through July 2020

²Included precipitation data for October 2019 through July 2020

2.6 Vegetation

2.6.1 Natural Communities

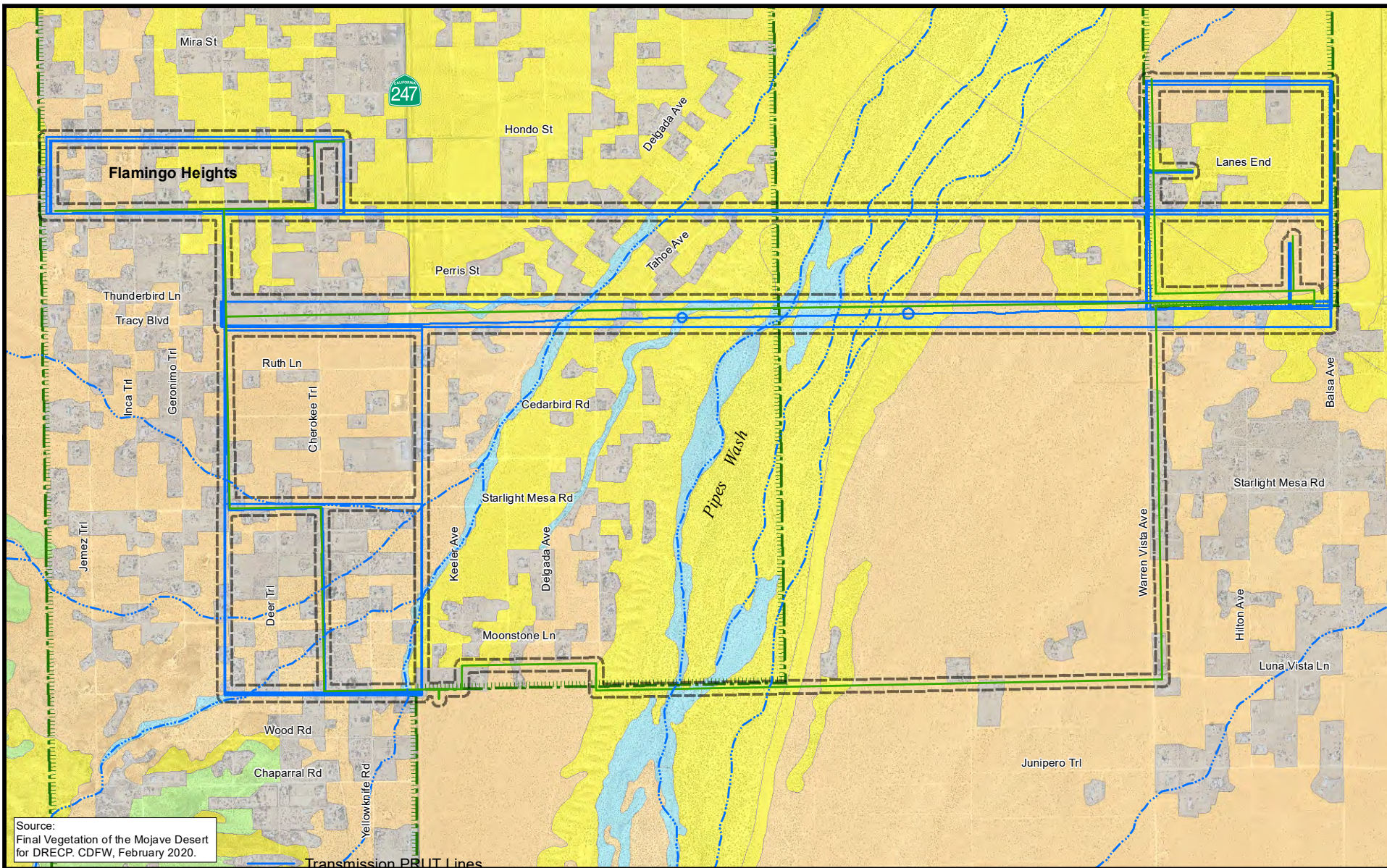
The Project site consists almost entirely of four natural vegetation communities (Figure 3 and Table 2). Vegetation communities in the BRSA were classified using *A Manual of California Vegetation, 2nd edition* (Sawyer et al. 2009) and the National Vegetation Classification System (NVCS) and the Holland (1986) classification.

Desert dry wash woodlands that occur within the Project site are considered sensitive due to their association with alluvial processes and likely State water jurisdiction.

Table 2 - Vegetation Communities within Project Survey Area¹

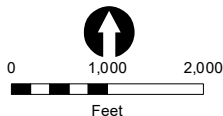
Vegetation Communities	Community	Area (acres)
Desert Scrub	Upland	218.0
Creosote bush - white bursage scrub shrubland alliance		
Creosote bush shrubland alliance		
California joint-fir – longleaf joint-fir scrub alliance		
Desert Wash	Upland	26.9
Catclaw acacia – desert lavender – chuparosa scrub		
Desert Willow – smoketree wash woodland		
Joshua Tree (sensitive)	Upland	193.4
Urban	Upland	157.2
Total		595.5

¹ Acreages for survey area, not impact areas, and includes solar facility and 300-foot wide gen-tie survey areas.



Source:
Final Vegetation of the Mojave Desert
for DRECP, CDFW, February 2020.

Ironwood
Consulting



- Alternatives PRUT Lines
- Ephemeral Drainage
- Survey Area
- Bighorn Desert View Water Agency Service Boundary

Vegetation Communities

- | | |
|---------------------------|-------------|
| Desert Scrub | Desert Wash |
| Desert Scrub, Desert Wash | Joshua Tree |
| Desert Succulent Shrub | Urban |

FIGURE 3

Vegetation Communities

Bighorn Desert View Water Agency

Desert Scrub: Creosote bush - white bursage scrub shrubland alliance

White bursage (*Ambrosia dumosa*) and creosote (*Larrea tridentata*) are co-dominant in the shrub canopy with saltbush (*Atriplex sp.*), California buckwheat (*Eriogonum fasciculatum*), pencil cholla (*Cylindropuntia ramosissima*), silky dalea (*Dalea mollissima*), brittle bush, rhatany (*Krameria spp.*), indigo bush (*Psoralea spp.*), and desert senna (*Senna armata*). Emergent trees or tall shrubs are present at low cover, including Joshua tree. This vegetation community is dominant in the northeastern section of the project and along the sides of the main wash.

Desert Scrub: Creosote bush scrub - shrubland Alliance

Creosote is dominant or co-dominant in the shrub canopy with white bursage and brittle bush, among other herbaceous species. This community is dominant at the bottom of the main wash.

Desert Scrub: California joint-fir – longleaf joint-fir scrub alliance

On the BRSA, *Ephedra* species (referred to as Mormon tea in Appendix B), which may include California joint-fir (*E. californica*) or longleaf joint-fir (*E. trifurca*) is dominant or co-dominant in the shrub canopy in transmontane stands with white bursage, cheesebush, branch pencil cholla (*Cylindropuntia ramosissima*), creosote brush, and/or Anderson's box thorn. The BRSA is representative of a cismontane community



Photo 1. . Representative California joint-fir – longleaf joint-fir scrub alliance with sparse Joshua trees and Mojave yucca.

with California buckwheat present throughout. This vegetation community is present along Pipes Wash. This vegetation community is considered part of the Mojave creosote bush scrub (Holland 1985) and is present in scattered patches across the BRSA's drainages and washes.

Desert Wash: Catclaw acacia – desert lavender – chuparosa scrub

Within the BRSA, this vegetation community is present in scattered areas where desert lavender (*Hyptis emoryi*) and/or catclaw (*Senegalia greggii*) are dominant or co-dominant in the shrub canopy with cheesebush, cholla (*Cylindropuntia sp.*), Virgin river encelia (*Encelia virginensis*), Mormon tea (*Ephedra sp.*), creosote, beavertail cactus (*Opuntia basilaris*), mistletoe (*Phoradendron californicum*), desert senna (*Senna armata*), and Mojave yucca (*Yucca schidigera*). Emergent trees or tall shrubs may be present at low cover, including desert willow (*Chilopsis linearis*) are sparse but present. This community is located primarily within Pipes Wash in sparse patches. Within the BRSA, this community is characteristic of Mojave desert wash scrub (Holland 1986).



Photo 2. . Representative desert willow wash woodland patch among joint-fir with creosote and Joshua trees.

Desert Wash: Desert Willow – smoketree wash woodland

Small scattered stands of desert willow co-dominant with Joshua tree are located within the BRSA along Pipes Wash and other drainages. Shrubs include cheesebush, California buckwheat, creosote bush, and catclaw, wire lettuce (*Stephanomeria pauciflora*). This vegetation community is considered to be Mojave desert wash scrub (Holland 1986). Cover by tree class within the BRSA does not meet criteria for this community to be considered a desert dry wash woodland.

Joshua Tree Woodland Alliance

Joshua tree woodland is a vegetation community recognized as S3.2 by the CNDDDB. A Manual of California Vegetation (MCV) describes this community as having greater than 1% canopy cover of Joshua tree (*Yucca brevifolia*) and open to intermittent shrub and herbaceous cover.

Within the Project site, Joshua tree is an emergent small tree over a shrub or grass layer with white bursage, cheesebush (*A. salsola*), rabbitbrush (*Chrysothamnus sp*), black brush, California buckwheat, creosote brush, and Anderson's box thorn (*Lycium andersonii*). This vegetation community is dominant in the southeastern area of the BRSA and is also interspersed with developed areas throughout the rest of the upland areas of the site.

2.6.3 Invasive and Noxious Weeds

Noxious and invasive weeds are species of non-native (exotic) plants included on the weed lists of the California Department of Food and Agriculture (CDFA), and the California Invasive Plant Council (Cal-IPC). They are of concern in wild lands because of their potential to degrade habitat and disrupt the ecological functions of an area (Cal-IPC 2020).

Sahara Mustard (Brassica tournefortii)

Sahara mustard is a dicot of the mustard family, native to the deserts of North Africa, the Middle East, and the Mediterranean regions of southern Europe (Bossard et al. 2000). Initial establishment of this species in California occurred through the importation of date palms from the Middle East to the Coachella Valley during the early 1900s (Bossard et al. 2000). Sahara mustard currently occurs across Riverside County, as well as all neighboring counties including San Bernardino County (Cal-IPC 2016). Sahara mustard is considered by Cal-IPC to have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure, as well as having reproductive biology and other attributes that are conducive to moderate to high rates of dispersal and establishment (Cal-IPC 2016). Sahara mustard is not listed on the California Department of Food and Agriculture (CDFA) Noxious Weed List (CDFA 2020). Sahara mustard was observed throughout the BRSA in sparse patches (less than 1 percent total cover).

Non-Native Brome Grasses (Bromus rubens and B. tectorum)

Bromus madritensis ssp. rubens (= *B. rubens*) (red brome) is a cool-season annual grass (family Poaceae) found throughout California, especially in the southern part of the state. Red brome invades disturbed areas, roadsides, agricultural fields, rangelands, and forestry sites, in addition to native communities. Red brome is spreading rapidly in desert shrublands, pinyon pine-juniper communities, three-needle pine woodlands, and coastal scrub, where it increases fire frequency and converts habitat to annual grassland. The Cal-IPC rates red brome as highly invasive.

Cheatgrass (*B. tectorum*) typically is a short grass. Seedlings are bright green with conspicuously hairy leaves, which suggests the alternate common name, downy brome. At maturity the foliage and seedheads often become reddish. After maturity the fine herbage is characterized by a light tan reflectance. The nodding open panicles with moderately awned seeds (caryopses) are distinctive. Seeds readily penetrate clothing. Cheatgrass is listed as CalEPPC Red List.

Both brome grasses were observed as individuals and sparse populations throughout the BRSA, amounting to less than 1 percent total cover.

Flixweed (Descurania Sophia)

Flixweed is an annual or biennial (family Brassicaceae) found throughout California along roadsides, in agricultural fields, disturbed desert areas, scrub, grasslands and woodlands. It prefers well-drained sandy or stony soils. Flowering flixweed plants can be toxic to livestock when eaten over a long period of time. It produces abundant seed, which can be spread by soil or water movement, and by clinging to animals, humans and vehicle tires; but its rate of spread is relatively slow except in disturbed areas. Flixweed may invade recently disturbed areas and then become less dominant as native species become re-established. Cal-IPC considers this plant to have limited invasive potential. Flixweed is not listed on the CDFA's Noxious Weed List (CDFA 2020). It was observed as individuals and sparse populations throughout the BRSA, amounting to less than 1 percent total cover.

Foxtail Barley (Hordeum mirunum)

Foxtail barley is an annual grass with long awns (family Poaceae). Hare barley may have arrived in California with Spanish settlers and is more common than Mediterranean barley in disturbed, dry upland areas. It has a Cal-IPC rating of Moderate, meaning that the species may have substantial and apparent, but generally not severe, ecological impacts on physical processes, plant and animal communities, and vegetation structure. Foxtail barley is not listed on the CDFA's Noxious Weed List (CDFA 2020). It was observed as individuals and sparse populations throughout the BRSA, amounting to less than 1 percent total cover. Foxtail barley is not listed on the CDFA's Noxious Weed List (CDFA 2020).

London Rocket (Sisymbrium irio)

London rocket is a winter annual forb/herb (family Brassicaceae), which can be found in abandoned fields, waste places, roadsides, and orchards. It matures earlier in the year than native species, allowing it to out-compete them. Cal-IPC considers this plant to have limited invasive potential. Its prevalence is slightly increasing in southern California. London rocket is not listed on the CDFA's Noxious Weed List (CDFA 2020). It was observed as individuals and sparse populations throughout the BRSA, amounting to less than 1 percent total cover.

Tumble Mustard (Sysymbrium altissmum)

Tumble mustard is a non-native species that is considered naturalized in California. It is not ranked on Cal-IPC, and it is not listed on the CDFA Noxious weed list, (CDFG, 2020). It was observed as individuals and sparse populations throughout the BRSA, amounting to less than 1 percent total cover.

Mediterranean grass/Beardgrass (Schismus barbatus.)

Mediterranean grass is an annual monocot grass found in both central and southern California, particularly in disturbed areas and deserts, probably introduced at the turn of the century (CDFA 2020). Cal-IPC considers this plant to have limited invasive potential. *S. barbatus* and *S. arabicus* contribute to increased fire threat due to lack of decomposition during dry seasons. Because of its aid in the destruction of native shrub species by wildfire, both species contribute

to the type-conversion of desert shrubland into annual grassland. Mediterranean grass has a Limited rating indicating it is invasive though its ecological impacts are minor on a statewide level, or there was not enough information to justify a higher score. These species' reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited. Spread may occur due to soil disturbance and vegetation cutting, which could disperse seeds, as well as from vehicle tires and footwear. Increase of these species is most likely to occur in areas where this species already exists. Mediterranean grass is not listed on the CDFA's Noxious Weed List (CDFA 2020). Mediterranean grass is prevalent throughout Sonoran creosote bush scrub within the Project site. BLM and other agencies recognize that because of the widespread distribution of Mediterranean grass, this species is not considered feasible to eradicate.

3 METHODS

3.1 Special Status Species Definition

Special status species are those that have been afforded special recognition by federal, State, or local resource agencies or organizations, are often of relatively limited distribution, and typically require unique habitat conditions, which also may be in decline. Special status criteria include:

- Officially listed, or candidate for listing, by California or the Federal Government as Endangered, Threatened, or Rare;
- Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA);
- Taxa listed in the CNPS Inventory of Rare and Endangered Plants of California; and
- Protected under other statutes or regulations (e.g., Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, etc.).

3.2 Biological Resources Study Area

The BRSA includes linear segments where water system construction is proposed, spanning approximately 19 miles (mi) (30 kilometers (km)). The pipeline right-of-way (ROW) is approximately 80 feet (ft) wide. The BRSA consists of a 200-foot wide buffer around the ROW (that is, 100 ft on either side of the ROW center line). The total BRSA survey area is approximately 61 meters wide and is approximately 600 acres.

3.3 Pre-Survey Assessment

In October 2019, the Principal Ecologist and Lead Botanist conducted a site assessment visit to review the area for sensitive species habitat presence and quality, access, vegetation communities, and any other issues that may require attention during the spring field surveys. Prior to the site assessment, initial analysis was performed with Geographic Information Systems (GIS) using the following digital datasets:

- 7.5' USGS topographic quadrangles
- National Agriculture Imagery Program (NAIP) 4-band imagery (2016)
- National Wetlands Inventory Wetlands Mapper (USFWS 2019)
- USGS GAP/LANDFIRE National Terrestrial Ecosystems (USGS 2011);
- Natural Resource Conservation Service (NRCS) Web Soil Survey (NRCS 2016)
- Western Regional Climate Center (WRCC 2019)
- USGS National Hydrography Dataset (NHD) (USGS 2019)
- Previous biological resources and delineation reports and permit applications

- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaCO) database (USFWS 2019)
- The California Natural Diversity Database (CNDDDB) for species occurrences within 5- and 10 miles of the study area
- BLM sensitive species lists.

3.4 Wildlife Species

Wildlife surveys, including for desert tortoise, were completed by qualified wildlife biologists and ecologists during four field mobilizations between April 20 and July 15, 2020. Wildlife surveys included:

- Pre-survey review of sensitive wildlife species with potential to occur in the BRSA and CNPS and California Natural Diversity Database (CNDDDB) records of occurrence
- Ten-meter survey of the entire survey area for desert tortoise following protocol outlined in *Preparing for any Action that may Occur within the Range of the Mojave Desert Tortoise (Gopherus agassizi)* (USFWS revised 2018)
- Documentation of all burrows/dens that could be used by burrowing owl, desert kit fox, American badger (These burrows/dens may also be used occasionally by desert tortoise)
- Mapping any potential burrowing owl and desert tortoise habitat
- Documentation of all common wildlife species observed on a daily basis
- Documentation of sensitive species with specific location data and additional information as appropriate to each species.

3.4.1 Agassiz's Desert Tortoise

Surveys followed the revised protocol outlined by the USFWS (2018). Linear transects approximately 10 meters (32.8 feet) apart were completed in order to provide 100 percent (full) coverage of the focused survey area. Four qualified biologists/ecologists completed the transects working as 1 team, meeting criteria for CDFW permitting as an authorized biologist. Surveys took place between April 12 and 16, 2020.

Surveys were conducted by slowly and systematically walking linear transects while surveyors visually search for desert tortoise and sign. Particular emphasis was placed on searching around the bases of shrubs and along the banks of shallow washes. All tortoise sign [e.g., live tortoises (all age classes), shell/bone/scutes, scats, burrows/pallets, tracks, egg shell fragments, and courtship rings] were recorded if present. The condition of sign was categorized per the following class designations (USFWS 2018):

1. Currently active, with desert tortoise or recent desert tortoise sign.
2. Good condition (no evidence of recent use) - definitely desert tortoise.
3. Deteriorated condition (including collapsed burrows) - definitely desert tortoise.

4. Good condition - possibly desert tortoise.
5. Deteriorated condition (including collapsed burrows) - possibly desert tortoise.

The location of all tortoise sign was recorded using a Global Positioning System (GPS) unit. In addition to recording sign with the GPS unit, standardized electronic data forms were completed using Ironwood's iForms General Special Status Species (GSSS) application for 2019. All data were digitally entered and used in GIS to determine approximate abundance and distribution of desert tortoise.

3.4.2 Avian Species

Assessment of avian species habitat and incidental observations of avian species were documented. Special status avian species habitat was evaluated and mapped during the surveys, including burrowing owl.

Burrowing Owl

Within suitable burrowing owl habitat, focused surveys followed the guidelines in the CDFW 2012 Staff Report on Burrowing Owl Mitigation. Suitable burrowing owl burrows and any owl sign were recorded. A 150m buffer around the disturbance area was surveyed. Data include the number of owls or nesting pairs at each location (by nestlings, juveniles, adults, and those of an unknown age), number of burrows being used by owls, and burrowing owl sign at burrows. Any observed bands (numbers and colors), transmitters, or unique natural identifying features were recorded. A description of the behavior of burrowing owls was documented. An assessment of potential burrowing owl predators was made. All data was recorded on GPS units. Standardized datasheet were completed. Photographs were taken of notable observations.

Because construction is to be completed during the breeding season, four separate site visits for burrowing owl occurred:

- One site visit between April 13 through 16, 2020 (the first visit was performed concurrently with desert tortoises surveys)
 - Three survey visits, at least three weeks apart, between May 15 and July 15, 2020 with at two visits after June 15, 2020.

3.4.3 Other Special Status Wildlife Species

Surveys for other special status wildlife species were performed concurrently with the desert tortoise protocol surveys described above, by systematically walking linear transects at 10-m spacing, while surveyors visually searched for burrows and other sign of special status fossorial species. In addition to sign of desert tortoise and western burrowing owl, presence of desert kit fox (e.g., dens, complexes, scat, and tracks) American badger, desert bighorn sheep, and burro deer were recorded if present.

During all biological resource surveys, biologists recorded all wildlife species and sign observed, regardless of status. All special status species observed incidentally during all survey efforts were recorded by GPS and assigned a unique identifier. Common species were tallied at the end of each transect and recorded throughout each day by each crew.

3.5 Special Status Plants

Pedestrian surveys of the survey area was completed by four ecologists during peak blooming season between April 13 through 16 at 10-m spacing. A full floristic survey was completed, with focus on identifying rare plants and providing a full species list for use in CEQA and/or other permitting documentation. Transects were spaced 10m apart. The survey followed guidelines and protocols outlined in:

- CNPS Botanical Survey Guidelines (CNPS 1983, revised 2001);
- Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2018);
- Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000) ; and
- Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species (2009).

Floristic surveys included:

- Pre-survey review of sensitive plant species with potential to occur in the BRSA and CNPS and California Natural Diversity Database (CNDDDB) records of occurrence.
- Pre-survey review of soils, geology, and topographic features.
- Pre-survey visitation to reference populations for sensitive species with potential to occur in the survey area.
- Twenty-meter survey coverage of the entire survey area.
- Habitat assessment and presence/absence surveys for sensitive plant species with potential to occur in the survey area.
- Density estimates of cactus species other than *Cylindropuntia* (cholla) species.
- Inventory of weed species and mapping of existing weed concentrations at the time of the surveys.

Nearby reference populations of target species were visited to confirm germination and flowering status prior to conducting formal transects. CNPS List 3 and 4 may be considered regionally significant if, for example, the occurrence is located at the periphery of the species' range, or exhibits unusual morphology, or occurs in an unusual habitat/substrate (CDFG 2009). For these reasons, List 3 and 4 species were included in the literature search and targeted during field surveys.

3.6 Vegetation Community Mapping Methods

Vegetation community mapping (vegetation mapping) was completed concurrently with sensitive plant surveys qualified a vegetation ecologist. Vegetation communities were assessed using methods outlined in the California Manual of Vegetation (Sawyer et al 2009). Vegetation community identification was determined using the CNPS' online California Manual of

Vegetation key (CNPS 2019). The California Native Plant Society (CNPS) Vegetation Rapid Assessment Field Form was completed in the field at representative data points and where vegetation community characteristics were observed to shift. Field verification of vegetation was used to confirm or modify the Desert Renewable Energy Conservation Plan (DRECP) vegetation modelling for the area (CEC 2014).

4 SPECIAL STATUS SPECIES DISCUSSION

4.1 Special Status Wildlife

Special status wildlife species, including federally listed, state listed, state sensitive, and BLM sensitive, are evaluated for potential to occur in Table 3. The status of each species has been updated to reflect any recent changes to status or potential habitat or presence in the BRSA. Several species were determined to have a low probability of occurrence due to the absence of suitable habitat. Special status wildlife species that were detected within the BRSA or have a moderate or high potential to occur based on the presence of suitable habitat within the BRSA are discussed further in this section. A comprehensive list of wildlife species observed during previous surveys is included in Appendix A.

Table 3- Special Status Wildlife Species with Potential to Occur in Project Site

Species	State	Federal	Other	Potential to Occur on Project Site2
REPTILES AND AMPHIBIANS				
Rosy boa <i>Charina trivirgata</i>	-	-	BLM-S	low; marginal habitat present on BRSA
Baja California coachwhip <i>Coluber fuliginosus</i>	SSC			Low; no suitable habitat is present within the BRSA
Agassiz's desert tortoise <i>Gopherus agassizii</i>	ST	FT	-	High; suitable habitat present in BRSA; sign, and burrows observed in study area; Critical Habitat present in BRSA
Mojave fringe-toed lizard <i>Uma scoparia</i>	SSC		S	Low; sand dunes and fine sandy areas are not present within the BRSA
Mohave patch-nosed snake <i>Salvadora hexalepis mohavensis</i>	SSC	-	-	Low; marginal suitable habitat present
Mojave fringe-toed lizard <i>Uma scoparia</i>	SE	FT	BLM-S	Low; no suitable habitat present; known population approximately 5 miles north of BRSA
MAMMALS except bats				
Pallid San Diego pocket mouse <i>Chaetodipus fallax pallidus</i>	SSC	-	-	Low; no suitable habitat present within the BRSA
San Bernardino kangaroo rat <i>Dipodomys merriami parvus</i>		FE		Low; suitable habitat is not present within the BRSA, and species range is adjacent to, but outside the BRSA
Desert bighorn sheep <i>Ovis canadensis nelsoni</i>	CFP	-	BLM-S	Low; suitable foraging and migratory habitat present throughout BRSA; no sign observed
Palm Springs pocket mouse <i>Perognathus longimembris bangsi</i>	SSC	-	BML-S	Low; suitable habitat present within the BRSA, however the project is located outside/on the margin of known distribution
Mountain lion <i>Puma concolor</i>	FP	-	-	Moderate; suitable habitat present
American badger <i>Taxidea taxus</i>	SSC	-	-	High; suitable habitat present; sign observed on BRSA
Desert kit fox <i>Vulpes macrotis arsipus</i>	CPF	-	-	High; suitable habitat present; sign observed on BRSA
BATS				
Pallid bat <i>Antrozous pallidus</i>	SSC	-	BLMS WBWG-H	Low
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	(CT) SSC	-	BLM-S WBWG-H	Low

Species	State	Federal	Other	Potential to Occur on Project Site2
Big brown bat <i>Eptesicus fuscus</i>	-	-	WBWG-L	Low
Spotted bat <i>Euderma maculatum</i>	SSC	-	BLMS WBWG-H	Low
Western mastiff bat <i>Eumops perotis</i>	SSC	-	BLMS WBWG-H	Low
Hoary bat <i>Lasiurus cinereus</i>	-	-	WBWG-H	Low
Western yellow bat <i>Lasiurus xanthinus</i>	SSC	-	WBWG-H	Low
California leaf-nosed bat <i>Macrotus californicus</i>	SSC	-	BLM-S WBWG-H	Low
California myotis <i>Myotis californicus</i>	-	-	WBWG- L	Low
Cave myotis <i>Myotis velifer</i>	SSC	-	BLM-S WBWG-M	Low
Yuma myotis <i>Myotis yumanensis</i>	-	-	BLM-S WBWG-LH	Low
Pocketed free-tailed bat <i>Nyctinomops femorosaccus</i>	SSC	-	WBWG- M	Low
Big free-tailed bat <i>Nyctinomops macrotis</i>	SSC	-	WBWG- MH	Low
Canyon bat <i>Parastrellus hesperus</i>	-	-	WBWG- L	Low
Mexican free-tailed bat <i>Tadarida brasiliensis</i>	-	-	WBWG-L	Low
Birds				
Cooper's hawk <i>Accipiter cooperii</i>	WL	-	-	Nesting – Low Foraging - High
Sharp-shinned hawk <i>Accipiter striatus</i>	WL	-	-	Nesting – Low Foraging - High
Sage sparrow <i>Amphispiza belli</i>	WL	-	BCC	Low
Golden eagle (Nesting and wintering) <i>Aquila chrysaetos</i>	CFP, WL	-	BCC BLM-S	Nesting/Wintering – None Foraging - High
Great egret (nesting colony) <i>Ardea alba</i>	S	-	-	Low
Great blue heron (nesting colony) <i>Ardea herodias</i>	S	-	-	Low
Short-eared owl (Nesting) <i>Asio flammeus</i>	SSC	-	-	Low
Western burrowing owl <i>Athene cunicularia hypugaea</i>	SSC	-	BCC BLMS	Nesting – Moderate Foraging – Moderate
Redhead (Nesting) <i>Aythya americana</i>	SSC	-	-	Low
Canvasback (nesting) <i>Aythya valisineria</i>	SSC	-	-	Low
Ferruginous hawk (Wintering) <i>Buteo regalis</i>	WL	-	BCC	Nesting/Wintering – Low Migration/Foraging – High
Swainson's hawk <i>Buteo swainsoni</i>	ST	-	BCC	Nesting – Low Migration/Foraging – High
Costa's hummingbird (Nesting) <i>Calypte costae</i>	-	-	BCC	Observed Nesting/Winter - High

Species	State	Federal	Other	Potential to Occur on Project Site2
Vaux's swift (Nesting) <i>Chaetura vauxi</i>	SSC	-		Nesting – Low Migration - Moderate
Mountain plover (Wintering) <i>Charadrius montanus</i>	SSC	-	BCC BLMS	Low
Black tern <i>Chlidonias niger</i>	SSC	-	-	Low
Lark sparrow <i>Chondestes grammacus</i>	-	-	-	Nesting – Low Wintering/Migration - Moderate
Northern harrier (Nesting) <i>Circus cyaneus</i>	SSC	-		Low
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	SE	FT	BCC BLMS	Low
Olive-sided flycatcher <i>Contopus cooperi</i>	SSC	-	-	Low
Gilded flicker <i>Colaptes chrysoides</i>	SE	-	BCC BLMS	Low
Black swift (Nesting) <i>Cypseloides niger</i>	SSC	-	BCC	Low
Snowy egret (nesting colony) <i>Egretta thula</i>	-	-	-	Low
White-tailed kite <i>Elanus leucurus</i>	FP	-	-	Low
Willow flycatcher (Nesting) <i>Empidonax traillii</i>	SE		-	Low
Little willow flycatcher <i>Empidonax traillii brewsteri</i>	-	-	BCC	Low
Southwestern willow flycatcher <i>E. t. extimus</i>	SE	FE		Low
California horned lark <i>Eremophila alpestris actia</i>	WL	-		Nesting – Low Foraging - High
Prairie falcon (Nesting) <i>Falco mexicanus</i>	WL	-	BCC	Low
Merlin <i>Falco columbarius</i>	WL	-	-	Low
American peregrine falcon <i>Falco peregrinus anatum</i>	CFP	-	BCC	Nesting – Low Foraging - Moderate
Common loon (nesting) <i>Gavia immer</i>	SSC	-	-	Low
Gull-billed tern (nesting colony) <i>Gelochelidon nilotica</i>	SSC	-	-	Low
Lesser Sandhill crane <i>Grus canadensis canadensis</i>	SSC	-		Low
Greater sandhill crane <i>Grus canadensis tabida</i>	FP	-	BLM-S	Low
Caspian tern (nesting colony) <i>Hydroprogne caspia</i>	-	-	BCC	Low
Yellow-breasted chat (Nesting) <i>Icteria virens</i>	SSC	-		Low
Least bittern (nesting) <i>Ixobrychus exilis</i>	SSC	-	-	Low
Loggerhead shrike (Nesting) <i>Lanius ludovicianus</i>	SSC	-	BCC	High
California gull (nesting) <i>Larus californicus</i>	WL	-	-	Low
California black rail <i>Laterallus jamaicensis coturniculus</i>	CFP	FT	BCC	Low

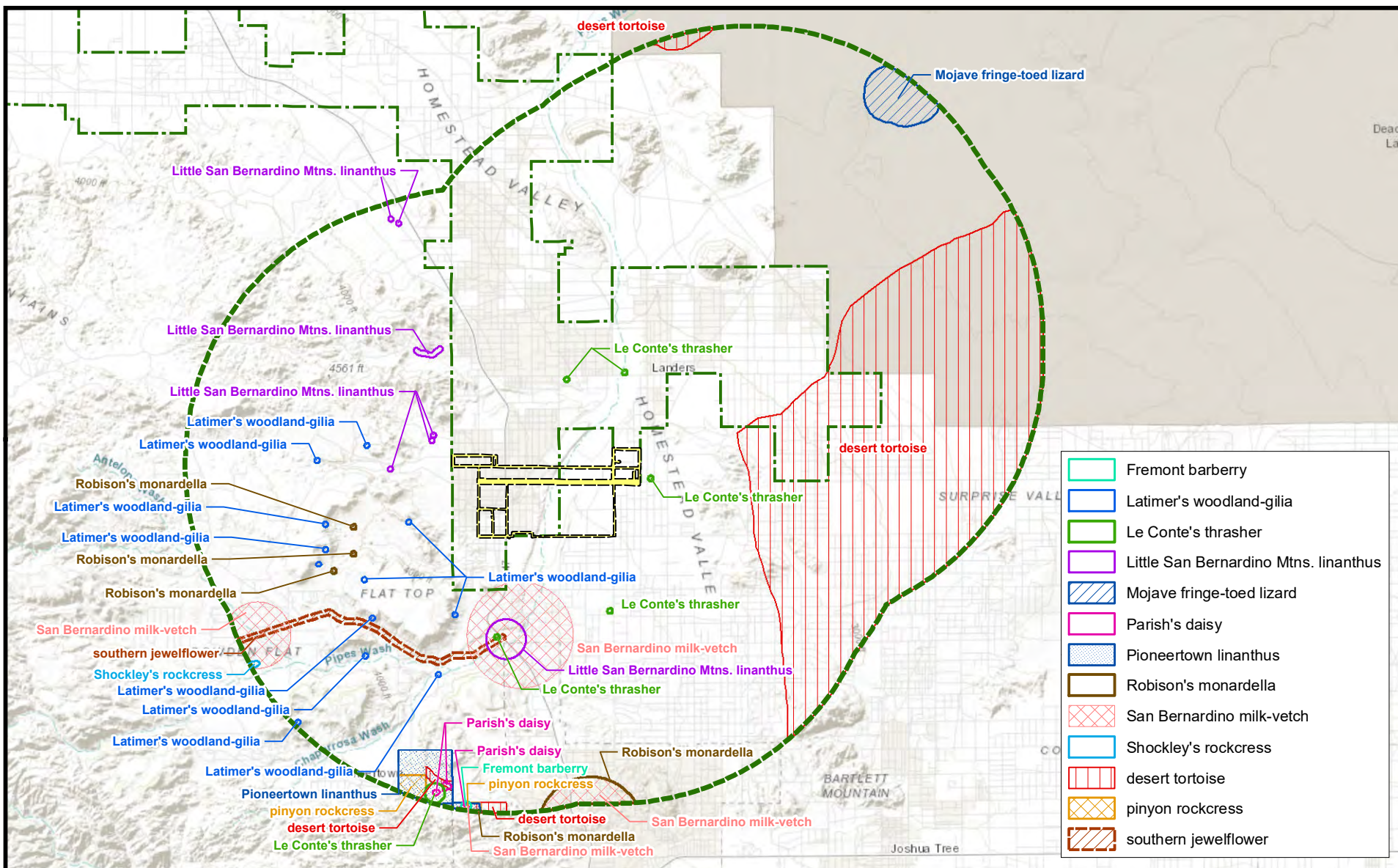
Species	State	Federal	Other	Potential to Occur on Project Site2
Laughing gull (nesting) <i>Leucophaeus atricilla</i>	WL	-	-	Low
Song sparrow ("Modesto" population) <i>Melospiza melodia</i>	SSC	-	-	Low
Wood stork <i>Mycteria americana</i>	SSC	-	-	Low
Brown-crested flycatcher <i>Myiarchus tyrannulus</i>	WL	-	-	Low
Long-billed curlew (Nesting) <i>Numenius americanus</i>	WL	-	BCC	Low
Osprey <i>Pandion haliaetus</i>	WL	-	-	Low
Large-billed savannah sparrow <i>Passerculus sandwichensi rostratus</i>	SSC	-	-	Low
American white pelican (Nesting colony) <i>Pelecanus erythrorhynchos</i>	SSC	-	-	Low
California brown pelican (nesting colony and communal roost) <i>Pelecanus occidentali californicus</i>	CFP	-	-	Low
Double-crested cormorant (nesting colony) <i>Phalacrocorax auritus</i>	WL	-	-	Low
Summer tanager (nesting) <i>Piranga rubra cooper</i>	SSC	-	-	Low
Black-tailed gnatcatcher <i>Polioptila melanura</i>	WL	-	-	Moderate
Vesper sparrow <i>Pooecetes gramineus</i>	SSC	-	-	Low
Purple martin <i>Progne subis</i>	SSC	-	-	Low
Vermilion flycatcher (Nesting) <i>Pyrocephalus rubinus</i>	SSC	-	-	Low
California clapper rail <i>Rallus longirostris obsoletus</i>	E CFP	E	-	Low
Yuma clapper rail <i>Rallus longirostris yumanensis</i>	ST	FT	BLM-S	Low
Ridgway's clapper rail <i>Rallus obsoletus yumanensis</i>	ST CFP	FE	-	Low
Bank swallow (Nesting) <i>Riparia riparia</i>	ST	-	BLM-S	Low
Black skimmer (nesting colony) <i>Rynchops niger</i>	SCC	-	-	Low
Lawrence's goldfinch (Nesting) <i>Spinus lawrencei</i>	-	-	BCC	Low
Black-chinned sparrow <i>Spizella atrogularis</i>	-	-	BCC	Low
Brewer's sparrow (nesting) <i>Spizella breweri</i>	-	-	BCC	Observed Nesting – Low
Bendire's thrasher <i>Toxostoma bendirei</i>	SSC	-	BCC BLMS	Moderate
Crissal thrasher <i>Toxostoma crissale</i>	SSC	-	-	Moderate

Species	State	Federal	Other	Potential to Occur on Project Site2
Le Conte's thrasher <i>Toxostoma lecontei</i>	SSC	-	BCC	Observed High
Arizona Bell's vireo <i>Vireo bellii arizonae</i>	SE	-	BCC BLMS	Low
Least Bell's vireo <i>V. b. pusillus</i>	SE SSC	FE	Yes	Low
Gray vireo (nesting) <i>Vireo vicinior</i>	SSC	-	BCC	Low
Yellow-headed blackbird (Nesting) <i>Xanthocephalus xanthocephalus</i>	SSC	-		Low
Insects				
Monarch butterfly <i>Danaus plexippus plexippus</i>	SSC	C	BLM-S	Low; milkweed was not observed in the BRSA
Fish				
Desert pupfish <i>Cyprinodon macularius</i>	SE	FE	-	Low
Razorback sucker <i>Xyrauchen texanus</i>	SE FP	FE	-	Low

¹ Status

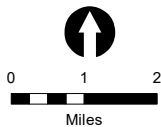
- Federal FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range
- FT = Federally listed, threatened: species likely to become endangered within the foreseeable future
- FCT = Proposed for federal listing as a threatened species
- BCC = Fish and Wildlife Service: Birds of Conservation Concern:
- State SSC = State Species of Special Concern
- CFP = California Fully Protected
- SE = State listed as endangered
- ST = State listed as threatened
- WL = State watch list
- CPF = California Protected Furbearing Mammal
- CPGS = California Protected Game Species
- Bureau of Land Management
- BLMS = BLM Sensitive
- Western Bat Working Group (WBWG)
- H = are imperiled or are at high risk of imperilment
- M = warrant closer evaluation, more research, and conservation actions
- L = most of the existing data support stable populations

² Species not detected during previous surveys may have the potential to occur on the Project site in the future.



- Fremont barberry
- Latimer's woodland-gilia
- Le Conte's thrasher
- Little San Bernardino Mtns. linanthus
- Mojave fringe-toed lizard
- Parish's daisy
- Pioneertown linanthus
- Robison's monardella
- San Bernardino milk-vetch
- Shockley's rockcross
- desert tortoise
- pinyon rockcross
- southern jewelflower

Ironwood Consulting



- 5-mile Project Buffer
- Survey Area
- Bighorn Desert View Water Agency Service Boundary

CNDDB Sensitive Species Occurrences within 5 Miles of the Project Site

FIGURE 4

Bighorn Desert View Water Agency

4.1.1. Reptiles and Amphibians

Agassiz's Desert Tortoise

Background

The desert tortoise was State-listed in California as threatened on August 3, 1989. The Mojave population was listed as threatened under FESA on April 2, 1990 (USFWS 1990), and critical habitat was designated on February 8, 1994 (USFWS 1994). The Mojave population of the desert tortoise includes those animals living north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, and southwestern Utah, and in the Sonoran (Colorado) Desert in California (USFWS 1990).

Desert tortoises are well adapted to living in a highly variable, and often harsh, desert environment (USFWS 2011). They spend much of their lives in burrows, even during their seasons of activity. In late winter or early spring, desert tortoises emerge from over-wintering burrows and typically remain active through fall. Activity does decrease in summer, is often crepuscular during the hottest times, and tortoises often emerge after summer rain storms. Activity and movement is generally influenced by temperature and precipitation, which correlate with potential food and water resources. Extreme temperatures, both high and low, and periods of drought typically result in reduced tortoise activity (Peterson, 1996). Mating occurs both during spring and fall.

Tortoises are long-lived and grow slowly, requiring 13 to 20 years to reach sexual maturity [at approximately 180mm midline carapace length (MCL)]. Eggs are generally laid in friable soil near burrow entrances between April and June and occasionally September and October. Eggs hatch within three to four months (Rostal 1994).

Desert tortoises inhabit a variety of habitats from flats and slopes dominated by creosote-white bursage communities, where a diversity of perennial plants is relatively high; to a variety of habitats in higher elevations. Tortoises are found most often on gentle slopes with sandy-gravel soils. Soils must be appropriately soft for digging burrows, but firm enough so that burrows do not collapse (Anderson et al., 2000). Tortoises typically prefer habitats with abundant



Photo 3. . Desert tortoise scute observed in Pipes Wash



Photo 4. Desert tortoise scat from previous year Pipes Wash

annual forbs, grasses and cactus, which constitute primary food sources. Current research has suggested that plant species that have high potential for potassium excretion (high-PEP) may be detrimental to the diet of desert tortoise (Oftedal 2002; Oftedal et. al 2002). Excess potassium can be detrimental to the health tortoises. When excreting potassium salts from their bladder, tortoises risk expelling valuable water and protein in the process.

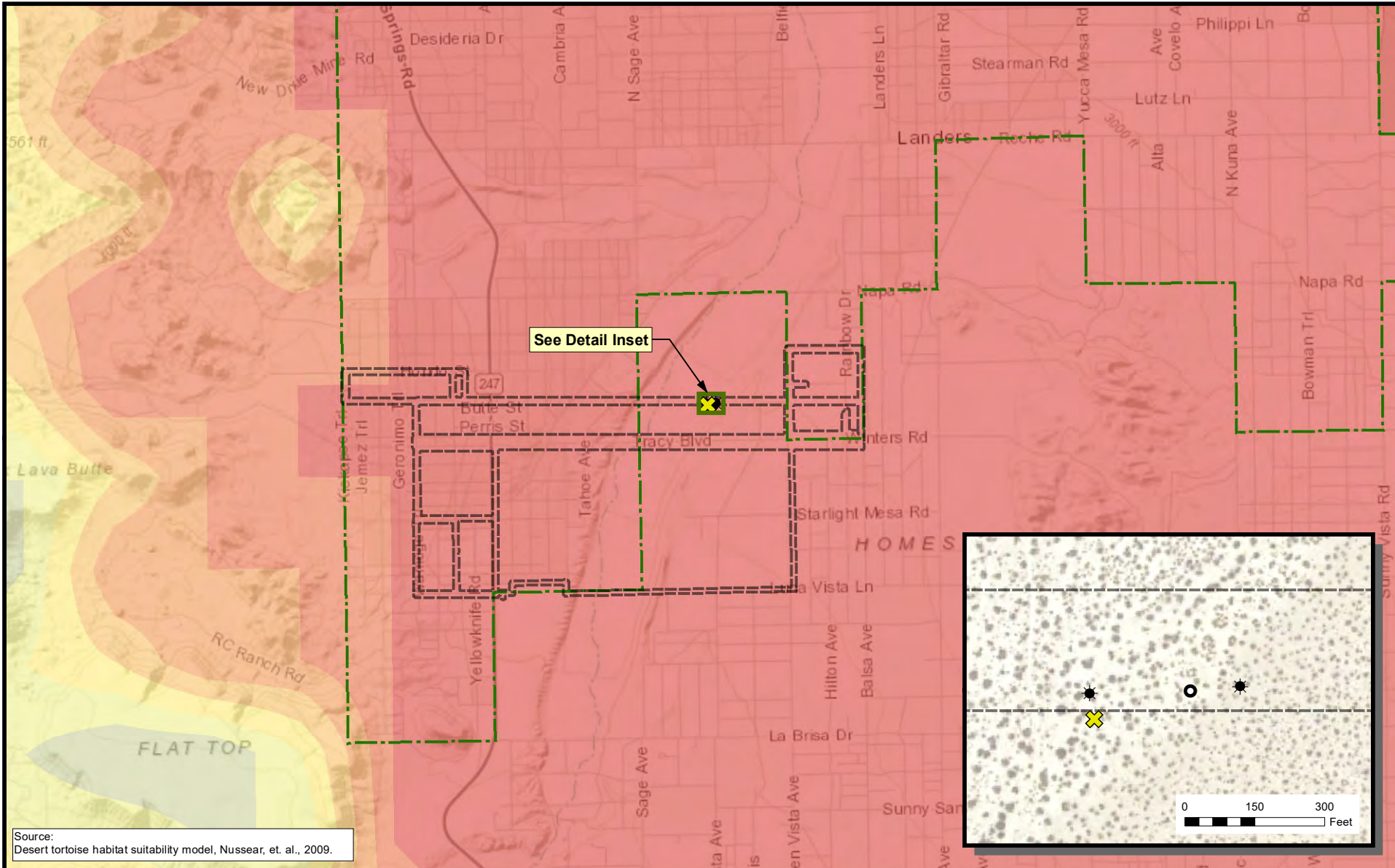
Desert tortoises occupy home ranges, which are generally defined as the area traversed while carrying out a range of normal activities (e.g., foraging and mating) (USFWS 2011). The size of desert tortoise home ranges can vary with respect to sex, geographic location, substrate, topography, and year depending on climate factors such as rainfall and temperature. Tortoises are philopatric, establishing home ranges between 15 and 45 hectares (Barrett 1990, O'Connor et al., 1994, Harless et al.

2009) depending on region. Home ranges of females are generally smaller than those of males (Duda et al. 1999). Some tortoises have been known to travel great distances, although these movements may occur outside their usual home range (Berry 1986).

The Project is located within the Colorado Desert Recovery Unit. The highest desert tortoise densities within this recovery unit (Murphy et al. 2007) occur in Ward and Chemehuevi valleys (approximately 60 and 100 miles north of the project site, respectively), on the Chuckwalla Bench within the Chuckwalla Desert Wildlife Management Area (DWMA), and in Joshua Tree National Park (approximately 5 miles northwest of the project site).

Tortoise sign documented during the desert tortoise survey are shown on Figure 6. During the desert tortoise survey, the following observations were documented within Pipes Wash, on BLM land:

- Two desert tortoise scats. No burrow was located during the April survey (Figure 6).
- One desert tortoise scute observed during the April survey (Figure 6).
- One recently dead tortoise, from predation, observed outside of and adjacent to the survey area during the July burrowing owl survey (Figure 6).



Source:
Desert tortoise habitat suitability model, Nussear, et. al., 2009.

Ironwood
Consulting



0 1,000,2,000
Feet

- Tortoise Scat (not recent)
- Dead Tortoise
- Tortoise Scute

- Survey Area
- Bighorn Desert View Water Agency Service Boundary

Predicted Desert Tortoise Occupancy

0	0.4 - 0.5
0 - 0.1	0.5 - 0.6
0.1 - 0.2	0.6 - 0.7
0.2 - 0.3	0.7 - 0.8
0.3 - 0.4	0.8 - 0.9

FIGURE 5

**Desert Tortoise Observations
and Predicted Habitat
Bighorn Desert View Water Agency**

Based on review of the CNDDDB (CDFW 2019) and known populations, and professional experience in proximity of the survey area, it is likely that desert tortoises are present in low to moderate density near the survey area. A density estimate for the survey area could not be calculated based on the low number of desert tortoises observed during the survey.

Predicted Occupancy Model

Figure 6 depicts the predicted occupancy model (Nussear et al. 2009), which represents the statistical probability of desert tortoise occupancy. Using bilinear interpolation to symbolize the model in ArcGIS results in smoothed contours for continuous data representation. The minimum spatial modeling unit is 1 km². The model is based on a variety of environmental variables, including:

- Geography and topography (elevation, slope, aspect, and surface roughness);
- Climate (temperature range, precipitation);
- Soils (texture, density, and depth);
- Vegetation (perennial plant cover); and
- Known desert tortoise population locations.

Modeled values of 0.4 and higher have been generally used to predict occupied desert tortoise habitat (USFWS 2010b; USFWS 201aa, CEC et al. 2014). One method of interpreting the Nussear (et al. 2009) model in terms of potential demographic connectivity is by applying a color ramp for each 0.1 interval above 0.4. The result provides an estimated boundary of connected habitat that is likely to be occupied by desert tortoises (Figure 5). The gradient of values displayed by the color ramp can be useful in identifying the core habitat versus fringe habitat. Site specific observations of tortoise presence and habitat conditions should be assessed in conjunction with model interpretation. Particularly because the Nussear (et al. 2009) model does not account for anthropogenic disturbances (e.g., roads, highways, and other land disturbances).

On a local scale, the majority BRSA supports modeled values of 0.8 to 0.9. Lower values of 0.7 to 0.8 occur on the very western boundary of the BRSA within the residential areas. Due to the residential development throughout the BRSA, undisturbed tortoise habitat is present only along Pipes Wash and in private parcels where development has not occurred.

On a regional scale, relatively high values of 0.8 to 0.9 occur to the east of the BRSA along a broad, contiguous range within Yucca Valley. To the west of the Project site, relatively low values of 0.3 extend into the San Bernardino Mountains and Bighorn Mountains, suggesting relatively low occupancy at higher elevations.

4.1.2. Mammals (except Bats)

Desert Bighorn Sheep

The Desert Bighorn Sheep (*Ovis canadensis nelsoni*) is a California fully-protected (CFP) species, as well as a BLM Sensitive Species (BLM-S). The desert bighorn sheep is found from the Transverse Ranges through most of the desert mountain ranges of California, Nevada, and northern Arizona to Utah. Essential habitat for bighorn sheep includes steep, rocky slopes of

desert mountains, and areas where surface water is available for foraging. In the spring, when annual plants are available, bighorn tend to disperse downhill to bajadas and alluvial fans to forage (CEC 2010).

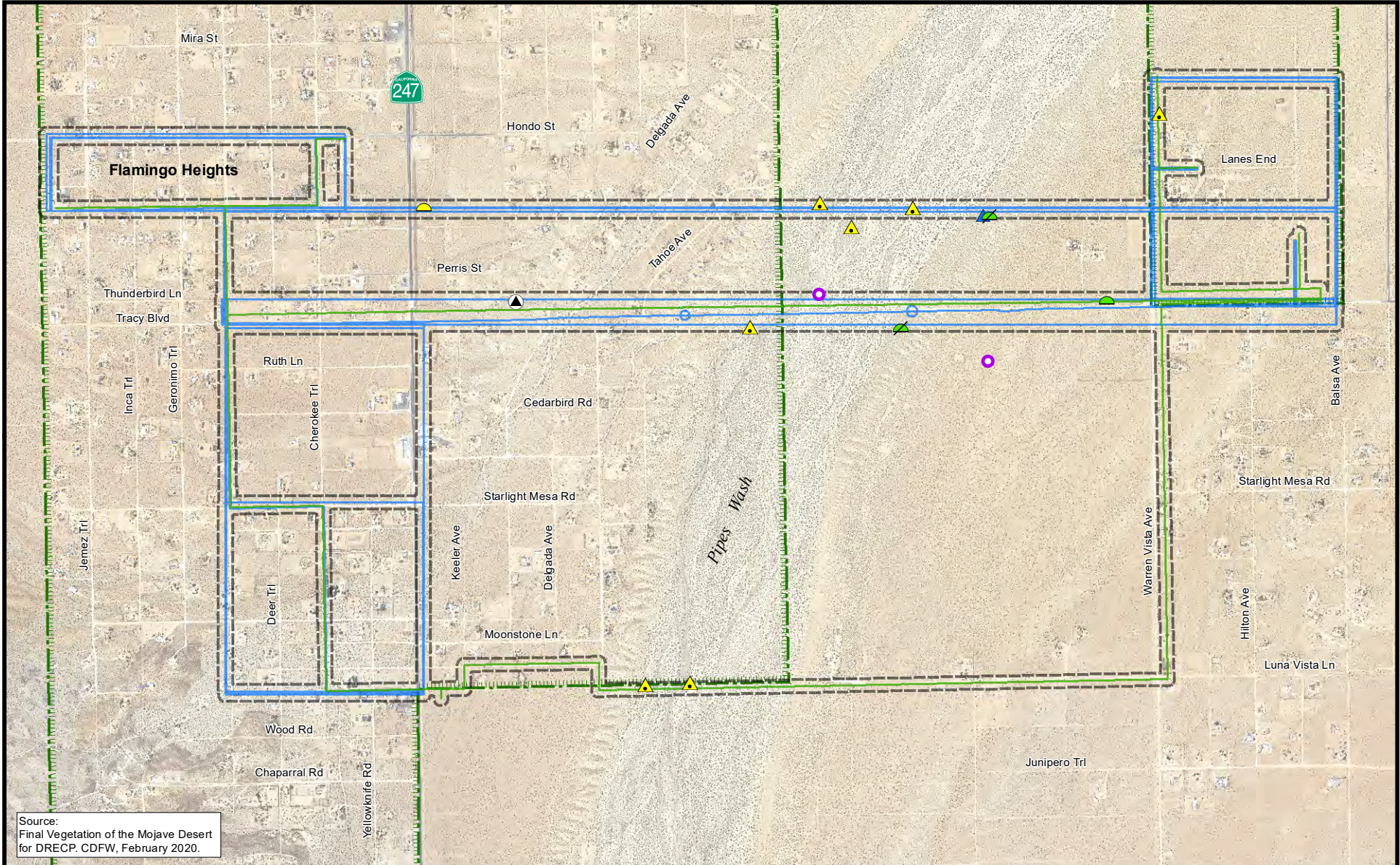
Over the past 140 years, bighorn sheep have suffered considerable population declines throughout their range. One contributing factor to this is that meta-populations have been fragmented by roads and other barriers, with a resulting decline in genetic diversity (Bleich et al., 1996, Epps et al., 2005). Disease (possibly resulting from contact with domestic sheep) drought, predation, anthropogenic factors, and loss of surface water sources may contribute to the viability of existing sheep populations (Wehausen 2005). Bighorn sheep metapopulations have been fragmented by highways, roads, railroads, and aqueducts. Nevertheless, bighorn sheep are known to successfully cross roads and other linear features such as transmission lines and fences (CEC 2010).

The BRSA is mapped as suitable intermountain habitat for desert bighorn sheep (CEC 2014), and is located between the Bighorn and San Bernardino Mountains, and several other smaller ranges to the east, north and south, where suitable habitat is present. Bighorn herds and individuals may disperse between desert mountain ranges when forage and water conditions are suitable, and the intermountain habitat on the BRSA and surrounding areas may provide connectivity between mountain ranges.

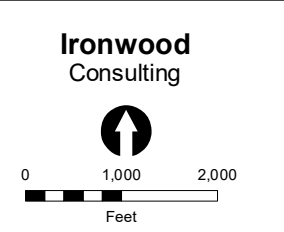
Palm Springs Pocket Mouse

Palm Springs pocket mouse (*Perognathus longimembris bangsi*) is a California Species of Special Concern (SSC). It occupies native desert scrub and grasslands habitats with sandy soils and sparse to dense vegetation cover within the Coachella Valley through southern Joshua Tree National Park. Habitat is usually gently sloping. Diet includes seeds and occasionally green vegetation of creosote, white bursage, and brittlebush. This species hibernates in winter and is active in spring through fall. It caches seeds in burrows and may awaken periodically in winter to feed. Population numbers may fluctuate widely between sites and years. Threats include development, agriculture, and predators (Bolster 1998).

The BRSA was not assessed for Palm Springs pocket mouse habitat or presence during the surveys. This species was detected during the previous surveys referenced in Figure 6. Habitat for this species is present on the BRSA, and the CNDBB documented it within five miles of the BRSA along the Box Canyon Road (CNDBB 2020; Figure 4).



Source:
Final Vegetation of the Mojave Desert
for DRECP. CDFW, February 2020.










-  Desert Kit Fox Burrow (recent sign)
-  Possible Desert Kit Fox Burrow (no recent sign)
-  Desert Kit Fox Burrow (no recent sign)
-  Coyote Burrow (active)
-  Large Mammel Den (possible coyote)
-  LeConte's Thrasher
-  Loggerhead Shrike
- Transmission PRUT Lines
- Alternatives PRUT Lines
- Survey Area
- Bighorn Desert View Water Agency Service Boundary

FIGURE 6

Wildlife Observations

Bighorn Desert View Water Agency

Mountain Lion

Mountain lion (or cougar) is a California Fully Protected (CFP) species. It uses a wide variety of habitats including montane coniferous forests, lowland tropical forests, grassland, dry brush country, swamps, and any areas with adequate cover and prey. Dense vegetation, caves, and rocky crevices provide shelter. Mountain lions are primarily nocturnal, solitary and territorial animals that prey on smaller animals including ungulates, other wild cats, small mammals, birds, fish, and other mountain lions if necessary (Ziener et al. 2009).

Mountain lion presence or sign was not observed during the surveys, however foraging habitat is present for this species throughout the BRSA; and denning habitat in the northern extent of the BRSA in the rocky foothills of the Cottonwood Mountains. No mountain lion individuals or sign were observed during any prior surveys listed in Figure 6. It has been observed in habitats with similar characteristics to the BRSA in the Colorado Desert (CNDDDB 2020). Based on the surveys, potential for it to forage on the BRSA is high. Potential for it to den on the BRSA is low.

American Badger

The American badger (*Taxidea taxus*) is a California Species of Special Concern (SSC). Its habitat includes dry open forest, shrub, and grassland communities with an adequate burrowing rodent population and friable soils. Badgers generally are associated with treeless regions, prairies, parklands, and cold desert areas (Zeiner et al. 1990). Badgers inhabit burrows and often predate and forage on other small mammals that inhabit burrows, as evidenced by claw marks along the edges of existing burrows.

Mammal sign that could potentially be badger sign was found during the surveys (Figure 6) in the central BRSA (see “mammal” sign). No recent badger tracks or scat was observed. No live badgers were observed during surveys; however, likelihood of presence is high.

Desert Kit Fox

Desert kit fox (*Vulpes macrotis arsipus*) is protected by the California Code of Regulations (Title 14, CCR: §460) and Fish and Game Commission Section 4000 as a fur-bearing mammal (California Protected Furbearing Mammal [CPF]). Title 14 of the California Code of Regulations, Section 460, stipulates that desert kit fox may not be taken at any time. Desert kit foxes are fossorial mammals that occur in arid open areas, shrub grassland, and desert ecosystems within the Mojave Desert. Desert kit fox typically occur in association with their prey base, which includes small rodents, primarily kangaroo rats, rabbits, lizards, insects, and in some cases, immature desert tortoises (Zeiner et al. 1990). Dens that support multiple entrances provide shelter, escape, cover, and reproduction, but desert kit fox may utilize single burrows for temporary shelter. Litters of one to seven young are typically born in February through April (McGrew 1979). Desert kit fox distribution is dynamic and would be expected to change over time under natural conditions due to available prey and other environmental factors. The presence of coyotes could dissuade desert kit fox from their previous recorded activity areas. Coyotes are known to prey on young kit fox pups. Coyote/canid sign, including burrow, scat, and tracks, was observed within the BRSA (see Appendix A).

During the surveys, three desert kit fox burrows, burrow complexes, and scat were observed throughout the BRSA (Figure 6). Habitat is present throughout the BRSA.

4.1.3. Bats

No active bat roosts were documented on the BRSA; however, roosting opportunities for several bat species (e.g., canyon bat and California myotis) are available in tree cavities, soil crevices and rock outcroppings primarily within Pipes Wash. Few large ironwood trees were observed within the BRSA that had the potential to serve as roost sites. No sign of bats were detected. It is not expected that any special status bat species would have a substantial roost on the BRSA because habitat features most associated with these species (e.g. rock ledges, cliffs, large tree hollows, mine shafts) do not occur on site. Roosting habitat, including rock ledges and cliff, is not present in the BRSA. The possibility exists for incidental observations for these species.

The BRSA was not assessed for bat habitat or presence during the surveys. Poor to marginal habitat for bat species is present on the BRSA

Special status bat species that may forage on or near the BRSA. Marginal limited, roosting habitat may occur for several of these species within the few trees located within Pipe's Wash and in abandoned or unoccupied structures located on private residential parcels within and adjacent to the BRSA. Bat species included in the Western Bat Working Group (WBWL) that do not have a state, federal or other status are not included in the discussion below.

4.1.4. Birds

Specific observations from the surveys of sensitive bird species habitat or sign, including burrowing owl, are shown on Figure 6. A complete list of bird species observed during the surveys is found in Appendix A.

Golden Eagle

Golden eagles are a Federal bird species of conservation concern (BCC) and are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668a - d, as amended). It is a California Fully Protected (CFP) species. Golden eagles are typically year-round residents throughout most of their western United States range. They breed from late January through August with peak activity March through July (Kochert et al. 2002). Migratory patterns are usually fairly local in California where adults are relatively sedentary, but dispersing juveniles sometimes migrate south in the fall. Habitat for golden eagles typically includes rolling foothills, mountain areas, and deserts. Golden eagles need open terrain for hunting and prefer grasslands, deserts, savanna, and early successional stages of forest and shrub habitats. Golden eagles primarily prey on lagomorphs and rodents but will also take other mammals, birds, reptiles, and some carrion (Kochert et al. 2002). This species prefers to nest in rugged, open habitats with canyons and escarpments, often with overhanging ledges and cliffs or large trees used as cover.

Golden eagle habitat and presence was assessed during the surveys. No individuals were observed soaring overhead during the surveys. No suitable eagle nesting habitat is present within or adjacent to the BRSAs. The site supports suitable foraging habitat. Nest surveys have

not been performed within a 10-mile radius of the BRSA with the objective of identifying and characterizing golden eagle occurrences proximate to the BRSA; however golden eagles are known to nest in Joshua Tree National Park.

Western Burrowing Owl

The Western burrowing owl (*Athene cunicularia hypugaea*) is a California Species of Special Concern, and a Federal Bird of Conservation Concern, and a BLM sensitive species. Western burrowing owls inhabit arid lands throughout much of the western United States and southern interior of western Canada (Haug et al. 1993). Suitable habitat for western burrowing owl includes open habitat with available burrowing opportunities, including agricultural fields (active and fallow), creosote scrub, desert saltbush, ephemeral washes, and ruderal areas.

Burrowing owls are unique among the North American owls in that they nest and roost in abandoned burrows, especially those created by ground squirrels, kit fox, desert tortoise, and other wildlife. Burrowing owls have a strong affinity for previously occupied nesting and wintering habitats and will often return to previously-used burrows, particularly if they had successful reproduction in previous years (Gervais et al. 2008). The southern California breeding season (defined as from pair bonding to fledging) generally occurs from February to August, with peak breeding activity from April through July (Haug et al. 1993).

In the Mojave Desert, burrowing owls generally occur at low densities in scattered populations, but they can be found in much higher densities near agricultural lands where rodent and insect prey tend to be more abundant (Gervais et al. 2008). Burrowing owls tend to be opportunistic feeders, and a large portion of their diet consists of mainly beetles and grasshoppers, and other larger arthropods and consumption of insects increases during the breeding season (Haug et al. 1993). Small mammals, especially mice and voles (*Microtus* and *Peromyscus* spp.) are important food items, and other prey animals include herpetofauna, young cottontail rabbits, bats, and birds such as sparrows and horned larks.

Burrowing owl habitat and presence was assessed during the survey. Two burrows suitable for burrowing owl nesting were observed in the southeastern extent of the BRSA, that appeared to be used by desert kit fox (Figure 6). No individuals were observed; and likelihood of presence is moderate due to lack of burrow, human disturbance, and general poor quality habitat.

Ferruginous Hawk

The ferruginous hawk (*Buteo regalis*) is a California Watch List (WL) species, and a USFWS Bird of Conservation Concern (BCC). It is an uncommon winter resident and migrant at lower elevations and open grasslands in the Central Valley and Coast Ranges, and a fairly common winter resident of grasslands and agricultural areas in southwestern California (Garrett and Dunn 1981). There are no breeding records from California. This species frequents open grasslands, sagebrush flats, and desert scrub. Prey items include lagomorphs, small mammals, reptiles and amphibians (Zeiner et al. 1990).

No ferruginous hawk individuals or sign were observed during the surveys. The BRSA includes suitable wintering habitat and lacks suitable nesting habitat for ferruginous hawk. This species is not expected to nest within the BRSA due to geographic restrictions.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is listed as Threatened in California (CT), and a Bird of Conservation Concern (BCC) by the USFWS. The Swainson's hawk occurs as a breeding species in open habitats throughout much of the western United States and Canada, and in northern Mexico. In California, breeding populations of Swainson's hawks occur in desert, shrub and grasslands, and agricultural habitats; however, most of the state's breeding sites are in the Great Basin and Central Valley (Woodbridge 1998). These birds favor open habitats for foraging, and are near-exclusive insectivores as adults, but may also forage on small mammals and reptiles.

This species was not observed during the surveys; however, the BRSA provides potential migration and foraging habitat, and does not provide suitable nesting habitat. This species has moderate potential to occur as a migrant or forager, but low potential for nesting.

Costa's Hummingbird

Costa's hummingbird (*Calypte costae*) is a USFWS Bird of Conservation Concern (BCC). It occurs primarily in coastal chaparral and in the Sonoran and Mojave desert. It is a transient species that will migrate to other habitats in search of food if necessary or to avoid extreme temperatures (Shuford et al. 2008). Costa's hummingbird is an omnivore, although it mainly feeds on nectar from flowers.

Costa's hummingbird was observed during the surveys (see Appendix A). Nesting and foraging habitat is present for this species throughout the BRSA.

Vaux's Swift

Vaux's swift (*Chaetura vauxi*) is a CDFW Species of Special Concern (SSC). It is a summer resident of northern California and a fairly common migrant throughout most of the state in spring and fall. It roosts in hollow trees and snags, and often in large flocks. Vaux's swifts feed exclusively on flying insects (Shuford et al. 2008).

Vaux's swift was not observed on the BRSA during the surveys. The BRSA includes suitable foraging habitat during migration and lacks suitable nesting habitat for Vaux's swift.

Mountain Plover

Mountain plover (*Charadrius montanus*) is a CDFW Species of Special Concern, and a USFWS Bird of Conservation Concern. They are found in semi-arid plains, grasslands, and plateaus. They use open grasslands, plowed fields with little vegetation, and open sagebrush areas. Winter habitats include desert flats, and plowed fields. Mountain plovers are insectivores, feeding primarily on large ground-dwelling insects, including grasshoppers, beetles, and crickets (Shuford et al. 2008). The BRSA provides suitable habitat during migration, and is not likely to support suitable nesting habitat.

Mountain plover was not observed on the BRSA during the surveys. The BRSA includes suitable foraging habitat during migration and lacks suitable nesting habitat for this species.

Northern Harrier

Northern harrier (*Circus cyaneus*) is a CDFW Species of Special Concern. It inhabits most of California at various times of the year, found in elevations up to 3,000 m (9,840 ft). Northern harriers frequent meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands. They are a widespread winter resident and migrant in suitable habitat. They primarily feed on small mammals, birds, frogs, small reptiles, crustaceans, and insects (Zeiner et al. 1990).

Northern harriers were not observed in on the BRSA during the surveys. The BRSA contains suitable foraging habitat during migration/winter and lacks suitable nesting habitat for this species.

California Horned Lark

The California horned lark (*Eremophila alpestris actia*) is currently on the CDFW watch list. It is found throughout California except the north coast, and is less common in mountainous areas. This species prefers open areas that are barren or with short vegetation including deserts, brushy flats, and agricultural areas, and includes creosote scrub. Eggs are laid March to early June, and this species frequently lays a second clutch (Zeiner et al. 1990).

California horned larks were not observed in on the BRSA during the surveys. The BRSA contains suitable foraging habitat during migration/winter and lacks suitable nesting habitat for this species.

Prairie Falcon

The prairie falcon (*Falco mexicanus*) is currently on the CDFW watch list, and a USFWS Bird of Conservation Concern. It inhabits dry environments in the North American west from southern Canada to central Mexico. It is found in open habitat at all elevations up to 3,350 m (10,990 ft), but is associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. This species requires cliffs or bluffs for nesting though will sometimes nest in trees, on power line structures, on buildings, or inside caves or stone quarries. Ground squirrels and horned larks are the primary food source, but prairie falcon will also prey on lizards, other small birds, and small rodents (Zeiner et al. 1990).

Prairie falcons were not observed during the survey. The entire BRSA contains suitable foraging habitat for this species but lacks suitable nesting habitat.

American Peregrine Falcon

The American peregrine falcon (*Falco peregrinus anatum*) is a CDFW Species of Special Concern. It has been delisted as a federally and California protected species. Known to occur worldwide, in California it is found primarily central to northern part of the state, with wintering habitat located in southern California. Migrants occur along the coast and in the western Sierra Nevada in spring and fall. It breeds mostly in woodland, forest, and coastal habitats, and favors open landscapes with cliffs as nest sites. Their diet consists primarily of birds and bats (Zeiner 1990).

American peregrine falcon was not observed during the surveys The BRSA provides suitable foraging habitat throughout but lacks suitable nesting habitat.

Loggerhead Shrike

The Loggerhead shrike (*Lanius ludovicianus*) is currently considered a CDFW Bird Species of Special Concern (nesting), and a USFWS Bird of Conservation Concern. Loggerhead shrikes are small predatory birds that are uncommon residents throughout most of the southern portion of their range, including southern California. In southern California, they are generally much more common in interior desert regions than along the coast (Humple 2008). This species can be found within lowland, open habitat types, including creosote scrub and other desert habitats, sage scrub, non-native grasslands, chaparral, riparian, croplands, and areas characterized by open scattered trees and shrubs. Fences, posts, or other potential perches are typically present. Loss of habitat to agriculture, development, and invasive species is a major threat; this species has shown a significant decline in the Sonoran Desert (Humple 2008). Loggerhead shrikes initiate their breeding season in February and may continue with raising a second brood as late as July; they often re-nest if their first nest fails or to raise a second brood (Yosef 1996). In general, loggerhead shrikes prey upon large insects, small birds, amphibians, reptiles, and small rodents over open ground within areas of short vegetation, usually impaling prey on thorns, wire barbs, or sharp twigs to cache for later feeding (Yosef 1996).

Loggerhead shrike was not observed within the BRSA during surveys. Suitable nesting and foraging habitat for loggerhead shrike is present throughout the BRSA.

Black-tailed Gnatcatcher

Black-tailed gnatcatchers (*Poliioptila melanura*) are currently on the CDFW watch list. They are permanent residents from southeastern California and Arizona to southern Texas and northern Mexico. They are found in arid scrublands, desert brush, and dry washes amongst creosote bush, ocotillo, mesquite, paloverdes, and cactus. They live pairs all year-round, defend their territory, and forage for small insects amongst low shrubs and trees (Shuford et al. 2008).

Black-tailed gnatcatchers were not observed on the BRSA during the surveys. The BRSA includes suitable breeding and foraging habitat throughout, particularly in the southern extent of the parcel.

Brewer's Sparrow

The Brewer's sparrow (*Spizella brewer*) is a USFWS Bird of Conservation Concern. It is a common summer resident in mountains and higher valleys of Mojave Desert, and Breeds in treeless shrub habitats with moderate canopy, especially in sagebrush. This species is common in winter in open desert scrub and cropland habitats of southern Mojave and Colorado deserts, usually in areas with some herbaceous understory. It eats mostly insects and spiders in summer and seeds of grasses and forbs in winter (Zeiner et al. 1990).

Brewer's sparrows were observed on the BRSA during the surveys The BRSA contains suitable foraging habitat (during migration) and no suitable nesting habitat.

Bendire's Thrasher

Bendire's thrasher (*Toxostoma bendirei*) is a CDFW Bird Species of Special Concern, a USFWS Bird of Conservation Concern, and a BLM Sensitive Species. It is an uncommon species in Southern California and the Mojave Desert. It is associated with plants in the genera *Yucca* and

Opuntia, and with firmly packed dirt, sand and desert pavement substrates. This species generally avoids areas with steep slopes and rocky terrain. They forage for ants, termites, insect larvae, grasshoppers, beetles, and some fruit and seeds (Shuford et al. 2008). The CNDBB has seven documented observation of this species, within ten miles northeast of the BRSA in the Cottonwood Mountains (CNDDDB 2020; Figure 4).

Bendire's thrashers were not observed on the BRSA during the surveys. The BRSA contains suitable foraging habitat (during migration) and no suitable nesting habitat.

Crissal Thrasher

Crissal thrasher (*Toxostoma crissale*) is a CDFW Species of Special Concern. This species is a resident of southeastern deserts, occupying dense shrubs in desert riparian and desert wash habitats, including mesquite, ironwood, and acacia. This thrasher primarily forages on the ground, feeding on invertebrates, berries, and seeds (Bent 1948; Shuford et al. 2008). One observation of Crissal thrasher was recorded during small bird count surveys in 2013 (WEST 2016). The CNDBB has two documented observation of this species, approximately eight miles southwest of the BRSA in the Coachella Valley (CNDDDB 2020; Figure 4).

Crissal thrashers were not observed on the BRSA during the surveys. The BRSA provides limited but suitable nesting and foraging habitat primarily associated with the limited trees in Pipes Wash.

Le Conte's Thrasher

In California, Le Conte's thrasher (*Toxostoma lecontei*) is a CDFW Bird Species of Special Concern and a USFWS Bird of Conservation Concern. It is a resident in the San Joaquin Valley and the Mojave and Colorado Deserts (Weigand and Fitton 2008). This pale gray bird occurs in desert flats, washes and alluvial fans with sandy and/or alkaline soil and scattered shrubs. Preferred nest substrate includes thorny shrubs and small desert trees, and nesting rarely occurs in monotypic creosote scrub habitat or Sonoran Desert woodlands (Prescott 2005). Breeding activity occurs from January to early June, with a peak from mid- March to mid-April. They eat arthropods, small lizards and snakes, and seeds and fruit; the bulk of their diet consists of beetles, caterpillars, scorpions, and spiders.

LeConte's thrashers were observed during the surveys. Suitable habitat for Le Conte's thrasher is located in the BRSA. This species has been documented to occur within and near the BRSA (see Figure4) (CNDDDB 2020).

Other Listed Bird Species

No suitable breeding or wintering habitat for State or Federal listed bird species occurs within or near the Project; however, incidental detections of listed bird species including western yellow-billed cuckoo, willow flycatcher, Bell's vireos, and Ridgeway's [Yuma Ridgway's] rail have been documented in the Mojave desert. One documented observation of Bell's vireo is known approximately eight miles northwest of the BRSA (CNDDDB 2020; Figure 4). Western yellow-billed cuckoo, willow flycatcher, and Bell's vireo breed in riparian habitats in California, winter south of the United States-Mexico border, and migrate though the Colorado Desert between breeding and wintering habitats. Yuma Ridgway's rail nests in freshwater marshes and is

distinct from the other listed bird species in that they are not known to regularly migrate between areas of breeding habitat. While these species may migrate through the BRSA, there is no nesting or foraging habitat present within the BRSA.

4.2 Special Status Plant Species

BLM sensitive and California special status plant species were reviewed for their potential to occur within the BRSA and its vicinity based on regional plans and database records (Table 4; CNDDDB 2020). Special status species that were detected within the BRSA, buffer, or have moderate potential to occur based on the presence of suitable habitat within the BRSA are discussed further in this section. Species that were determined to have a low probability of occurrence due to the absence of suitable habitat, differences in elevation range, or significant distance from known geographic range are detailed are not included in the following discussion. A cumulative list of all plant species observed during previous surveys is included in Appendix B.

One special status plant species were observed within the BRSA during the surveys: little San Bernardino Mountain linanthus (*Linanthus maculatus* spp. *maculatus*). Four populations, with approximately 5,650 total individuals, of little San Bernardino Mountains linanthus, a California rare plant Rank 1B.1 species, was observed on BLM and private land within and adjacent to Pipes Wash. Little San Bernardino Mountain linanthus is BLM sensitive. Avoidance and mitigation measures may be required by CDFW and the BLM for this species. Mitigation measures may include avoiding digging and soil disturbance are recommended. If avoidance is not possible, mitigation measures for reducing impacts may include:

- Minimizing soil disturbance where possible
- Storing soil removed from the site for re-use during restoration. Because this is an annual species, the seedbank may be preserved in soil and the population may be able to withstand the disturbance.
- Weed control best management practices, including using weed-free certified materials and requiring construction staff to wash off trucks and boots when moving from one area of the project into the species population areas.

Table 4 - Special Status Plant Species

Scientific Name	Common Name	Status State/Federal/BLM/ Global Rank/State Rank	Blooming Period	Potential to Occur within BRSA
<i>Astragalus bernardinus</i>	San Bernardino milkvetch	_/_/1B.2/BLM-S/G3/S2	April – June	High
<i>Astragalus lentiginosus</i> var. <i>coachellae</i>	Coachella valley milkvetch	_/_/1B.2/BLM-S/G5T1/S3	February – May	Moderate - High
<i>Erigeron parishii</i>	Parish fleabane	_/FT/1B.2/_/G3/	May – August	Moderate
<i>Linanthus bernardinus</i>	Pioneertown linanthus	_/_/1B.2/_/G3/	April – June	Moderate
<i>Linanthus maculatus</i> ssp. <i>maculatus</i>	Little San Bernardino Mtns. linanthus	_/_/1B.1/BLM-S/G2T2/_	March – May	High (observed)
<i>Linanthus orcuttii</i>	Orcutt’s linanthus	_/_/1B.3/_/G3/S3	May – June	Low
<i>Mondardella robisonii</i>	Robison monardella	_/_/1B.3/_/G3/	April	Moderate
<i>Saltugilia latimeri</i>	Latimer’s woodland gilia	_/_/1B.3/_/G3/S3	March - June	Low – Moderate
<i>Yucca brevifolia</i>	Joshua tree	_/_/_/G4/_	May – June	High (observed)

Federal FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range

FT = Federally listed, threatened: species likely to become endangered within the foreseeable future

California Rare Plant Rank (CRPR)

CRPR 1A = Presumed extinct

CRPR 1B = Rare, threatened, or endangered in California and elsewhere

CRPR 2 = Rare, threatened, or endangered in California but more common elsewhere

CRPR 3 = Plants which need more information

CRPR 4 = Limited distribution – a watch list

CBR = Considered But Rejected

.1 = Seriously endangered in California (high degree/immediacy of threat; over 80% of occurrences threatened)

.2 = Fairly endangered in California (moderate degree/immediacy of threat; 20%-80% of occurrences threatened)

.3 = Not very endangered in California (low degree/immediacy of threats or no current threats known; <20% of occurrences threatened or no current threats known)

Bureau of Land Management

BLM Sensitive = BLM Manual §6840 defines sensitive species as “those species that are (1) under status review by the FWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary, or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats.

Global Rank/State Rank

Global rank (G-rank) is a reflection of the overall condition of an element throughout its global range. Subspecies are denoted by a T-Rank; multiple rankings indicate a range of values

G1 = Critically Imperiled.

G2 = Imperiled.

G3 = Vulnerable.

G4 = Apparently secure. This rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.

G5 = Secure. Population or stand demonstrably secure to ineradicable due to being commonly found in the world.

State rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank. An H-rank indicates that all sites are historical.

SX = Presumed Extirpated

SH = Possibly Extirpated

S1 = Critically Imperiled

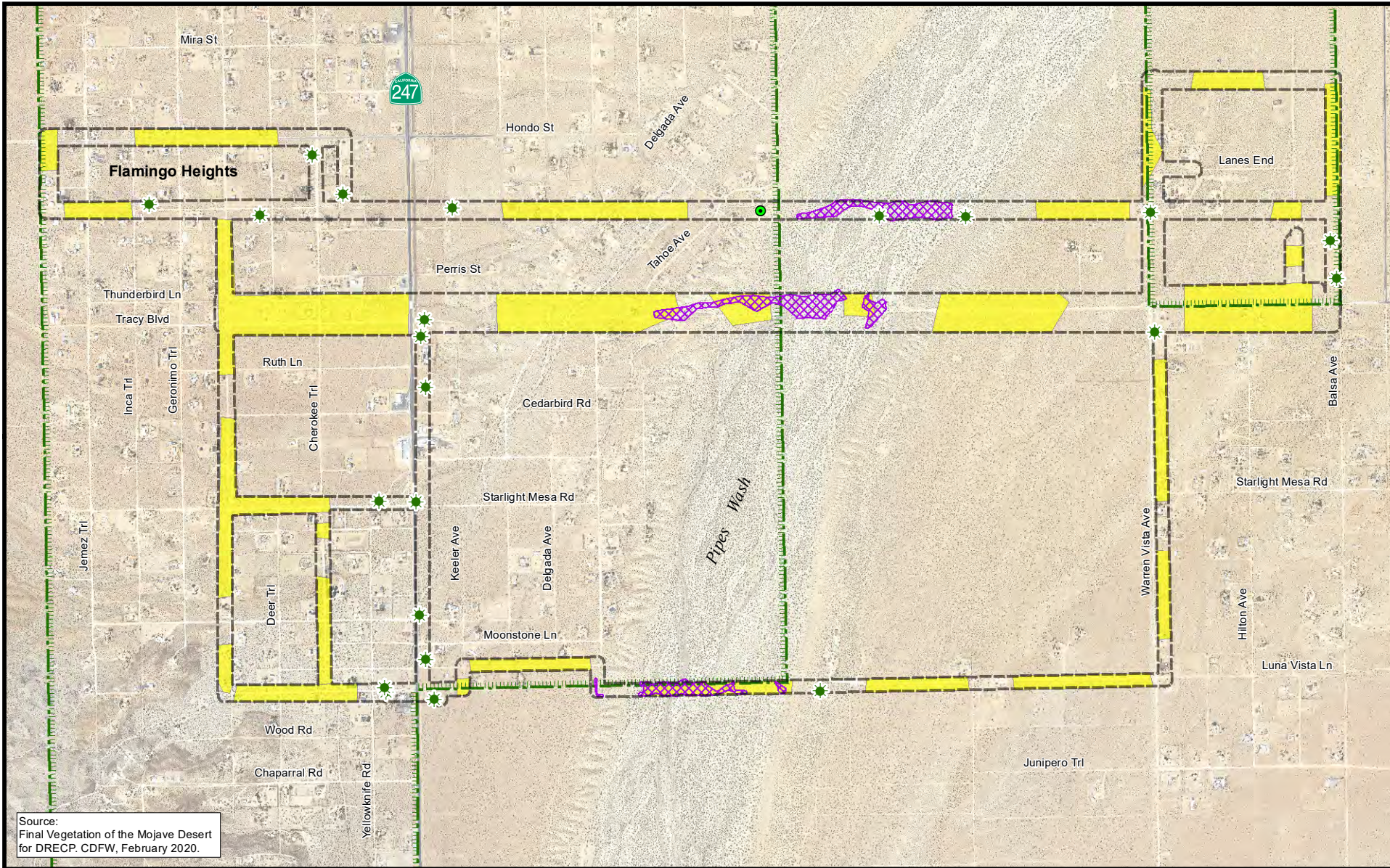
S2 = Imperiled

S3 = Vulnerable

.1 = undefined in new classification system; under old system, this meant very threatened in California


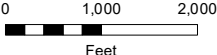
.2 = undefined in new classification system; under old system, this meant threatened in California

.3 = undefined in new classification system; under old system, this meant no current threats known in California



Source:
Final Vegetation of the Mojave Desert
for DRECP. CDFW, February 2020.

Ironwood Consulting

0 1,000 2,000
Feet







-  *Linanthus maculatus* (San Bernardino Mountain Gilia)
-  *Yucca brevifolia* Location (Joshua Tree)
-  *Linanthus maculatus* Occurrence Area (San Bernardino Mountain Gilia)
-  *Yucca brevifolia* Occurrence Area (Joshua Tree)
-  Survey Area
-  Bighorn Desert View Water Agency Service Boundary

FIGURE 7

Special Status Plant Species Observations

Bighorn Desert View Water Agency

Joshua trees are present throughout the BRSA in dense and sparse patches. While not currently considered a sensitive plant with state rank or conservation status, CDFW is considering a petition to list the Joshua tree under CESA. A hearing by CDFW was held on August 20, 2020, and a ruling is expected by the end of September 2020. If CDFW determines to evaluate the listing under CESA, Joshua trees will have special protected status under CESA for one year while the evaluation process is occurring. If listed, they will be fully protected under CESA. If evaluated for listing under CESA occurs, mitigation for damage or loss to Joshua trees may be required. Mitigation measures may include:

- Avoidance of Joshua trees where possible.
- If avoidance is not possible, salvaging trees for transplantation at a nursery or restoration site.

Cacti, Yucca, and Native Trees

Native cacti, succulents, and native trees are not special status plant species but the harvesting of these native plants is regulated under the California Native Plant Protection Act (Fish and Game Code §§1900-1913) and the California Desert Native Plant Act of 1981 (Food and Agricultural Code § 80001 et. seq.; Fish & Game Code §§1925-1926).

A total of four species in the Cactaceae family were observed within the BRSA during the botanical survey, including hedgehog cactus (*Echinocactus engelmannii*), silver cholla (*Cylindropuntia echinocarpa*), pencil cholla (*C. ramosissima*), and beavertail cactus (*Opuntia basilaris*). Additionally, Mojave yucca and one native tree species – desert willow – was observed within the BRSA. Appendix B gives a full list of species observed during the survey.

Loss or damage to cactus and native trees due to project activities may require mitigation planning and best management practices. Avoidance of cacti and trees is recommended.

San Bernardino Milk-vetch

San Bernardino milk-vetch (*Astragalus bernardinus*) has a California Rare Plant Rank (CRPR) of 1B.2, is a BLM-S species, and has a NatureServe rank of G3/S3. This species is rare in California and across its range. It is an perennial herb that occurs in granitic or carbonate soils in Joshua tree and pinyon juniper woodlands, on desert and mountain slope habitats (CNPS 2019). It grows on open dry, rocky slopes at elevations of 280 – 3,390 m (920 – 11,120 ft). It blooms between April and June. Documented observations of this species occur within one mile of the southern boundary of the BRSA along the Box Canyon road; and within 8 miles northeast of the BRSA in the Cottonwood Mountains (Figure 4; CNDDDB 2020).

San Bernardino milk-vetch was not observed during the survey. Habitat for this species is present throughout the BRSA, which has granitic soils. Based on habitat assessment during the survey and review of known populations in vicinity of the BRSA, the potential for this species to occur on the BRSA is moderate to high.

Coachella Valley Milk-vetch

Coachella valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*) is a federally endangered (FE) species, has a California Rare Plant Rank (CRPR) of 1B.2, is a BLM-S species, and has a

NatureServe rank of G5T1/S3. This species is rare or endangered in California and across its range. It is an perennial herb that occurs in desert dunes and sandy Sonoran desert scrub (CNPS 2019). It grows on open dry, rocky slopes at elevations between 0 – 713 m amsl (0 – 2,340 ft). It blooms between February and May. Documented observations of this species occur within six mile of the southwestern boundary of the BRSA in the foothills of the Mecca Hill (Figure 4; CNDDDB 2020).

Coachella Valley milk-vetch was not observed during the survey or any previous survey. Habitat for this species is present in the southern extent of the BRSA where soils are sandy. Based on habitat assessment during the survey and review of known populations in vicinity of the BRSA, the potential for this species to occur on the BRSA is moderate.

Parish Fleabane

Parish's Fleabane (*Erigeron parishii*) is a federally listed threatened species. It has a CRPR rank of 1B.2, and a NatureServe rank of G2. It is a perennial herb found in Mojavean desert scrub or Pinyon juniper woodland, strongly associated with carbonate/limestone soils. It has an elevation range of 1260-1440m (4130-4720ft), with a bloom time of May to August, (CNPS, 2020). Nearby occurrences have been mapped within 10 miles of the project in the Bighorn mountains west of the site (CNDDDB, 2020).

Parish's fleabane was not found during 2020 field survey or any prior survey. Based on the elevation, lack of suitable habitat, and lack of carbonate soils on the site, the potential for this species to occur is moderate.

Pioneertown Linanthus

Pioneertown Linanthus (*Linanthus bernardinus*) has a CRPR rank of 1B.2 and a global rank of G1. It is an annual herb that is found in Mojave desert scrub and Joshua tree woodland from elevations of 1,120 to 1,340m (3670-4400ft) around the community of Pioneertown, California, (CNDDDB 2020).

Pioneertown Linanthus was not documented during 2020 surveys, and its known distribution is restricted to a close proximity to Pioneertown, approximately 8 miles south of the project. This species has a moderate potential to occur on site in sections with creosote or creosote-white bursage plant communities, although the project is not near the known small distribution of the species.

*Little San Bernardino Mountains
Linanthus*

Little San Bernardino Mountains Linanthus (*Linanthus maculatus* ssp. *maculatus*) is a CRPR 1B.1 species, with a NatureServe rank of G2T2. It is an annual herb found in a variety of desert habitats, including Mojavean desert scrub and Joshua tree woodland, and often in sandy, quartz soils in washes and bajadas (CNDDDB 2020). It has an elevation range of 135-1,220 m amsl and a bloom period of March-May (CNPS 2020).

Linanthus maculatus was documented during 2020 surveys in large quantities where the project crosses Pipes Wash.

Orcutt's Linanthus

Orcutt's Linanthus (*Linanthus orcuttii*) is a CRPR 1B.3 ranked plant with a NatureServe rank of G3. It is an annual herb that is found in chaparral, lower montane coniferous forest, or pinyon-juniper woodland in gravelly, sometimes disturbed clearings from 850-2,775m amsl (2,790-9,100 ft) in elevation, (CNDDDB, 2020). The bloom period for this species is May-June, (CNPS 2020).



Photo 5. Little San Bernardino Mountains linanthus (*Linanthus maculatus* spp. *maculatus*)

Orcutt's Linanthus was not documented during 2020 surveys. The nearest occurrences are near Pioneertown, approximately 8 miles from the BRSA. Occurrences in the San Bernardino and Little San Bernardino Mountains are disjunct from other populations in the Peninsular mountain ranges to the south. Based on lack of suitable habitat and canopy cover, this species has a low potential to occur on site.

Latimer's woodland-gilia

Latimer's woodland-gilia (*Saltugilia latimeri*) is a CRPR 1B.2 ranked plant with NatureServe rank of G3S3 and has BLM Sensitive status. It is an annual herb known from sandy or rocky Mojavean desert scrub and sandy washes. It ranges from 400-1900 m amsl (1,312-6,233 ft) in elevation (CNPS 2020).

Latimer's woodland-gilia was not found during survey. There is suitable habitat across the project survey area in sandy Mojavean desert scrub. Based on habitat assessment during the

survey and review of known populations in vicinity of the BRSA, the potential for this species to occur on the BRSA is low to moderate.

Robinson's Monardella

Robison's Monardella (*Monardella robisonii*) is a CRPR 1B.3 ranked plant with a NatureServe rank of G3. It is also a BLM sensitive species. It is a perennial herb found on rocky desert slopes in Pinyon-Juniper woodland from elevations of 610-1,615m amsl (2,000-5,300ft) (CNDDDB, 2020).

Robison's Monardella was not found during 2020 surveys. It is known to occur within 5 miles of the BRSA (see Figure 4). Documented populations are known in the Bighorn mountains approximately six miles west of the BRSA. Based on the lack of suitable habitat and proximity of other populations, this species has a moderate potential to occur on site.

Latimer's woodland-gilia

Latimer's woodland-gilia (*Saltugilia latimeri*) is a CRPR 1B.2 ranked plant with NatureServe rank of G3S3 and has BLM Sensitive status. It is an annual herb known from sandy or rocky Mojavean desert scrub and sandy washes. It ranges from 400-1,900 m amsl (1312-6233 ft) in elevation (CNPS 2020).

Latimer's woodland-gilia was not found during 2019 field survey or any prior survey. There is suitable habitat across the project survey area in sandy Mojavean desert scrub. Based on habitat assessment during the survey and review of known populations in vicinity of the BRSA, the potential for this species to occur on the BRSA is low to moderate.

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Appendix A
2020 Survey Wildlife Species Observed

Table 5. Wildlife species observed

Birds (one or more individual)	
Ash-throated Flycatcher (<i>Myiarchus cinerascens</i>)	Lesser Goldfinch (<i>Spinus psaltria</i>)
Barn Swallow (<i>Hirundo rustica</i>)	Lincoln's Sparrow (<i>Melospiza lincolni</i>)
Black-headed Grosbeak (<i>Pheucticus melanocephalus</i>)	Mourning Dove (<i>Zenaidura macroura</i>)
Black-throated Sparrow (<i>Amphispiza bilineata</i>)	Nashville Warbler (<i>Oreothlypis ruficapilla</i>)
Blue-gray Gnatcatcher (<i>Poliophtila caerulea</i>)	Northern Mockingbird (<i>Mimus polyglottos</i>)
Brewer's Sparrow (<i>Spizella breweri</i>)	Orange-crowned Warbler (<i>Oreothlypis celata</i>)
Cactus Wren (<i>Campylorhynchus brunneicapillus</i>)	Phainopepla (<i>Phainopepla nitens</i>)
Chipping Sparrow (<i>Spizella passerina</i>)	Red-tailed Hawk (<i>Buteo jamaicensis</i>)
Common Raven (<i>Corvus corax</i>)	Rock Pigeon (<i>Columba livia</i>)
Common Yellowthroat (<i>Geothlypis trichas</i>)	Rock Wren (<i>Salpinctes obsoletus</i>)
Costa's Hummingbird (<i>Calypte costae</i>)	Ruby-crowned Kinglet (<i>Regulus calendula</i>)
Dusky Flycatcher (<i>Empidonax oberholseri</i>)	Say's Phoebe (<i>Sayornis saya</i>)
Eurasian Collared-Dove (<i>Streptopelia decaocto</i>)	Scott's Oriole (<i>Icterus parisorum</i>)
Gambel's Quail (<i>Callipepla gambelii</i>)	Verdin (<i>Auriparus flaviceps</i>)
Greater Roadrunner (<i>Geococcyx californianus</i>)	Vesper Sparrow (<i>Pooecetes gramineus</i>)
Horned Lark (<i>Eremophila alpestris</i>)	Western Kingbird (<i>Tyrannus verticalis</i>)
House Finch (<i>Haemorhous mexicanus</i>)	Western Meadowlark (<i>Sturnella neglecta</i>)
House Sparrow (<i>Passer domesticus</i>)	White-crowned Sparrow (<i>Zonotrichia leucophrys</i>)
Ladder-backed Woodpecker (<i>Dryobates scalaris</i>)	Yellow-rumped Warbler (<i>Setophaga coronata</i>)
LeConte's Thrasher (<i>Toxostoma lecontei</i>)+	
Herptiles (individuals and sign)	
Desert horned lizard (<i>Phrynosoma platyrhinos</i>)	Western Side-blotched Lizard (<i>Uta stansburiana elegans</i>)
Desert iguana (<i>Aspidoscelis uniparens</i>)	Western Whiptail Lizard (<i>Aspidoscelis tigris</i>)
Desert tortoise (<i>Gopherus agassizii</i>)+^~	Zebra-tailed Lizard (<i>Calisaurus draconoides</i>)
Mammals (individuals or sign)	
Antelope squirrel	Desert cottontail (<i>Sylvilagus audubonii arizonae</i>)
Black-tailed jackrabbit (<i>Lepus californicus</i>)	Desert kitfox (<i>Vulpes macrotis arsipus</i>)
Coyote (<i>Canis latrans</i>)	White-tailed antelope squirrel (<i>Ammospermophilus leucurus</i>)

+ Indicates California sensitive or special status species

*Indicates California tracked and managed species

^Indicates BLM Palm Desert FO sensitive species

~Indicates Federally listed species

Appendix B
2020 Survey Botanical Species Observed

Table 6. Plant species observed during floristic survey

Scientific Name	Common Name	Scientific Name	Common Name	Scientific Name	Common Name
<i>Abronia villosa</i>	desert sand verbena	<i>Chilopsis linearis</i>	desert willow	<i>Eriastrum sp.</i>	woolystar
<i>Acamptopappus sphaerocephalus</i>	goldenhead	<i>Chorizanthe brevicornu</i>	brittle spine flower	<i>Eriogonum fasciculatum</i>	California buckwheat
<i>Acmispon strigosus</i>	strigose lotus	<i>Chrysothamnus sp.</i>	rabbitbrush	<i>Eriogonum inflatum</i>	Inflated buckwheat
<i>Ambrosia acanthicarpa</i>	annual bursage	<i>Chylismia brevipes</i>	yellow cups	<i>Eriogonum pusillum</i>	buckwheat
<i>Ambrosia salsola</i>	cheesebush	<i>Chylismia claviformis</i>	clavate sun cups	<i>Eriogonum trichopes</i>	little desert buckwheat
<i>Ambrosia dumosa</i>	white bursage	<i>Coleogyne ramosissima</i>	black brush	<i>Eriophyllum pringlei</i>	pringle eriophyllum
<i>Amsinckia menziesii</i>	fiddleneck	<i>Croton californicum</i>	California croton	<i>Eriophyllum wallacei</i>	Wallace eriophyllum
<i>Amsinckia tessellata</i>	Devil's lettuce	<i>Cryptantha barbiger</i>	Bearded cryptantha	<i>Erodium cicutarium*</i>	coastal heron's bill
<i>Anisocoma acaulis</i>	scalebud	<i>Cryptantha decipiens</i>	gravel cryptantha	<i>Erythranthe parishii</i>	Parish's monkeyflower
<i>Argemone sp.</i>	prickly poppy	<i>Cryptantha dumetorum</i>	bush-loving cryptantha	<i>Eschscholzia minutiflora</i>	pygmy poppy
<i>Astragalus lentiginosus var. variabilis</i>	freckled milk vetch	<i>Cryptantha micrantha</i>	purple-root cryptantha	<i>Eschscholzia parishii</i>	Parish's poppy
<i>Atriplex canescens</i>	hoary saltbush	<i>Cryptantha nevadensis</i>	Nevada forget-me-not	<i>Gilia cana</i>	showy gilia
<i>Atriplex polycarpa</i>	cattle spinach	<i>Cryptantha pterocarya</i>	winged nut forget-me-not	<i>Gilia cana ssp. Bernardina</i>	showy gilia
<i>Brandegea bigelovii</i>	Brandegea	<i>Cucurbita palmata</i>	coyote melon	<i>Gilia sinuata</i>	cinder gilia
<i>Brassica tournefortii*</i>	Sahara mustard	<i>Cuscuta sp.</i>	dodder	<i>Gilia stellata</i>	star gilia
<i>Bromus rubens*</i>	red brome	<i>Cylindropuntia echinocarpa</i>	silver cholla	<i>Hilaria rigida</i>	big galleta grass
<i>Bromus tectorum*</i>	downy chess	<i>Cylindropuntia ramossissima</i>	branched pencil cholla	<i>Hordeum murinum*</i>	foxtail barley
<i>Calycoseris wrightii</i>	white tackstem	<i>Delphinium sp.</i>	larkspur	<i>Hyptis emoryi</i>	desert lavender
<i>Calytridium monardum</i>	pussypaws	<i>Descurainia pinnata</i>	yellow tansy mustard	<i>Krameria bicolor</i>	Krameria
<i>Camissonia kernensis</i>	Kern sun cups	<i>Descurainia sophia*</i>	herb sophia	<i>Larrea tridentata</i>	creosote bush
<i>Camissoniopsis confusa</i>	San Bernardino sun cup	<i>Dithyrea californica</i>	spectacle-pod	<i>Layia glandulosa</i>	tidytips
<i>Camissoniosis pallida</i>	pale yellow sun cup	<i>Echinocereus enelmanii</i>	hedgehog cactus	<i>Lepidium lasiocarpum</i>	pepperweed
<i>Caulanthus cooperi</i>	mustard	<i>Encelia virginensis</i>	Virgin river encelia	<i>Lepidospartum squamatum</i>	scale broom
<i>Caulanthus lasiophyllus</i>	California mustard	<i>Ephedra sp.</i>	Mormon tea	<i>Leptosyne californica</i>	California coreopsis
<i>Centrostegia thurberi</i>	Thurber spiny herb	<i>Eremalche exilis</i>	white mallow	<i>Linanthus aureus</i>	golden linanthus
<i>Chaenactis fremontii</i>	Fremont's pincushion	<i>Eremothera boothii</i>	Booth's suncup	<i>Linanthus jonesii</i>	Jones linanthus
<i>Chaenactis stevioides</i>	desert pincushion	<i>Eremothera refracta</i>	narrow-leaved primrose	<i>Loeseliastrum sp.</i>	desert calico
<i>Chenopodium sp.</i>	goosefoot	<i>Eriastrum eremicum</i>	desert woolystar	<i>Logfia depressa</i>	dwarf cottonrose

Scientific name	Common name	Scientific name	Common Name
<i>Linanthus maculatus ssp. maculatus</i>	little San Bernardino mountains linanthus	<i>Psorothamnus arborescens var. arborescens</i>	Mojave indigo bush
<i>Lomatium mohavense</i>	Mojave wild parsley	<i>Rafinesquia neomexicana</i>	desert chicory
<i>Lupinus excubitus var. austromontanus</i>	southern montane grape lupine	<i>Rumex hymenosepalus</i>	wild rhubarb
<i>Lupinus odoratus</i>	Mojave lupine	<i>Salvia columbariae</i>	chia
<i>Lupinus shockleyi</i>	Shockley lupine	<i>Schismus barbatus*</i>	beardgrass
<i>Lycium andersonii</i>	Anderson's box thorn	<i>Scutellaria mexicana</i>	paper bag bush
<i>Lycium cooperi</i>	Cooper's box thorn	<i>Senegalia greggii</i>	catclaw
<i>Malacothrix glabrata</i>	desert dandelion	<i>Senna armata</i>	desert senna
<i>Mentzelia albicaulis</i>	white-stemmed blazingstar	<i>Sisymbrium altissimum*</i>	tumble mustard
<i>Mentzelia eremophila</i>	pinyon blazingstar	<i>Sisymbrium irio*</i>	london rocket
<i>Mirabilis laevis</i>	wishbone bush	<i>Sphaeralcea ambigua</i>	desert globemallow
<i>Monoptilon belliodes</i>	Mojave desert star	<i>Stephanomeria pauciflora</i>	wirelettuce
<i>Nama demissum</i>	purple mat	<i>Stillingia linearifolia</i>	narrow-leaved stillingia
<i>Nicolletia occidentalis</i>	western nicolletia	<i>Stipa hymenoides</i>	rice grass
<i>Nicotiana attenuata</i>	coyote tobacco	<i>Tetradymia stenolepis</i>	narrow-scaled felt thorn
<i>Opuntia basilaris</i>	beavertail cactu	<i>Thysanocarpus curvipes</i>	common fringepod
<i>Pectocarya platycarpa</i>	broad comb bur	<i>Tiquilia plicata</i>	tiquilia
<i>Peritoma arborea</i>	bladderpod	<i>Toxiscocordion sp.</i>	cama
<i>Petalonyx thurberi</i>	sandpaper plant	<i>Yucca brevifolia</i>	Joshua tree
<i>Phacelia campanularia</i>	desert bells	<i>Yucca schidigera</i>	Mojave yucca
<i>Phacelia crenulata</i>	notch leaf phacelia		
<i>Phacelia distans</i>	common phacelia		
<i>Phoradendron californicum</i>	mistletoe		
<i>Plantago ovata</i>	plantain		
<i>Prenanthes exiguua</i>	thorny skeleton plant		

* Noxious and/or non-native species

Bold indicates sensitive species

Source: USDA PLANTS Database (2019) and the Desert Jepson Manual (Baldwin 2002)