
Biological Resources Technical Report

1 M Warehouse Project

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Acronyms and Abbreviations

Acronym	Definition
Amsl	above mean sea level
BMP	best management practice
BSA	biological survey area
Cal-IPC	California Invasive Plant Council
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDNPA	California Desert Native Plants Act
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
FESA	Federal Endangered Species Act
I	Interstate
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
OHWM	ordinary high-water mark
project	1M Warehouse Project
RWQCB	Regional Water Quality Control Board
SWPPP	Stormwater Pollution Prevention Plan
Town	Town of Apple Valley
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
WEAP	Worker Environmental Awareness Program

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1 Introduction

This Biological Resources Technical Report documents the results of surveys conducted to identify potential biological resources for the 1M Warehouse Project (project) in the Town of Apple Valley (Town), San Bernardino County, California. Figure 1, Project Location, shows the regional location and vicinity of the project.

The purpose of this report is to (1) describe the conditions of biological resources within the project site in terms of vegetation communities, plants, wildlife, wildlife habitats, and wetlands; (2) quantify potential direct and indirect impacts to special-status biological resources that would result from the project; (3) discuss those impacts in terms of biological significance in view of federal, state, and local laws, and San Bernardino County General Plan and Town of Apple Valley General Plan and Municipal Code policies; and (4) specify measures to avoid, minimize, and/or mitigate any significant impacts that would occur to special-status biological resources as a result of project implementation. A cumulative analysis of the project is provided within this report.

1.1 Project Description

1.1.1 Project Location

The approximately 92.0-acre site, consisting of the 67.3-acre project site and the 24.7-acre off-site improvement areas, is in the northern part of the Town of Apple Valley, which is within the Victor Valley Region of San Bernardino County (Figure 1). Specifically, the project site is located in Sections 14, 15, 21, 22, and 23, Township 6N, Range 3W, as depicted on the U.S. Geological Survey Apple Valley North, California, 7.5-minute topographic quadrangle maps. The project site is in the northeast quadrant of Central Road and Lafayette Street. The project site is south of Johnson Road, east of Central Road, north of Lafayette Street, and west of Sycamore Lane, and the off-site improvement areas occur along Central Road and along Johnson Road and Lafayette Street. The project site consists of two Assessor's Parcel Numbers and the off-site improvement areas consist of 31 Assessor's Parcel Numbers, as well as right-of-way, as listed in Table 1. Regional access to the project site is provided via Interstate (I) 15, approximately 4.6 miles west of the project site.

Table 1. Project Site and Off-Site Improvement Areas Assessor's Parcel Numbers

Project Site Assessor's Parcel Numbers						
046324102						
046324103						
Off-Site Improvement Areas Assessor's Parcel Numbers						
046320142	046323210	046323254	046324106	046333101	046336203	046350112
046320143	046323215	046323256	046324107	046336106	046336204	Right-of-way
046323206	046323217	046324101	046324108	046336107	046336205	—
046323208	046323249	046324104	046324301	046336108	046350109	—
046323209	046323252	046324105	046324302	046336109	046350110	—

1.1.2 Project Components

The project would involve construction of a single industrial/warehouse building and associated improvements on 67.3 acres of vacant land (see Figure 2, Conceptual Site Plan). The building would be approximately 1,080,125 square feet. The project would involve associated improvements, including loading docks, truck and vehicle parking, and landscaped areas. The project would also involve improvements along Lafayette Street and Johnson Road, including frontage landscaping and pedestrian improvements. A variety of trees, shrubs, plants, and land covers would be planted within the project frontage's landscape setback area, as well as within the landscape areas found around the proposed industrial/warehouse building and throughout the project site (see Figure 2).

Site Access, Circulation, and Parking

Access to the site would be provided via Lafayette Street on the southern boundary, Central Road on the western boundary, and Johnson Road on the northern boundary of the project site. Paved passenger vehicle parking areas would be provided north and south of the building, and tractor-trailer stalls and loading docks would be provided east and west of the building. In total, the project would provide approximately 224 loading dock positions, approximately 317 tractor-trailer stalls, roughly 1,572 passenger vehicle spaces, and approximately 43,998 square feet of landscape coverage.

Off-Site Street Improvements

To facilitate adequate on-site circulation, sufficient site access for both passenger vehicles and trucks, and to ensure efficient off-site circulation on nearby roadway facilities, the project would involve the following off-site street improvements (see Figure 2).

- **Central Road.** The project would involve the construction of Central Road from the eastern edge of the existing pavement surface to Central Road's eastern right-of-way, starting at the intersection of Johnson Road and Central Road, extending to the southwest corner of the project site at the intersection of Central Road and Lafayette Street. The portion of this improved roadway along the project's frontage would include a curb, gutter, and sidewalk.
- **Johnson Road.** The project would involve the construction of Johnson Road to varying widths, starting at the intersection of Johnson Road and Central Road, extending to the southeast corner of the project site at the intersection of Johnson Road and Sycamore Lane. A portion of this road would be protected by an approximately 500-foot by 20-foot area of riprap within the northern portion of Johnson Road's right-of-way to protect against flooding from a drainage, referred to as the N-02 drainage in the Apple Valley Master Plan of Drainage, in the north. A portion of this improved roadway along the project's frontage and near the project's northeast driveway would include a curb, gutter, and sidewalk.
- **Lafayette Street.** The project would involve the construction of Lafayette Street from its northern right-of-way boundary to approximately 6 feet south of its centerline, starting at the intersection of Lafayette Street and Central Road, extending to the southeast corner of the project site at the intersection of Lafayette Street and Sycamore Lane. The portion of this improved roadway along the project's frontage would include a curb, gutter, and sidewalk.

Utility Improvements

Given the vacant, undeveloped nature of the project site, both wet and dry utilities, including domestic water, sanitary sewer, storm drainage, and electricity, would need to be extended onto the project site. New 16-inch off-site water lines would be installed along Central Road and Johnson Road and new 12-inch sewer lines would be installed along Central Road and Lafayette Street. In addition, a new stormwater drainage system would be constructed on the project site to collect and treat on-site stormwater (see Figure 2).

Storm Drainage

A new stormwater drainage system would be constructed on the project site to collect and treat on-site stormwater (see Figure 2). The project's stormwater system involves capturing, treating, and infiltrating stormwater on site; conveying flows that exceed the capacity of the stormwater system off site onto and across Central Road; and collecting and rerouting run-on flows off site towards their historical flow areas. The stormwater system would treat flows collected under a 2-year design storm and would attenuate flows for a 100-year design storm. For storms above the 2-year design storm during which the proposed infiltration basins reach their capacity, excess flows would overflow onto Central Road via an outflow pipe located at the top of the western basins. These flows would flow onto and across Central Road towards the drainage west of Central Road, consistent with the existing hydrological patterns.

The project would involve the construction of an engineered drainage channel along the northwestern corner of the project site. As part of the project, Johnson Road would be paved and feature an approximately 500-foot by 20-foot area of riprap on its north side to slow run-on flow velocities (Figure 2). After passing through the riprap feature, flowing over Johnson Road, and flowing into the drainage channel, flows would be routed within the channel in a southwesterly direction towards the channel's termination point at the center of the site's western boundary, north of the driveway on Central Road. At this termination area, the channel would transition to an approximately 300- to 400-foot-wide apron area where flows would sheet flow onto and across Central Road towards the drainage west of Central Road, consistent with the existing hydrological condition.

The on-site drainage channel would feature an above-grade earthen berm on the western side to protect the project site from run-on flows, a slightly below-grade earthen bottom to route flows, and an at-grade eastern downslope to allow run-on flows to be collected.

Operations

Tenants for the project have not been identified, and industrial warehouse building tenants are considered speculative. Business operations would be expected to be conducted within the enclosed building, with the exception of ingress and egress of trucks and passenger vehicles accessing the site; passenger and truck parking; the loading and unloading of trailers within designated truck courts/loading areas; and the internal and external movement of materials around the project site via forklifts, pallet jacks, yard hostlers, and similar equipment. It is anticipated that the facilities would be operated 24 hours a day, 7 days a week.

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2 Regulatory Setting

2.1 Federal

2.1.1 Federal Endangered Species Act

The federal Endangered Species Act (FESA) of 1973 (16 USC 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS) for most plant and animal species, and by the National Oceanic and Atmospheric Administration National Marine Fisheries Service for certain marine species. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend, and provide programs for the conservation of those species, thus preventing the extinction of plants and wildlife. FESA defines an endangered species as “any species that is in danger of extinction throughout all or a significant portion of its range.” A threatened species is defined as “any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” Under FESA, it is unlawful to “take” any listed species; “take” is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”

FESA allows for the issuance of Incidental Take Permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of Habitat Conservation Plans on private property without any other federal agency involvement.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the intentional and unintentional take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, “take” is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so (16 USC 703 et seq.). Currently, the Migratory Birds Office considers nests that support eggs, nestlings, or juveniles to be active. Additionally, Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 FR 3853–3856). Executive Order 13186 requires federal agencies to work with USFWS to develop a memorandum of understanding. USFWS reviews actions that might affect these species.

2.1.3 Clean Water Act

The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation’s waters. Section 401 requires a project operator for a federal license or permit that allows activities resulting in a discharge to waters of the United States to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. The Regional Water Quality Control Boards (RWQCBs) administer the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the United States. Section 404 establishes a permit program administered by the U.S. Army Corps of Engineers (USACE) that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. USACE implementing regulations are found at 33 Code of Federal Regulations (CFR) Parts 320 through 332. Guidelines for implementation are referred to as the

Section 404(b)(1) Guidelines, which were developed by the U.S. Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Wetlands and Other Waters of the United States

The definition of “waters of the United States” establishes the geographic scope for authority under Section 404 of the CWA; however, the CWA does not specifically define waters of the United States, leaving the definition open to statutory interpretation and agency rulemaking. The definition of what constitutes “waters of the United States” (provided in 33 CFR Section 328.3[a]) has changed multiple times over the past few decades starting with the *United States v. Riverside Bayview Homes, Inc.* court ruling in 1985. Subsequent court proceedings, rule makings, and congressional acts in 2001 (*Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*), 2006 (*Rapanos v. United States*), 2015 (Clean Water Rule), 2018 (suspension of the Clean Water Rule), 2019 (formal repeal of the Clean Water Rule), 2020 (Navigable Waters Protection Rule), and 2021 (*Pasqua Tribe et al v. United States Environmental Protection Agency* resulting in remand and vacatur of the Navigable Waters Protection Rule and a return to “the pre-2015 regulatory regime”) have attempted to provide greater clarity to the term and its regulatory implementation. On December 30, 2022, the agencies announced the final Revised Definition of “Waters of the United States” rule (Rule) (88 CFR 3004–3144). The Rule was published in the Federal Register on January 18, 2023, and became effective on March 20, 2023, restoring federal jurisdiction over waters that were protected prior to 2015 under the CWA for traditional navigable waters, the territorial seas, interstate waters, and upstream water resources that significantly affect those waters. The Rule represents a re-expansion of federal jurisdiction over certain water bodies and wetlands previously exempt pursuant to the 2020 Navigable Waters Protection Rule. The Rule also considers various subsequent court decisions including two notable Supreme Court decisions.

There are two key changes that the Rule incorporates. Firstly, the Rule reinstates the “Significant Nexus” test. The “Significant Nexus” test refers to waters that either alone, or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of traditional navigable waters, interstate waters, or the territorial seas (86 FR 69372–69450). The “Significant Nexus” test attempts to establish a scientific connection between smaller water bodies (such as ephemeral or intermittent tributaries) and larger, more traditional navigable waters (such as rivers). Significant nexus evaluations take into consideration hydrologic and ecologic factors including, but not limited to, volume, duration, and the frequency of surface water flow in the resource and its proximity to a traditional navigable water, as well as the functions performed by the resource on adjacent wetlands. Second, the Rule adopts the “Relatively Permanent Standard” test. To meet the “Relatively Permanent Standard,” water bodies must be relatively permanent, standing, or continuously flowing and have a continuous surface connection to such waters.

On May 25, 2023, the Supreme Court issued its long-anticipated decision in *Sackett v. EPA*, in which it rejected the EPA’s claim that “waters of the United States,” as defined in the CWA, include wetlands with an ecologically significant nexus to traditional navigable waters. The Supreme Court held that only those wetlands with a continuous surface water connection to traditional navigable waterways would be afforded federal protection under the CWA. Specifically, to assert jurisdiction over an adjacent wetland under the CWA, a party must establish that (1) the adjacent body of water constitutes water(s) of the United States (i.e., a relatively permanent body of water connected to traditional interstate navigable waters) and (2) the wetland has a continuous surface connection with that water, making it difficult to determine where the water ends and the wetland begins. The Rule will need to be modified by the Biden administration in light of this decision.

The term “wetlands” (a subset of waters of the United States) is defined in 33 CFR, Section 328.3(c)(16), as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, such as intermittent streams, extend to the “ordinary high water mark,” which is defined in 33 CFR 328.3(c)(7) as “that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.”

On August 30, 2023, the EPA released guidance further clarifying the definition of waters of the U.S. based on the Sackett v EPA ruling.

2.2 State

2.2.1 California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Chapter 1.5) provides protection and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike FESA, under CESA, state-listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to FESA and is prohibited for both listed and candidate species. Take authorization may be obtained by a project applicant from the California Department of Fish and Wildlife (CDFW) under CESA Section 2081, which allows take of a listed species for educational, scientific, or management purposes. In this case, private developers consult with CDFW to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of mitigation implementation, and monitoring of mitigation measures.

On October 21, 2019, the California Fish and Game Commission received a petition from the Center for Biological Diversity to list western Joshua tree (*Yucca brevifolia*) (Center for Biological Diversity 2019).¹ On November 1, 2019, the California Fish and Game Commission referred the petition to CDFW for evaluation. CDFW evaluated the scientific information presented in the petition and other relevant information possessed by CDFW at the time of review and prepared a report for submittal to the California Fish and Game Commission. The report states that CDFW recommended that the California Fish and Game Commission accept the petition for further consideration of western Joshua tree under CESA. On September 22, 2020, the California Fish and Game Commission approved the petition to accept the candidacy proposal for western Joshua tree, effective October 9, 2020 (CDFW 2020). On July 1, 2023, the Western Joshua Tree Conservation Act was passed. While western Joshua tree is a candidate species, take for western Joshua tree can be permitted through payment of pre-determined mitigation fees if a Western Joshua Tree Conservation Act Permit is received.

¹ On October 21, 2019, the California Fish and Game Commission received a petition to list the following as threatened under the California Endangered Species Act: (1) western Joshua tree (*Yucca brevifolia*) throughout its California range, or, in the event the Commission determines that listing of *Yucca brevifolia* throughout its California range is not warranted, then (2) the western Joshua tree population within the northern part of western Joshua tree’s California range, or (3) the western Joshua tree population within the southern part of western Joshua tree’s California range.

2.2.2 California Fish and Game Code

Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFW cannot issue permits or licenses that authorize the “take” of any fully protected species, except under certain circumstances, such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, it is the responsibility of CDFW to maintain viable populations of all native species. Toward that end, CDFW has designated certain vertebrate species as Species of Special Concern, because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

Sections 1600–1616

CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of definable bed and banks, and existing fish or wildlife resources. CDFW takes jurisdiction to the top of bank of the stream or the limit of the adjacent riparian vegetation, which may include oak woodlands in canyon bottoms. Historical court cases have further extended CDFW jurisdiction to include watercourses that seemingly disappear but reemerge elsewhere. Under the CDFW definition, a watercourse need not exhibit evidence of an ordinary high-water mark (OHWM) to be claimed as jurisdictional. CDFW does not have jurisdiction over ocean or shoreline resources.

Under California Fish and Game Code Sections 1600–1616, CDFW has the authority to regulate work that will substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake. CDFW also has the authority to regulate work that will deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement and is applicable to all projects. Applications to CDFW must include a complete, certified California Environmental Quality Act (CEQA) document.

California Native Plant Protection Act

The Native Plant Protection Act of 1977 (Sections 1900 et seq. of the California Fish and Game Code) directed CDFW to carry out the Legislature’s intent to “preserve, protect and enhance rare and endangered plants in this State.” The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as “endangered” or “rare,” and protect endangered and rare plants from take. CESA expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the California Fish and Game Code. To align with federal regulations, the categories of “threatened” and “endangered” species were added to CESA. All “rare” animals in CESA were converted to “threatened,” but this did not change for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in CESA, mitigation measures for impacts to rare plants are specified in a formal agreement between CDFW and project proponents.

Nesting Birds

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 protects all birds of prey (raptors) and their eggs and nests. Section 3511 states that fully protected birds or parts thereof may not be taken or possessed at any time. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA.

2.2.3 California Environmental Quality Act

CEQA requires identification of a project's potentially significant impacts on biological resources, and ways that such impacts can be avoided, minimized, or mitigated. CEQA also provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts.

The State of California CEQA Guidelines (CEQA Guidelines) Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors." A rare animal or plant is defined in CEQA Guidelines Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or ... [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act." Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c).

CDFW has developed a list of "Special Species" as "a general term that refers to all of the taxa the California Natural Diversity Database (CNDDDB) is interested in tracking, regardless of their legal or protection status." This is a broader list than those species that are protected under FESA, CESA, and other California Fish and Game Code provisions, and includes lists developed by other organizations, including, for example, the Audubon Watch List. Guidance documents prepared by other agencies, including the Bureau of Land Management Sensitive Species and USFWS Birds of Special Concern, are also included on this CDFW Special Species list. Additionally, CDFW has concluded that plant species listed as California Rare Plant Rank (CRPR) 1 and 2 by the California Native Plant Society (CNPS), and potentially some CRPR 3 plants, are covered by CEQA Guidelines Section 15380.

Section IV, Appendix G, Environmental Checklist Form, of the CEQA Guidelines requires an evaluation of impacts to "any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service."

2.2.4 Porter-Cologne Water Quality Control Act

Pursuant to provisions of the Porter-Cologne Act, the RWQCBs regulate discharging waste, or proposing to discharge waste, within any region that could affect a water of the state (California Water Code Section 13260[a]). The State Water Resources Control Board defines a water of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050[e]). All waters of

the United States are waters of the state. Waters of the state include wetlands, and the State Water Resources Control Board definition of wetlands includes the following:

1. Natural wetlands.
2. Wetlands created by modification of a surface water of the state.
3. Artificial wetlands that meet any of the following criteria:
 - a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration.
 - b. Specifically identified in a water quality control plan as a wetland or other water of the state.
 - c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape.
 - d. Greater than or equal to 1 acre in size unless the artificial wetland was constructed and is currently used and maintained, primarily for one or more of the following purposes: industrial or municipal wastewater treatment or disposal; settling of sediment; detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial permitting program; treatment of surface waters; agricultural crop irrigation or stock watering; fire suppression; industrial processing or cooling water; active surface mining – even if the site is managed for interim wetlands functions and values; log storage; treatment, storage, or distribution of recycled water; maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or fields flooded for rice growing.

Wetlands that may not meet all of USACE’s wetland delineation criteria are considered wetland waters of the state if, “under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area’s vegetation is dominated by hydrophytes or the area lacks vegetation” (SWRCB 2019). Additionally, aquatic resources that USACE determines to not be waters of the United States because they lack a significant nexus to a traditional navigable water or are above the OHWM limit of federal jurisdiction, may also be considered waters of the state. If a CWA Section 404 permit is not required for a project, the RWQCB may still require a permit (waste discharge requirements) for impacts to waters of the state under the Porter–Cologne Act.

2.2.5 California Native Desert Plants Act

The purpose of the California Desert Native Plants Act (CDNPA) is to protect certain species of California desert native plants from unlawful harvesting on both public and privately owned lands. The CDNPA only applies within the boundaries of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego Counties. Within these counties, the CDNPA prohibits the harvest, transport, sale, or possession of specific native desert plants unless a person has a valid permit or wood receipt, and the required tags and seals. The appropriate permits, tags, and seals must be obtained from the sheriff or commissioner of the county where collecting will occur, and the county will charge a fee. More information on the CDNPA, including the species protected under the law, is available by reading the provisions of the law.

2.3 Local

2.3.1 San Bernardino County General Plan and Development Code

The San Bernardino County General Plan contains the goals and policies that guide future development within San Bernardino County (San Bernardino County 2007), and the Countywide Plan (County Policy Plan) was adopted in 2020 (San Bernardino County 2020). San Bernardino County is broken into three distinct geographic planning regions: the valley, the mountains, and the desert. The project site occurs within the Desert Planning Region of San Bernardino County. The Desert Planning Region has two goals and policies: (1) to preserve open lands by working with the Bureau of Land Management and (2) to ensure that off-highway-vehicle use is managed to protect environmentally sensitive resources.

The project would also need to comply with the San Bernardino County Development Code. The Development Code (San Bernardino County 2014) implements the goals and policies of the General Plan. Chapter 88.01.060, Desert Native Plant Protection, of the San Bernardino County Development Code is a subset of the Plant Protection and Management Code (Chapter 88.01 of the Development Code) and focuses on the conservation of specified desert plant species.

2.3.2 The Town of Apple Valley General Plan

The Town's Biological Resources Element (Town of Apple Valley 2009) contain goals and policies that address biological resources. The following goals and policies pertain to biological resources and are relevant to the project:

Goal 1. Establish a pattern of community development that supports a functional, productive, and balanced relationship between the manmade environment and the natural environment.

Policy 1.A. Habitat for endangered, threatened, and sensitive species shall continue to be protected and preserved as Open Space by the Town.

Policy 1.B. The Town shall promote the use of native vegetation for landscaping to enhance and create viable habitat for local species.

Policy 1.C. The Town shall continue to promote biodiversity by protecting natural communities with high habitat value, protecting habitat linkages to prevent further fragmentation, and encouraging an appreciation for the natural environment and biological resources.

Goal 2. The Town shall work with local, state, and regional agencies to protect, preserve, and manage biological resources, especially threatened, endangered, and sensitive plants and wildlife species and their habitats.

Policy 2.A. The Town shall coordinate with CDFG and USFWS when working on projects that are proposed to be located within or adjacent to linkage areas or special survey areas.

Policy 2.B. The Town shall support and cooperate with other agencies in establishing multiple use corridors that link open space areas through drainage channels and utility easements, thereby encouraging the connectivity of natural communities.

Policy 2.C. The Town shall work with CDFG and the USFWS to approve and implement a MSHCP for the Town and Sphere of Influence.

Policy 2.D. The Town shall work with CDFG and USFWS to ensure that state and federal protections required by the Migratory Bird Treaty Act addressed during the planning process.

Policy 2.E. The Town shall work with CDFG, RWQCB and ACOE to ensure that state and federal jurisdictional areas are properly identified.

2.3.3 Apple Valley Municipal Code – Chapter 9.76 – Plant Protection and Management Policy

Chapter 9.76 of the Apple Valley Municipal Code contains the Town’s Protected Plant Policies. This chapter establishes policies governing the removal of protected plants, including the following:

1. The following desert native plants with stems two inches or greater in diameter or six feet or greater in height:
 - a. *Dalea spinosa* (smoketree).
 - b. All species of the family *Agavaceae* (century plants, nolin, yuccas). Including the following known to Apple Valley:
 - i. Mohave Yucca (*Yucca schidigera*)
 - ii. Lords candle (*Yucca whipplei*)
 - iii. Barrel cactus (*Ferocactus acanthodes*)
 - c. All species of the genus *Prosopis* (mesquites).
2. Creosote rings, ten feet or greater in diameter.
3. All Joshua trees (mature and immature).
4. All plants protected or regulated by the California Desert Native Plants Act.

Additionally, Section 9.76.010 of the Apple Valley Municipal Code states the following:

Prior to the issuance of a native tree or plant removal permit in conjunction with a development permit and/or approval of a land use application which authorizes such removal, a plot plan shall be approved by the appropriate Town Review Authority (County Certified Plant Expert, Planning Commission or Town Council) for each site indicating exactly which trees or plants are authorized to be removed. The required information can be added to any other required plot plan.

Prior to issuance of development permits in areas with native trees or plants that are subject to the provisions of this Chapter, a pre-construction inspection shall be conducted by the appropriate authority.

2.3.3.1 Findings for Removals of Desert Native Plants

Per Apple Valley Municipal Code Section 9.76.010:

The Reviewing Authority shall authorize the removal of a native tree or plant subject to provisions of this Chapter only if the following findings are made:

- A. The removal of the native tree or plant does not have a significant adverse impact on any proposed mitigation measures, soil retention, soil erosion and sediment control measures, scenic routes, flood and surface water runoff and wildlife habitats.
- B. The removal of the native tree or plant is justified for one of the following reasons:
 - a. The location of the native tree (excluding Joshua Trees) or plant and/or its dripline interferes with the reasonable improvement of the site with an allowed structure, sewage disposal area, paved area or other approved improvement or ground disturbing activity. Also such improvements have been designed in such a manner as to save as many healthy native trees and/or plants as reasonably practicable in conjunction with the proposed improvements.
 - b. The location of the native tree or plant and/or its dripline interferes with the planned improvement of a street or development of an approved access to the subject or adjoining private property.
 - c. The location of the native tree or plant is hazardous to pedestrian or vehicular travel or safety as determined by the Town Engineer.
 - d. The native tree or plant or its presence interferes with or is causing extensive damage to utility services or facilities, roadways, sidewalks, curbs, gutters, pavement, sewer line(s), drainage or flood control improvements, foundations, existing structures, or municipal improvements.
 - e. The condition or location of the native plant or tree is adjacent to and in such close proximity to an existing structure that the native plant or tree has or will sustain significant damage.

2.3.3.2 Findings for Transplanting of Desert Native Plants

Per Apple Valley Municipal Code Section 9.76.010:

The Town Manager, or designee, or other Reviewing Authority, shall only authorize the transplanting of desert native plants ... subject to the provisions of this Chapter only if one or more of the following findings are made:

- 1. The desert native plants are to be transplanted in a manner approved by the Town Manager, or designee, or other Reviewing Authority, including any requirement for the issuance of plant tag seals and/or wood receipts.
- 2. The desert native plant is to be transplanted to another property within the same plant habitat under the supervision of a Desert Native Plant Expert and the removal of such plant will not adversely affect the desert environment on the subject site.
- 3. Any desert native plant on the site which is determined by the Town Manager, or designee, or other Reviewing Authority, as requiring transplanting has or will be transplanted or stockpiled for transplanting in accordance with methods approved by Town Manager, or designee. A

Desert Native Plant Expert shall supervise and manage any required transplanting of desert native plants.

2.3.3.3 Protection of Joshua Trees

As stated in Section 9.76.040, existing Joshua Trees shall not be:

disturbed, moved (transplanted or otherwise), removed or destroyed unless such disturbance, move, removal or destruction is first reviewed and approved by the Town of Apple Valley. The Town Manager, or designee, shall be responsible for review and approval of any request to disturb, move (transplant or otherwise), remove or destroy any existing Joshua Tree located on any property within any zoning district in the Town of Apple Valley. Forms for such review shall be available within the Planning Division.

Section 9.76.040 also states the following:

Anyone submitting an application to disturb, move, remove or destroy an existing Joshua Tree shall use all means necessary to retain and preserve such Tree(s) in its native (present) location in considering and presenting said Tree Disturbance application. This application shall take into consideration lot configuration, potential property development (buildable envelope), onsite circulation and all associated and related infrastructure needed to support construction within the buildable envelope. Further, persons submitting an application for a discretionary review or for any subdivision of land within the Town of Apple Valley upon which a Joshua Tree(s) is present, shall use all reasonable means available to retain and preserve the Tree(s) in its native (present) location in considering and presenting said application or subdivision request with regard to lot location and configuration, potential property development (buildable envelope), circulation system and all associated and related infrastructure.

2.3.3.4 Retention in Place of Joshua Trees

As stated in Section 9.76.040, “Joshua Tree(s) which conforms to the following [criteria] shall be preserved in place unless its removal, transplantation or destruction is approved as prescribed within this Section 9.76.040 of the Town of Apple Valley Municipal Code.” The criteria are as follows:

1. A Joshua Tree that is known, by historic record, including pictures or written description, to be at least forty (40) years old.
2. A Joshua Tree which has a width of at least fifteen (15) feet as measured from the furthest point of outstretched branches (measured parallel to the ground).
3. A Joshua Tree which is at least fifteen (15) feet in height as measured from the base of the trunk to the highest point of the Tree.
4. A Joshua Tree which has a trunk measuring at least twelve (12) inches in diameter as measured four (4) feet from the ground.

Joshua Trees that do not conform to the above criteria must be preserved but may be transplanted to another location on the same property or may be made available for adoption through the Town's Joshua Tree Preservation and Adoption Program.

Additionally, Section 9.76.040 states the following:

For any Joshua Tree(s) which conform to the criteria listed [above], for which the property owner/applicant has made a request for a Building Permit, application for a discretionary review or application for a subdivision of land within the Town of Apple Valley, said owner/applicant shall submit, as part of the application for approval, documentation of their best efforts to retain and preserve all Joshua Tree(s) within the limits of the development or subdivision in its native (present) location. Such documentation of best effort shall include how alternative lot configurations (including building envelopes on lots with existing Tree(s)), circulation, physical or environmental constraints of the site, allow no alternative subdivision configuration which would retain and preserve the Tree(s) in its native (present) location.

2.3.3.5 Transplanting of Joshua Trees

Section 9.76.040 states that a Desert Native Plant Expert (i.e., a California Agricultural Biologist, Registered Forester, International Society of Arboriculture [ISA] Certified Arborist, County-Certified Plant Expert, or others approved by the Town's Building Official) must supervise the initiation and completion of Town-approved transplanting of Joshua trees. Per Section 9.76.040:

Approval of such transplant must take into consideration the time of year, the plant's original and transplanted physical orientation, prevailing wind direction, soil type of the original and transplanted locations, and other related attributes which may affect the successful transplantation of the Joshua Tree(s) in question as determined by the Town and the retained Botanist.

Joshua Trees that are proposed to be removed shall be transplanted or stockpiled for future transplanting wherever possible. In the instance of stockpiling and/or transplanting the permittee has submitted and has had the approval of a Joshua Tree maintenance plan prepared by a Desert Native Plant Expert. This plan shall include a schedule for maintenance and a statement by the Desert Native Plant Expert that this maintenance plan and schedule will be implemented under his/her supervision. The schedule shall include the requirement that a maintenance report is required at the end of the project or at six (6) month intervals, evidence to the satisfaction of the Building Official that the Desert Native Plant Expert has supervised the scheduled maintenance to the extent that all transplanted and stockpiled plants have been maintained in such a manner to insure the highest practicable survival rate. In the event that this report is not satisfactory, a tree and plant replacement plan and implementation schedule prepared by a Desert Native Plant Expert may be required by the Building Official.

2.3.3.6 Findings for Removal of Joshua Trees

As stated in Section 9.76.040:

The Reviewing Authority shall authorize the removal of a Joshua Tree(s) subject to provisions of this Chapter only if the following findings are made:

1. The removal of the Joshua Tree(s) does not have a significant adverse impact on any proposed mitigation measures, soil retention, soil erosion and sediment control measures, scenic routes, flood and surface water runoff and wildlife habitats.
2. The removal of the Joshua Tree(s) is justified for one of the following reasons:
 - a. The location of the Joshua Tree(s) or its dripline interferes with the reasonable improvement of the site with an allowed structure, sewage disposal area, paved area or other approved improvement or ground disturbing activity as determined by the Town Manager, or designee. Also such improvements have been designed in such a manner as to save as many healthy native trees and/or plants as reasonably practicable in conjunction with the proposed improvements.
 - b. The location of the native tree or plant and/or its dripline interferes with the planned improvement of a street or development of an approved access to the subject to adjoining private property.
 - c. The location of the native tree or plant is hazardous to pedestrian or vehicular travel or safety as determined by the Town Engineer.
 - d. The native tree or plant, because of its presence, interferes with or is causing extensive damage to utility services or facilities, roadways, sidewalks, curbs, gutters, pavement, sewer line(s), drainage or flood control improvements, foundations, existing structures, or municipal improvements.
 - e. The condition or location of the native plant or tree is adjacent to and in such close proximity to an existing or proposed structure that the native plant or tree has or will sustain significant damage.

3 Methods

Data regarding biological resources present within the 149.6-acre biological survey area (BSA), which includes the project site and off-site improvement areas plus a 100-foot buffer, was obtained through review of pertinent literature, field reconnaissance, habitat assessments, and protocol/focused surveys, which are described in detail in this chapter. For purposes of this report, special-status resources are defined as follows:

- Special-status plant species include the following:
 - Species designated as either rare, threatened, or endangered by CDFW or USFWS and are protected under either CESA (California Fish and Game Code Section 2050 et seq.) or FESA (16 USC 1531 et seq.)
 - Species that are candidate species being considered or proposed for listing under FESA or CESA
 - Species that are included on the CDFW Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2022a), or species with a CRPR of 1 or 2 in the CNPS Inventory of Rare and Endangered Plants of California (CNPS 2022a)
 - Species protected under the CDNPA
- Special-status wildlife species include the following:
 - Species designated as either rare, threatened, or endangered by CDFW or USFWS and are protected under either CESA (California Fish and Game Code Section 2050 et seq.) or FESA (16 USC 1531 et seq.)
 - Species that are candidate species being considered or proposed for listing under FESA or CESA
 - Species that are included on the CDFW Special Animals List (CDFW 2022b)
 - Species designated by California Fish and Game Code Section 4000 as fur-bearing mammals
- Special-status vegetation communities are those designated as sensitive by CDFW

3.1 Literature Review

Prior to conducting a field assessment, a literature search and database review were conducted by Dudek biologists to evaluate the natural resources found or potentially occurring within the BSA. The database review included the most recent versions of the California Natural Diversity Database (CNDDDB), special-status species lists (CDFW 2022a, 2022b, 2022c), and the CNPS Inventory of Rare and Endangered Plants of California (CNPS 2022a). These databases were reviewed to identify sensitive biological resources present or potentially present for the U.S. Geological Survey 7.5-minute quadrangle on which the BSA is located (Apple Valley North) and the eight surrounding quadrangles (Helendale, Turtle Valley, Stoddard Well, Victorville, Fairview Valley, Hesperia, Apple Valley South, and Fifteenmile Valley). The CDFW occurrence data and critical habitat databases were queried using GIS software based on a 5-mile buffer around the BSA. Potential and/or historical drainages and aquatic features were investigated based on a review of U.S. Geological Survey topographic maps (1:24,000-scale), aerial photographs, the USFWS National Wetland Inventory database (USFWS 2022a), and the Natural Resource Conservation Service's Web Soil Survey (USDA 2022a).

3.2 Field Surveys

Dudek biologists Kim Narel and Sarah Greely conducted an initial reconnaissance-level field survey of the BSA to document biological resources and vegetation communities on June 3, 2022. On August 31, 2022, Dudek biologists conducted a subsequent biological reconnaissance survey within the project site, which included vegetation community and land cover mapping and desert native plant survey. An additional biological reconnaissance survey was conducted for the off-site improvement areas on January 17 and August 25, 2023. An aquatic resources jurisdictional delineation (Appendix A) was also conducted by Dudek biologists on August 31, 2022, and January 17 and August 25, 2023. The purpose of the aquatic resources jurisdictional delineation was to identify and map potential waters of the United States, including wetlands, under USACE jurisdiction pursuant to Section 404 of the federal CWA; under RWQCB jurisdiction pursuant to the Section 401 of the CWA and the Porter–Cologne Water Quality Control Act; and under CDFW jurisdiction pursuant to Section 1602 of the California Fish and Game Code. Additional field surveys included a focused rare plant survey, focused western Joshua tree (*Yucca brevifolia*) mapping survey (Appendix B), and protocol presence/absence surveys for Mojave desert tortoise (*Gopherus agassizii*) (Appendix C) and Mohave ground squirrel (*Xerospermophilus mohavensis*) (Appendix D).

Table 2 lists the dates, focus, scope, conditions, and personnel for each survey. Photos of the project site can be found in the specific survey reports.

Table 2. Survey Conditions

Date	Biologists	Type of Survey	Times	Weather Conditions
06/03/2022	K. Narel; S. Greely	Biological Reconnaissance Survey	8:10 a.m.–11:23 a.m.	72° F–84° F; 0%–60% cloud cover; 7–12 mph wind
04/2022– 07/2022 ¹	Dipodomys Ecological Consulting	Mohave Ground Squirrel Protocol Surveys	Varied ¹	Varied ¹
07/07/2022	K. Burritt; A. Castro	Western Joshua Tree Focused Survey	N.R.	N.R.
08/31/2022	C. Amoaku; A. Cassidy; B. Schultz	Biological Reconnaissance Survey; Desert Native Plant Survey; Aquatic Resources Delineation	6:25 a.m.–11:35 p.m.	72° F–98° F; 0% cloud cover; 1–2 mph wind
10/04/2022	S. Carey; S. Greely; O. Koziel	Mojave Desert Tortoise Protocol Survey	8:04 a.m.–1:45 p.m.	65° F–90° F; 0% cloud cover; 0–3 mph wind
10/20/2022	A. Castro; S. Tian	Western Joshua Tree Focused Survey	N.R.	N.R.
12/07/2022	A. Castro; S. Tian	Western Joshua Tree Focused Survey for Off-Site Improvement Areas	8:00 a.m.–9:00 a.m.	60° F; cloudy skies, winds N.R.
1/17/2023	B. Schultz; K. Dayton	Biological Reconnaissance Survey; Desert Native Plant Survey; Aquatic	9:02 a.m.–11:54 a.m.	40° F–45° F; 0%–10% cloud cover; 2–15 mph wind

Table 2. Survey Conditions

Date	Biologists	Type of Survey	Times	Weather Conditions
		Resources Delineation for Off-Site Improvement Areas		
1/17/2023	E. Salas; S. Carey	Mojave Desert Tortoise Protocol Survey for Off-Site Improvement Areas	8:45 a.m.–1:15 p.m.	38°F–48°F; 0% cloud cover; 5–10 mph wind
1/29/2023	Dipodomys Ecological Consulting	Mohave Ground Squirrel Habitat Assessment for Off-Site Improvement Areas	N.R.	N.R.
4/19/2023	K. Dayton; Z. Pringle	Rare Plant Survey	9:05 a.m.–4:58 p.m.	48°F–65°F; 0–10% cloud cover; 0–10 mph wind
4/21/2023	K. Dayton	Rare Plant Survey	11:37 a.m.–3:56 p.m.	72°F–80°F; 0% cloud cover; 0 mph wind
8/25/2023	E. Salas	Biological Reconnaissance Survey; Vegetation Mapping; Desert Native Plant Survey; Aquatic Resources Delineation Desert Tortoise Protocol Presence/Absence Survey for Off-Site Improvement Area ²	10:20 a.m.–11:50 a.m.	82°F–88°F; 0% cloud cover; 0 mph wind
8/25/2023	Dipodomys Ecological Consulting	Mohave Ground Squirrel Habitat Assessment for Off-Site Improvement Area ²	N.R.	N.R.

Notes: mph = miles per hour; N.R. = not recorded.

¹ Survey conditions for the Mohave ground squirrel protocol surveys are provided in Appendix D.

² Off-site Improvement Area located southeast of the intersection of Lafayette Street and Central Road.

3.2.1 Vegetation Community and Land Cover Mapping

Dudek biologists conducted vegetation mapping within the BSA on June 3 and August 31, 2022, and January 17 and August 25, 2023. The survey date, biologists, and weather conditions are included in Table 2. Dudek biologists used CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2018) and California Natural Communities List (CDFW 2022d), also referred to as the Natural Communities List, based on A Manual of California Vegetation, Online Edition (CNPS 2022b), to map the entire BSA. These classification systems focus on a quantified, hierarchical approach that includes both floristic (plant species) and physiognomic (community structure and form) factors as currently observed (as opposed to predicting climax or successional stages). Vegetation communities and land covers were delineated to the vegetation alliance level

and, where appropriate, the association level. Some modifications, such as the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986; Oberbauer et al. 2008), were incorporated to accommodate the lack of conformity of the observed communities to those included in these references.

Vegetation mapping was conducted on foot to visually cover 100% of the BSA. Vegetation communities and land cover types were mapped in the field using an Esri ArcGIS mobile application. Vegetation communities were classified based on site factors, descriptions, distribution, and characteristic species present within an area. Information was recorded, including dominant species and associated cover classes, aspect, canopy height, and visible disturbance factors.

Minimum mapping units were established to standardize the scale and appropriate evaluation of stands, as recommended by CDFW (2020b). Mapping standards call for a minimum mapping unit of not greater than 10 acres for upland natural communities not considered sensitive, but usually 1 or 2 acres, and 0.25 acres for sensitive vegetation communities and wetland or riparian vegetation communities. Visible disturbance factors were also noted during vegetation mapping.

Following completion of the fieldwork, Dudek GIS analysts digitized the vegetation boundaries as delineated by the field biologists and created a GIS coverage for vegetation communities.

3.2.2 Flora

Latin and common names for plant species with a CRPR follow the CNPS Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2022a). For plant species without a CRPR, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2022), and common names follow the California Natural Communities list (CDFW 2022d) or the U.S. Department of Agriculture's Natural Resources Conservation Service PLANTS Database (USDA 2022b). Plant species observed within the BSA are provided in Appendix E, Plant Compendium.

3.2.3 Fauna

All wildlife species detected during the field surveys by sight, vocalizations, burrows, tracks, scat, or other signs were recorded. The site was visually scanned with and without binoculars to identify wildlife. Latin and common names of animals follow Crother (2017) for reptiles and amphibians, American Ornithological Society (AOS 2018) for birds, and Wilson and Reeder (2005) for mammals. Wildlife species observed within the BSA are provided in Appendix F, Wildlife Compendium.

3.2.4 Special-Status and Regulated Resources

3.2.4.1 Special-Status Plant Survey

Based on the results of the literature review discussed in Section 3.1, three special-status plant species were determined to have a moderate potential to occur within the BSA based on known species distribution, species-specific habitat preferences, and habitat conditions on site: Mojave monkeyflower (*Diplacus mohavensis*), beaver dam breadroot (*Pediomelum castoreum*), and western Joshua tree. Therefore, focused surveys were

conducted for these target species.² In addition, desert native plants, in accordance with the California Desert Native Plants Act and Chapter 16.24 of the Hesperia Municipal Code, were also considered target species.

Dudek conducted a focused special-status plant survey within the BSA on April 19 and 21, 2023. The survey dates and biologists are included in Table 2. Field survey methods and mapping of rare plants conformed to California Native Plant Society Botanical Survey Guidelines (CNPS 2001), Protocols for Surveying and Evaluating Impacts to Special-Status Native Populations and Natural Communities (CDFW 2018), and General Rare Plant Survey Guidelines (Cypher 2002). The surveys consisted of one survey pass in April that provided 100% coverage of the BSA. Western Joshua tree mapping within the BSA was conducted during a separate focused survey and is further discussed in Section 3.2.4.2, Western Joshua Tree Focused Survey.

Before conducting the surveys, Dudek botanists conducted a literature search on reference population checks to ensure the focal special-status plant species were in bloom and identifiable. Mojave monkeyflower and beaver dam breadroot were observed in San Bernardino County in April 2023 (iNaturalist 2023). Furthermore, the average annual precipitation for Apple Valley is 5.17 inches (WRCC 2022b) and Apple Valley received approximately 5.20 inches of precipitation from September 2022 to February 2023 (AgACIS 2023); therefore, the area received average to above average precipitation totals for the rain year thus far.

3.2.4.2 Western Joshua Tree Focused Survey

The California Fish and Game Commission determined that listing western Joshua tree as threatened or endangered under CESA may be warranted and is currently under review. During the status review, western Joshua tree is protected under CESA as a candidate species.

Per CDFW and the Town's Plant Protection and Management policy, Dudek's Certified Arborists performed a western Joshua tree survey to inventory and evaluate the health and relocation potential for each western Joshua tree on the project site, in the off-site improvement areas, and in a 186-foot buffer (Joshua tree inventory survey area). The western Joshua tree inventory and evaluation survey methods are provided in Appendix B. The inventory was conducted by Certified Arborists (Table 2). During the inventory, the GPS position of each western Joshua tree found in the Joshua tree inventory survey area was recorded. Furthermore, the following attributes of each tree were collected:

- Species
- Diameter at standard height (4.5 feet above ground level)
- Height (feet)
- Spread (feet)

² Focused surveys were not conducted for the Off-Site Improvements Area southeast of the Lafayette Street and Central Road intersection. A habitat assessment was conducted for this Off-Site Improvements Area on August 25, 2023, and the three special-status plant species were determined to have a low potential to occur; therefore, focused surveys were not warranted.

- Health (excellent, good, fair, poor, critical, and dead)³
- Number of branches
- Clonal status (clone or single trunk)

In addition to the general western Joshua tree attributes that were collected, per CDFW, Dudek arborists collected the following phenological data for each western Joshua tree found on site:

- Number of panicles
- New growth
- Leaves
- Flowers
- Open flowers
- Presence of fruit

All inventoried and assessed protected trees were tagged with an aluminum tag bearing a unique identification number that was placed on the main trunk on the north side of each western Joshua tree. Tagging on the north side allows for proper orientation during relocation (each relocated western Joshua tree needs to be oriented in the same direction as it was in its original location).

3.2.4.3 Desert Native Plant Survey

On June 3 and August 31, 2022, and January 17 and August 25, 2023, desert native plant surveys were conducted within the BSA in accordance with the CDNPA and Chapter 9.76 of the Town of Apple Valley Municipal Code. The survey dates, biologists, and weather conditions are included in Table 2. All of the desert native plant target species are conspicuous shrubs that would have been identifiable during the survey.

In accordance with the Town of Apple Valley Municipal Code, Chapter 9.76, the following desert native plants were considered target species:

1. The following desert native plants with stems 2 inches or greater in diameter or 6 feet or greater in height:
 - a. Smoke tree
 - b. All species of the family Agavaceae (century plants, nolina, yuccas, cacti). Including the following known to Apple Valley:
 - i. Mojave yucca

³ **Health Rating Descriptions:**

Excellent. Tree has excellent health and strong vigor. No damage. Flowering and fruiting expected. Typically, only given to large, high-quality specimens (taller than 15 feet in height). Transplanting generally not recommended due to size.

Good. Tree has good health and vigor. All branches are alive and healthy. Damage is very localized and minimal. Flowering and fruiting likely, if tree is large enough. Tree is transplantable. **Fair.** Tree health is average. Some stressors or damage possible, but any damage is minimal to moderate (e.g., rodent grazing, insect damage). No dead/broken branches. Tree is transplantable.

Poor. Tree is under stress, and overall health is in decline, or tree has taken significant damage. Mortality likely unless stressors relieved and/or conditions change. Broken/dead limbs likely present. Tree is generally not transplantable.

Critical. Tree is in extreme decline. One or more branches dead. One or more branches dying. Physical damage likely present. Damage is significant and extensive. Mortality expected within 2 to 4 years. Tree is not transplantable.

Dead. Tree is dead.

- ii. Lord's candle
- iii. Barrel cactus
- c. All species of the genus *Prosopis* (mesquites)
- 2. Creosote rings, 10 feet or greater in diameter
- 3. All Joshua trees (mature and immature)

In accordance with the CDNPA, Chapter 3, the following desert native plants were considered target species:

- A. All species of the family Agavaceae (century plants, nolinias, yuccas).
- B. All species of the family Cactaceae (cacti), except for the plants listed in subdivisions (b) and (c) of Section 80072 which may be harvested under a permit obtained pursuant to that section.
- C. All species of the family Fouquieriaceae (ocotillo, candlewood).
- D. All species of the genus *Prosopis* (mesquites).
- E. All species of the genus *Cercidium* (palos verdes).
- F. *Acacia greggii* (catclaw).
- G. *Atriplex hymenelytra* (desert-holly).
- H. *Dalea spinosa* (smoke tree).
- I. *Olneya tesota* (desert ironwood), including both dead and live desert ironwood.

3.2.4.4 Desert Tortoise Protocol-Level Survey

On April 2, 1990, the Mojave population of the desert tortoise was listed by USFWS as threatened (55 FR 12178-12191). Proposed actions within the range of the desert tortoise fall under purview of FESA. Because the project lies within the range for desert tortoise (CDFW 2022c) and in the Western Recovery Unit (USFWS 2011), Dudek conducted focused surveys for desert tortoise to determine the status of the species on site. To evaluate the impacts to desert tortoise, protocol surveys were conducted in accordance with the Pre-Project Field Survey Protocol for Potential Desert Tortoise Habitats section included in Preparing for Any Action That May Occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*) (USFWS 2010). Following the small project survey protocol, Dudek biologists conducted surveys within the project site in October 2022 and the off-site improvement areas in January and August 2023. Biologists surveyed these areas by walking approximately 10-meter-wide transects for 100% coverage of the BSA.

3.2.4.5 Mohave Ground Squirrel Habitat Assessment and Protocol Survey

Dipodomys Ecological Consulting biologists conducted an initial visual survey for Mohave ground squirrel within the project site in April 2022. The visual survey was conducted by driving and walking throughout the project site to identify suitable habitat for Mohave ground squirrel, which is consistent with the methods described within the 2010 California Department of Fish and Wildlife Mohave Ground Squirrel Survey Guidelines (CDFW 2010). Field methods are described in detail in Appendix D. Following an initial visual survey, three 5-day live trapping surveys for Mohave ground squirrel were conducted between April 27 and July 2 within the project site.⁴ The methods used

⁴ Dipodomys Ecological Consulting conducted live trapping and camera stations across two 100-trap 10x10 survey grides, referred to as the northern and southern project parcels. The southern project parcel contains the 1M Warehouse Project, and, therefore, only the methods and results of the southern project parcel are included herein.

for this trapping effort followed the most recent CDFW Mohave Ground Squirrel Survey Guidelines issued in 2010 (CDFW 2010). Camera trappings consisted of five camera stations in locations designated by CDFW, and methods are described in detail in Appendix D.

Protocol surveys were not conducted for the off-site improvement areas; however, Dipodomys Ecological Consulting biologists conducted a habitat assessment for Mohave ground squirrel on January 29 and August 25, 2023. Methods are described in detail in Appendix D.

3.2.4.6 Aquatic Resources Delineation

Before conducting fieldwork for the aquatic resources delineation, Dudek reviewed aerial maps from (1) the National Wetlands Inventory (USFWS 2022a), (2) the National Hydrography database (USGS 2022), (3) the Natural Resource Conservation Service (USDA 2022a), and (4) historic aerials and topographic maps (Google 2022; Historic Aerials Online 2022). Dudek biologists conducted an aquatic resources delineation on August 31, 2022, and January 17 and August 25, 2023. The survey dates, biologist, and weather conditions are included in Table 2. Survey datasheets and forms are included in the aquatic resources delineation report provided in Appendix A. The surveys were conducted on foot to visually cover 100% of the BSA.

Dudek conducted a delineation of state and federal jurisdictional waters and wetlands within the BSA in accordance with current policies. Federal wetlands were mapped based on the procedures in USACE's 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and its 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a). Non-wetland waters were mapped at the OHWM based on the procedures defined in USACE's 2008 A Field Guide to Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008b). Waters of the state were mapped in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (SWRCB 2019). CDFW jurisdictional areas were mapped to include the bank of the stream/channel and outer dipline of adjacent riparian vegetation, as set forth under California Fish and Game Code Section 1602.

To aid in the delineation and in conformance with the USACE 2008 Field Guide, OHWM datasheets (T-1 through T-18) were recorded at potential non-wetland waters within the BSA to determine the OHWM indicators within those features. OHWM datasheets are included in Appendix A. The jurisdictional delineation did not contain any features that met the State Water Resources Control Board wetland criteria, and due to the lack of hydrophytic vegetation and hydric soils, wetland determination data forms were not completed.

The limits of aquatic resources were collected in the field using a Trimble GeoXT GPS unit or Esri Collector mobile application with submeter accuracy. The geographic extents were digitized in a GIS based on the GPS data and data collected directly onto field maps into a project-specific GIS using ArcGIS software.

3.2.5 Survey Limitations

Limitations of the surveys include a diurnal bias and the absence of trapping for reptiles, amphibians, and small mammals at night. The surveys were conducted during the daytime to maximize the detection of most wildlife. Most birds are active in the daytime, so diurnal surveys maximize the number of bird observations. Conversely, diurnal surveys usually result in few observations of mammals, many of which may only be active at night. In addition, many species of reptiles and amphibians are secretive in their habits and are difficult to observe using standard meandering transects.

4 Environmental Setting

The purpose of this section is to describe the general existing conditions within and adjacent to the BSA to document the baseline conditions for this report and subsequent analysis.

4.1 Climate

The BSA is in the Victor Valley region in western San Bernardino County. The average annual temperature was not available for Apple Valley; however, annual temperatures in Victorville range from 44°F to 78°F (WRCC 2022a). The average annual precipitation for Apple Valley is 5.17 inches (WRCC 2022b). Periods of extended drought are common throughout the region.

4.2 Geology and Topography

The BSA is within the Mojave Desert. The Town of Apple Valley is primarily on alluvial slopes of the Mojave River floodplain, at the southern edge of the Mojave Desert. The topography gradually inclines toward the Juniper Flats foothills of the San Bernardino Mountains to the south, as well as to the scattered knolls and mountains to the north and east of the Town of Apple Valley. Turtle and Black Mountains are to the north, Fairview Mountain is to the northeast, and the Granite Mountains are to the southeast.

The on-site BSA is composed of undeveloped vacant lands. The off-site improvement areas include dirt and paved roadways (specifically Johnson Road, Central Road, and Lafayette Street), as well as undeveloped vacant lands immediately adjacent to these roadways. Topography within the BSA is a flat plane, with areas to the southwest containing hills that border the northwest corner of the Town of Apple Valley. Elevation ranges from approximately 3,130 feet above mean sea level (amsl) in the southeastern portion of the BSA to 3,170 feet amsl in the northwestern portion of the BSA. Adjacent land uses include undeveloped land and a small existing structure to the north, undeveloped land and a small existing residential to the west, Apple Valley Fire Center to the south, and undeveloped land to the east.

4.3 Soils

According to the U.S. Department of Agriculture's Natural Resource Conservation Service's Web Soil Survey (USDA 2022a), the BSA consists of two soil complexes: Cajon-Arizo complex (2% to 15% slopes) and Helendale-Bryman loamy sands (2% to 5% slopes). These soil types are described in more detail below and are presented in Figure 3, Soils.

Cajon Series consists of very deep, somewhat excessively drained soils that formed in sandy alluvium from dominantly granitic rocks. The Cajon soils are on recent fans and river terraces at elevations of 200 to 4,300 feet amsl. Cajons soils with sandy loam surface textures have moderately rapid to rapid permeability. Creosote bush (*Larrea tridentata*), saltbush (*Atriplex* sp.), western Joshua trees, and annual grasses and forbs are common vegetation found on these soils (USDA 2022a).

Arizo Series consists of very deep, excessively drained soils that formed in mixed alluvium. Arizo soils are on recent alluvial fans, inset fans, fan apron, fan skirts, stream terraces, and floodplains of intermittent streams and channels. This series is typically found at elevations of 750 to 4,600 feet amsl. Creosote bush and white bursage (*Ambrosia dumosa*) are common vegetation found on these soils (USDA 2022a).

Helendale Series consists of very deep, well-drained soils that formed in alluvium from granitoid rocks. These soils are found on fan piedmonts, fan remnants, and alluvial fans and terraces at elevations ranging from 2,000 to 3,935 feet amsl. Creosote bush, white bursage, Nevada joint fir (*Ephedra nevadensis*), western Joshua trees, and annual forbs and grasses are common vegetation found on these soils (USDA 2022a).

Bryman Series consist of deep, well-drained soils that formed in alluvium from dominantly granitic sources. Bryman soils occur on terraces and older alluvial fans with gradients ranging from 0% to 15%. These soils are found in arid climates at elevations ranging from 2,800 to 3,800 feet amsl. Vegetation associated with these soils includes creosote bush, white bursage, Nevada joint fir, western Joshua trees, and annual forbs and grasses (USDA 2022a).

4.4 Surrounding Land Uses

The BSA consists of primarily vacant, undeveloped land. The BSA has had multiple dirt roads running through it since the mid-1990s that appeared to continue to experience frequent use at the time of the 2022/2023 site visits. The BSA is bordered to the south by the Apple Valley Fire Center and to the east by another parcel that consists primarily of vacant land with a few scattered residential uses. Land uses surrounding the BSA consist of vacant land and relatively small developments. Specific land uses in the immediate vicinity include the following:

- **North:** Johnson Road and vacant land
- **East:** Sycamore Lane and primarily vacant land with a few residential uses
- **South:** Lafayette Street and the Apple Valley Fire Center
- **West:** Central Road and vacant land

In the broader BSA vicinity, development includes commercial uses, warehouse/industrial buildings, and the Apple Valley Airport.

4.5 Watersheds and Hydrology

The BSA occurs within the southwestern portion of the Mojave River subbasin, Hydrologic Unit Code 18090208 (Figure 4, Hydrologic Setting). The Mojave River subbasin comprises approximately 4,500 square miles and is entirely within San Bernardino County. The primary geographic and surface hydrologic feature of the watershed is the Mojave River, which flows north for approximately 120 miles until it reaches Silver Dry Lake near the community of Baker. Some reaches of the Mojave River flow underground in the confined riverbed channel. The Mojave River is approximately 8 miles southeast of the BSA; however, no drainages within the BSA flow to the Mojave River.

The BSA occurs within the central portion of the Apple Pond–Apple Valley Dry Lake subwatershed (Hydrologic Unit Code 180902080304) of the Apple Valley Dry Lake watershed (Hydrologic Unit Code 1809020803). The Apple Valley Dry Lake Watershed comprises approximately 126 square miles (80,640 acres) and is in the Town of Apple Valley, in the high desert part of southwestern San Bernardino County, approximately 6 miles east of Victorville and 30 miles north of San Bernardino. The dry lake occupies the lowest part of a closed, desert basin floor. Runoff originates in the mountains surrounding the valley, but little water reaches the lake bed, and runoff that does reach it originates in the northern half of the basin. The streams in the valley are all ephemeral, carrying water only during and immediately after a storm. Most of the channels are only defined for approximately 1 mile after they leave the mountains, whereupon they become braided and ill-defined, and typically dissipate (Busby 1975).

5 Results

This section describes the results of the literature review, field surveys, and habitat assessments within the BSA.

5.1 Vegetation Communities and Land Covers

Six vegetation communities or land cover types were mapped within the BSA (Table 3). The spatial distribution of the vegetation communities and land covers are presented in Figure 5, Biological Resources.

State rankings of 1, 2, or 3 are considered high priority for inventory or special status and impacts to these communities typically require mitigation. There are no vegetation communities considered sensitive biological resources by CDFW under CEQA (CDFW 2022d).

Table 3. Existing Vegetation Communities, Floristic Alliances and Associations, and Land Cover Types within the Biological Survey Area

Floristic Alliance	Association	Vegetation Community ¹	State Ranking ²	Project Site (acres)	Off-Site Improvement Areas (acres)	100-Foot Buffer (acres)	Total BSA (acres) ³
Scrub							
<i>Larrea tridentata</i>	<i>Larrea tridentata</i>	Creosote bush scrub	S5	65.0	14.3	48.2	127.5
<i>Larrea tridentata</i> - <i>Ambrosia dumosa</i>	N/A	Creosote bush-white bursage scrub	S5	—	0.1	1.0	1.1
<i>Ericameria nauseosa</i>	<i>Ericameria nauseosa</i>	Rubber rabbitbrush scrub	S5	—	—	0.4	0.4
Unvegetated Land Covers							
N/A	N/A	Unvegetated wash and river bottom	N/A	0.5	0.1	0.3	0.9
Disturbed and Developed							
N/A	N/A	Disturbed habitat	N/A	1.9	6.3	3.6	11.8
N/A	N/A	Urban/developed	N/A	—	3.9	4.0	7.8
Total²			—	67.3	24.7	57.6	149.6

Notes:

BSA = biological survey area; N/A = not applicable.

¹ The spatial distribution of the vegetation communities and land covers are presented in Figure 5, Biological Resources.

² The conservation status of a vegetation community is designated by a number from 1 to 5, preceded by a letter reflecting the appropriate geographic scale of the assessment (G = global, N = national, and S = subnational). The numbers have the following meaning (NatureServe 2022):

1 = critically imperiled

2 = imperiled

3 = vulnerable to extirpation or extinction

4 = apparently secure

5 = demonstrably widespread, abundant, and secure

GNR = unranked, global rank not yet assessed

SNR = unranked, subnational rank not yet assessed

³ Total acreages may not sum exactly due to rounding.

5.1.1 Creosote Bush Scrub

Creosote bush scrub, or *Larrea tridentata* association, is recognized by the Natural Communities List, and the communities include creosote bush (*Larrea tridentata*) as the dominant shrub, exceeding all other shrubs in cover, and if white bursage or brittlebush (*Encelia farinosa*) are present, their cover is less than three times the cover of creosote bush, or if white bursage is present, it is less than two times the cover of creosote bush. Creosote bush scrub occurs on alluvial fans, bajadas, upland slopes, and minor intermittent washes in soils that are well drained and sometimes with desert pavement (CNPS 2022b).

Creosote bush scrub composes the majority of the BSA. Creosote is the dominant shrub species, with a lower cover of white bursage, cheesebush (*Ambrosia salsola*), rubber rabbitbrush (*Ericameria nauseosa*), Wiggins' cholla (*Cylindropuntia echinocarpa*), branched pencil cholla (*Cylindropuntia ramosissima*), and allscale (*Atriplex polycarpa*). Areas surrounding ephemeral, unvegetated channels consisted of a higher diversity of species that included a low cover of creosote bush and also a mix of Mojave indigobush (*Psoralethamnus arborescens*), Mexican bladdersage (*Scutellaria mexicana*), Thurber's sandpaper plant (*Petalonyx thurberi*), desert almond (*Prunus fasciculata*), and turpentinebroom (*Thamnosma montana*). Additionally, western Joshua trees were scattered throughout the creosote bush scrub community within the BSA; however, western Joshua trees made up less than 1% absolute cover and therefore did not warrant its own community.

Creosote bush scrub is ranked as S5 and is therefore not considered a sensitive biological resource by CDFW under CEQA (CDFW 2022d).

5.1.2 Creosote Bush-White Bursage Scrub

Creosote bush-white bursage scrub, or *Larrea tridentata*-*Ambrosia dumosa* alliance, is recognized by the Natural Communities List as an alliance in which white bursage and creosote bush are co-dominant in the shrub canopy, exceeding all other shrubs in cover with the exception of the following species: goldenhead (*Acamptopappus sphaerocephalus*), sweetbush (*Bebbia juncea*), buck horn cholla (*Cylindropuntia acanthocarpa*), Nevada ephedra (*Ephedra nevadensis*), green rabbitbush (*Ericameria teretifolia*), or rhatany (*Krameria* spp.). These species may have higher cover than white bursage or creosote bush, but by no more than three times. This alliance occurs in washes and rills, on alluvial fans, bajadas, valleys, basins, upland slopes, mesas, and erosional highlands in soils that are well drained, alluvial, and sometimes underlain by hardpan or covered with desert pavement (CNPS 2022b).

Creosote bush-white bursage scrub occurs in one patch of the BSA along the western portion of Lafayette Street. Creosote bush and white bursage are the dominant shrub species, with a lower cover of cheesebush, Mexican bladdersage, and Thurber's sandpaper plant.

Creosote bush-white bursage alliance is ranked as S5 and is therefore not considered a sensitive biological resource by CDFW under CEQA (CDFW 2022d).

5.1.3 Rubber Rabbit Brush Scrub

Rubber rabbitbrush scrub, or *Ericameria nauseosa* shrubland association, is recognized by the Natural Communities List. The community includes rubber rabbitbrush as the dominant or co-dominant species in the shrub canopy, with a sparse or grassy herbaceous layer (CNPS 2022b). Rubber rabbitbrush scrub has an open to continuous shrub canopy of less than 3 meters (9 feet) in height (CNPS 2022b). This alliance consists of at least 2% absolute cover of rubber rabbitbrush or more than 25% relative cover in the shrub canopy (CNPS 2022b).

Rubber rabbitbrush scrub occurs along Central Road, south of Lafayette Street, within the off-site BSA and is dominated by rubber rabbitbrush, with a herbaceous cover comprised of bromes (*Bromus* sp.).

The rubber rabbitbrush scrub alliance is ranked as S5 and therefore is not considered a sensitive biological resource by CDFW under CEQA (CDFW 2022d).

5.1.4 Unvegetated Wash and River Bottom

Unvegetated wash and river bottom is not recognized by CDFW (2022d); however, unvegetated wash and river bottom may be jurisdictional by USACE pursuant to Section 404 of the CWA, RWQCB pursuant to Section 401 of the CWA or Porter–Cologne Act, or CDFW pursuant to Section 1602 of the California Fish and Game Code. Thus, unvegetated wash and river bottom may be considered a sensitive vegetation community under CEQA.

Unvegetated wash and river bottom within the BSA contained ephemeral, unvegetated channels.

5.1.5 Disturbed Habitat

Although not recognized by the Natural Communities List (CDFW 2022d), disturbed habitat refers to areas that have had physical anthropogenic disturbance and, as a result, cannot be identified as a native or naturalized vegetation association. However, these areas do have a recognizable soil substrate. If vegetation is present, it is almost entirely composed of non-native vegetation, such as ornamentals or ruderal exotic species. Disturbed habitat is not considered a sensitive biological resource by CDFW under CEQA (CDFW 2022d).

Within the BSA, disturbed habitat includes the existing dirt roads found within the site that generally bisect the site east/west and north/south.

5.1.6 Urban/Developed Land

Not recognized by the Natural Communities List (CDFW 2022d), urban/developed land represents areas that have been constructed upon or otherwise physically altered to an extent that native vegetation communities are not supported. This land cover type generally consists of semi-permanent structures, homes, parking lots, pavement or hardscape, and landscaped areas that require maintenance and irrigation (e.g., ornamental greenbelts). Typically, this land cover type is unvegetated or supports a variety of ornamental plants and landscaping.

Within the BSA, urban/developed land consists of one paved road, Central Road running north/south along the western boundary of the BSA, and one structure located northwest of Central Road and Johnson Road that includes associated ornamental landscaping composed of oleander (*Nerium oleander*).

Urban/developed land is not considered a sensitive biological resource by CDFW under CEQA (CDFW 2022d).

5.2 Plants and Wildlife Observed

5.2.1 Plants

A total of 102 species of native or naturalized plants, 84 native (88%) and 12 non-native (12%), were recorded within the BSA. Dudek biologists recorded 96 species and Dipodomys Ecological Consulting biologists observed an additional 6 species of native or naturalized plants.⁵ A list of plant species observed is provided in Appendix E.

5.2.2 Wildlife

A total of 38 wildlife species, consisting of 35 native species (92%) and 3 non-native species (8%), were recorded within the BSA or vicinity during surveys (Appendix F).

Dudek biologists recorded 21 wildlife species. Birds detected on or in the immediate vicinity of the BSA were house finch (*Haemorhous mexicanus*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), Anna's hummingbird (*Calypte anna*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), mourning dove (*Zenaidura macroura*), verdin (*Auriparus flaviceps*), black-throated sparrow (*Amphispiza bilineata*), mountain bluebird (*Sialia currucoides*), rock wren (*Salpinctes obsoletus*), yellow-rumped warbler (*Setophaga coronata*), and burrowing owl (*Athene cunicularia*). Mammals detected consisted of white-tailed antelope squirrel (*Ammospermophilus leucurus*) and California ground squirrel (*Otospermophilus beecheyi*). Reptiles detected were common side-blotched lizard (*Uta stansburiana*), tiger whiptail (*Aspidoscelis tigris*), desert iguana (*Dipsosaurus dorsalis*), and Mojave shovel-nosed snake (*Chionactis occipitalis*). Invertebrates detected consisted of anise swallowtail (*Papilio zelicaon*).

Dipodomys Ecological Consulting biologists observed 17 additional species consisting of 8 birds: ash-throated flycatcher (*Myiarchus cinerascens*), barn swallow (*Hirundo rustica*), black-tailed gnatcatcher (*Polioptila melanura*), European starling (*Sturnus vulgaris*), horned lark (*Eremophila alpestris*), house sparrow (*Passer domesticus*), LeConte's thrasher (*Toxostoma lecontei*), and red-tailed hawk (*Buteo jamaicensis*); 6 mammals: black-tailed jackrabbit (*Lepus californicus*), coyote (*Lepus californicus*), , desert kit fox (*Vulpes macrotis arsipus*), little pocket mouse (*Perognathus longimembris*), kangaroo rat (*Dipodomys* sp.), and domestic dog (*Canis familiaris*); and 3 reptiles: long-nosed leopard lizard (*Gambelia wislizenii*), Mohave rattlesnake (*Crotalus scutulatus*), and desert horned lizard (*Phrynosoma platyrhinos*) (Appendix F).

5.3 Special-Status and Regulated Resources

Appendix G, Special-Status Plant Species Potentially Occurring within the Biological Survey Area, and Appendix H, Special-Status Wildlife Species Potentially Occurring within the Biological Survey Area, provide tables of all special-status species whose geographic ranges fall within the general BSA vicinity. Special-status species' potential to occur within the BSA were evaluated based on known species distribution, species-specific habitat preferences, and Dudek biologists' knowledge of regional biological resources. Species potentially occurring within the BSA are

⁵ Dipodomys Ecological Consulting observed Mojave yucca (*Yucca schidigera*); however, this conspicuous succulent was not observed by Dudek during the 2022 desert native plant mapping. It is assumed that this species was observed during the Mohave ground squirrel trapping conducted in the northern parcel and located outside of the project site.

identified as having moderate or high potential to occur based on habitat conditions on site, and species for which there is little or no suitable habitat are identified as not expected to occur or having low potential to occur.

5.3.1 Special-Status Plants

Special-status plants include those listed, or candidates for listing, as threatened or endangered by USFWS and CDFW, and species identified as rare by CNPS (particularly CRPR 1A, presumed extinct in California; CRPR 1B, rare, threatened, or endangered throughout its range; and CRPR 2, rare or endangered in California, more common elsewhere).

Dudek biologists performed an extensive desktop review of literature, existing documentation, and GIS data to evaluate the potential for special-status plant species to occur within the BSA. Each special-status plant species was assigned a rating of “not expected,” “low,” “moderate,” or “high” potential to occur based on relative location to known occurrences, vegetation community, soil, and elevation, the results of which are provided Appendix G. Based on the results of the literature review and database searches, three special-status plant species—Mojave monkeyflower, beaver dam breadroot, and western Joshua tree—were found to have a moderate or high potential to occur within the BSA and were subject to focused surveys.⁶

One special-status plant species, western Joshua tree, was observed within the BSA. Western Joshua tree is further discussed in Section 5.3.2; it is a state candidate for listing. No other listed species or non-listed CRPR 1 or CRPR 2 plants were observed during the focused surveys. Due to focused surveys being conducted during the appropriate blooming period, all other special-status plants are not expected to occur. In addition, there is no USFWS-designated critical habitat for listed plant species overlapping the BSA (USFWS 2022b).

Details about the western Joshua tree are provided in Table 4.

Table 4. Special-Status Plant Species Observed or with Moderate or High Potential to Occur within the Biological Survey Area

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations / Life Form / Blooming Period / Elevation Range (feet)	Potential to Occur
<i>Yucca brevifolia</i>	Western Joshua tree	None/SC/None	Great Basin grassland, Great Basin scrub, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland, Sonoran desert scrub, valley and foothill grassland/perennial leaf succulent/Apr–May/1,310–6,560	Observed. Eight western Joshua tree individuals were observed within the BSA (Figure 5). Of the seven trees found within the BSA, only one individual was observed within the project site; the remaining seven individuals were observed within the 186-foot Joshua tree inventory survey area.

Notes:

BSA = biological survey area; CRPR = California Rare Plant Rank; CNDDB = California Natural Diversity Database

Status Designations

SC: State listed candidate species

⁶ Focused surveys were not conducted for the Off-Site Improvements Area southeast of the Lafayette Street and Central Road intersection. A habitat assessment was conducted for this Off-Site Improvements Area on August 25, 2023, and the three special-status plant species were determined to have a low potential to occur; therefore, focused surveys were not warranted.

5.3.2 Western Joshua Tree

Western Joshua tree is a California State Candidate for Listing. Western Joshua tree is a monocot tree in the asparagus family (*Agavaceae*) that occurs within Joshua tree woodland, Great Basin grassland and scrub, Mojavean desert scrub, pinyon and juniper woodland, Sonoran desert scrub, and valley and foothill grassland. This species occurs in San Bernardino County and other southern and eastern counties in California from 1,310 to 6,560 feet amsl (CNPS 2022a). This species typically blooms in April and May.

Eight western Joshua tree individuals were observed within the Joshua tree inventory survey area (project site, off-site improvement areas, and associated 186-foot buffer) (Figure 5). Of the eight trees found within the Joshua tree inventory survey area, only one western Joshua tree individual is within the project site, with the remaining seven western Joshua tree individuals within the associated 186-foot Joshua tree inventory survey area buffer. Further details on phenological data of the seven western Joshua tree individuals observed is provided in Appendix B.

5.3.3 Desert Native Plants

In addition to western Joshua tree, two desert native plants were observed within the BSA during the focused desert native plant survey: Wiggins' cholla and branched pencil cholla (Figure 5). Specifically, 7 Wiggins' cholla and 16 branched pencil cholla were observed throughout the BSA.

5.3.4 Special-Status Wildlife

Special-status wildlife include those listed, or candidates for listing, as threatened or endangered by USFWS and CDFW, and those designated as Species of Special Concern by CDFW and as sensitive by USFWS.

Similar to special-status plants, Dudek biologists performed an extensive desktop review of literature, existing documentation, and GIS data to evaluate the potential for special-status wildlife species to occur within the BSA. Each special-status wildlife species was assigned a rating of “not expected,” “low,” “moderate,” or “high” potential to occur based on relative location to known occurrences and vegetation community/habitat association, the results of which are provided in Appendix H. Listed species with any potential to occur and non-listed special-status species with a moderate or higher potential to occur are discussed herein. Those special-status wildlife species that are not expected or have low potential to occur in the BSA are also included in Appendix H; however, these species are not discussed further because no significant direct or indirect impacts are expected.

Based on the results of the literature review, database searches, and biological reconnaissance survey, three special-status wildlife species were determined to have at least a moderate or high potential to occur within the BSA: loggerhead shrike (*Lanius ludovicianus*), Bendire's thrasher (*Toxostoma bendirei*), and American badger (*Taxidea taxus*).

Three special-status species including burrowing owl (*Athene cunicularia*), LeConte's thrasher (*Toxostoma lecontei*) and desert kit fox⁷ (*Vulpes macrotis arsipus*) were incidentally observed during the 2022 protocol Mohave ground squirrel surveys within the project site. Although Mojave desert tortoise (*Gopherus agassizii*) is not expected to occur within the BSA based on negative survey results from the 2022 and 2023 protocol surveys, in the abundance

⁷ Although this species does not have any federal or state designation, Section 4000 of the California Fish and Game Code defines “kit fox” as a fur-bearing animal, and it is therefore considered “special-status” for purposes of this report.

of caution and due to more recent nearby CNDDDB occurrences, this species is included and analyzed. These species are detailed in the following discussion and in Table 5.

Focused surveys conducted for Mohave ground squirrel were negative; therefore, this species is not expected to occur and will not be analyzed further. In addition, there is no USFWS-designated critical habitat for listed wildlife species overlapping the BSA (USFWS 2022b).

Table 5. Special-Status Wildlife Species Observed or with Moderate or High Potential to Occur within the Biological Survey Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
<i>Gopherus agassizii</i>	Mojave desert tortoise	FT/ST, SCE	Arid and semi-arid habitats in Mojave and Sonoran Deserts, including sandy or gravelly locations along riverbanks, washes, sandy dunes, canyon bottoms, desert oases, rocky hillsides, creosote flats, and hillsides	Moderate potential to occur. Protocol surveys completed on October 4, 2022, resulted in no observations of active desert tortoise burrows, active desert tortoise sign (i.e., scat, drink basins, footprints), or observations of individual desert tortoises. The nearest CNDDDB occurrence was from 2004 and is mapped approximately 3.3 miles northwest of the BSA (CDFW 2022c). However, because the BSA supports suitable habitat for the species, the nearest known occurrence is approximately 3.3 miles northwest of the BSA and documented in 2004 (CDFW 2022c), and the BSA is within high probability predicted habitat for the species (CDFW 2022e), this species has a moderate potential to occur within the BSA.
<i>Athene cunicularia</i> (burrow sites and some wintering sites)	burrowing owl	BCC/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Observed. An active burrow (i.e., feathers, whitewash, casts, and fresh prey remains) was observed during the 2022 survey efforts, and an individual burrowing owl was incidentally observed flushing from this burrow during the 2023 survey efforts.
<i>Lanius ludovicianus</i> (nesting)	loggerhead shrike	None/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Moderate potential to occur. This species inhabits open areas with short vegetation, similar to what can be found in the BSA. The closest known occurrence was documented approximately 2 miles north of the BSA (CDFW 2022c).
<i>Toxostoma bendirei</i>	Bendire's thrasher	BCC/SSC	Nests and forages in desert succulent shrub and Joshua tree habitat in Mojave Desert; nests	Moderate potential to occur. This species is known to nest in yucca, cholla, and other desert shrubs. The nearest known occurrence is

Table 5. Special-Status Wildlife Species Observed or with Moderate or High Potential to Occur within the Biological Survey Area

Scientific Name	Common Name	Status (Federal/ State)	Habitat	Potential to Occur
			in yucca, cholla, and other thorny scrubs or small trees	approximately 5 miles east of the BSA (CDFW 2022c).
<i>Toxostoma lecontei</i>	LeConte's thrasher	BCC/SSC	Nests and forages in desert wash, desert scrub, alkali desert scrub, desert succulent, and Joshua tree habitats; nests in spiny shrubs or cactus	Observed. This species was incidentally observed during 2022 protocol Mohave ground squirrel trapping surveys; however, the location of the observation was not documented. The BSA supports suitable foraging habitat (desert scrub) and nesting habitat (spiny shrubs and cactus).
<i>Spermophilus (Xerospermophilus) mohavensis</i>	Mohave ground squirrel	None/ST	Desert scrub habitats, including those dominated by creosote bush and burrobush, desert sink scrub, and desert saltbush scrub	Not expected to occur. Mohave ground squirrel was not observed during the 2022 focused protocol surveys within the project site. The project site contains suitable creosote bush habitat capable of supporting this species, and small mammal burrow complexes were observed during the biological reconnaissance; however, the site is in proximity to major roads. In addition, a habitat assessment conducted in January 2023 within the off-site improvement areas determined this species is unlikely to occupy the off-site improvement areas due to high levels of disturbance and a lack of connectivity between this area and known population areas. The nearest known occurrence is approximately 6.9 miles southwest of the BSA, west of Interstate 15 (CDFW 2022c).
<i>Taxidea taxus</i>	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Moderate potential to occur. The BSA contains suitable open creosote flats with friable soils, and potentially suitable burrows were observed and mapped within the BSA.
<i>Vulpes macrotis arsipus</i>	desert kit fox	None/None ¹	Sparse vegetated scrub habitats such as creosote scrub communities that support abundant rodent populations	Observed. Desert kit fox was observed within the on-site BSA via a camera trap that was deployed as part of the Mohave ground squirrel focused surveys (Figure 5).

Table 5. Special-Status Wildlife Species Observed or with Moderate or High Potential to Occur within the Biological Survey Area

Scientific Name	Common Name	Status (Federal/ State)	Habitat	Potential to Occur
			(Center for Biological Diversity 2013)	

Notes:

BSA = biological survey area; CNDDDB = California Natural Diversity Database.

¹ Section 4000 of the California Fish and Game Code defines “kit fox” as a fur-bearing animal.

Status Designations

Federal

BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern

FT: Federally listed as threatened

State

SCE: State candidate for listing as endangered

SSC: California Species of Special Concern

SE: State listed as endangered

ST: State listed as threatened

Mojave Desert Tortoise

Desert tortoise is a federally and state-listed threatened species. The range of the Mohave population of the desert tortoise includes portions of the Mojave Desert and the Colorado Desert in Southern California (parts of Inyo, Kern, Los Angeles, San Bernardino, and Riverside Counties), southern Nevada (Clark, Esmeralda, Nye, and Lincoln Counties), northwestern Arizona (Mohave County), and southwestern Utah (Washington County).

Typical habitat for desert tortoise in the Mojave Desert is creosote bush scrub where precipitation ranges from 2 to 8 inches, with relatively high diversity of perennial plants and high productivity of ephemeral plants. Throughout most of the Mojave Desert, desert tortoises occur most commonly on gently sloping terrain with sandy gravel soils and where there is sparse cover of low-growing shrubs, which allows for the establishment of herbaceous plants. Soils must be friable enough for digging burrows, but firm enough that burrows do not collapse (USFWS 2008). Although populations of desert tortoise are not generally known to inhabit elevations much above 4,000 feet amsl, they occur from below sea level to an elevation of 7,300 feet amsl. Occupied habitat varies from flats and slopes dominated by creosote bush scrub at low elevations, to rocky slopes in blackbrush and juniper woodland ecotones at higher elevations (USFWS 2008).

Desert tortoise was not observed during 2022 or 2023 focused protocol surveys. However, the BSA contains suitable sandy soils, ephemeral washes, and creosote scrub to support this species. In addition, the nearest CNDDDB occurrence was from 2004 and is mapped approximately 3.3 miles northwest of the BSA (CDFW 2022c), and the BSA is within a high probability predicted habitat for the species (CDFW 2022e). Therefore, based on the discussion above, and because Mojave desert tortoise is a mobile species that could enter the BSA, this species was determined to have a moderate potential to occur.

Burrowing Owl

Burrowing owl is a USFWS Bird of Conservation Concern and a California Species of Special Concern. With a relatively wide-ranging distribution throughout the west, burrowing owls are considered to be habitat generalists (Lantz et al. 2004). In California, burrowing owls are yearlong residents of open, dry grassland and desert habitats,

and in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats (Zeiner et al. 1990). Preferred habitat is generally typified by short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils (Haug et al. 1993).

The presence of burrows is the most essential component of burrowing owl habitat because they are required for nesting, roosting, cover, and caching prey (Coulombe 1971; Green and Anthony 1989; Haug et al. 1993; Martin 1973). In California, western burrowing owls most commonly live in burrows created by California ground squirrels (*Otospermophilus beecheyi*). Burrowing owls may occur in human-altered landscapes such as agricultural areas, ruderal grassy fields, vacant lots, and pastures if the vegetation structure is suitable (i.e., open and sparse); useable burrows are available; and foraging habitat occurs in proximity (Gervais et al. 2008). Debris piles, riprap, culverts, and pipes can be used for nesting and roosting.

This species was incidentally observed during 2023 rare plant surveys from a burrow previously mapped in 2022 as active. The active burrow (i.e., feathers, whitewash, casts, and fresh prey remains) was observed during the June 3, 2022, survey effort within the project site (Figure 5); however, there were no direct observations of burrowing owls at that time. This burrow complex was inspected by Dudek biologists again on August 31, 2022, during an aquatic resources delineation; this time, the burrow complex no longer appeared to be actively occupied due to the lack of fresh sign. Dudek biologists inspected the burrow complex a third time during a desert tortoise protocol presence/absence survey on October 4, 2022. This third inspection resulted in similar results as the second inspection of the burrow complex; burrowing owl sign was present, but the complex did not appear to be actively occupied (i.e., whitewash, feathers, and pellets were present, but cobwebs were found across most of the burrow entrances). Finally, on April 19, 2023, during rare plant surveys, Dudek biologists incidentally observed an individual burrowing owl that flushed from this burrow location.

Loggerhead Shrike

Loggerhead shrike is a USFWS Bird of Conservation Concern and a California Species of Special Concern. It is widespread throughout the United States, Mexico, and portions of Canada (Humble 2008). The species is a yearlong resident in most of the United States, including from California east to Virginia and south to Florida, and in Mexico. In California, although shrikes are widespread at the lower elevations in the state, the largest breeding populations are in portions of the Central Valley, the Coast Ranges, and the southeastern deserts (Humble 2008).

Preferred habitats for loggerhead shrike are open areas that include scattered shrubs, trees, posts, fences, utility lines, or other structures that provide hunting perches with views of open ground, as well as nearby spiny vegetation or human-made structures (such as the top of chain-link fences or barbed wire) that provide a location to impale prey upon for storage or manipulation (Humble 2008). Loggerhead shrikes occur most frequently in riparian areas along woodland edges, grasslands with sufficient perch and butcher sites, scrublands, and open canopied woodlands, although they can be quite common in agricultural and grazing areas, and can sometimes be found in mowed roadsides, cemeteries, and golf courses. Loggerhead shrikes occur only rarely in heavily urbanized areas. For nesting, the height of shrubs and presence of canopy cover are most important (Yosef 1996).

Loggerhead shrike has moderate potential to occur within the BSA. This species inhabits open areas with short vegetation, similar to what can be found on the BSA. The closest known occurrence was documented approximately 2 miles north of the BSA (CDFW 2022c).

Bendire's Thrasher

Bendire's thrasher is a USFWS Bird of Conservation Concern and a California Species of Special Concern. Bendire's thrasher is found from sea level up to 5,900 feet amsl (England and Laudenslayer Jr. 1993). In general, this species is found in the southwestern United States deserts ranging from southeastern California, southernmost Nevada, southernmost Utah, southern Colorado south through New Mexico, and throughout the Sonora Desert. In Mexico, species distribution is believed to be in Sonora, with wintering in Tiburon Island and northern Sinaloa (Blake 1953). The species appears to be mostly confined to the Mojave Desert (Unitt 2004) and northwestern Mexico deserts (England and Laudenslayer Jr. 1993).

Preferred breeding habitat for Bendire's thrasher is typically in open grasslands, shrubland, or woodland with scatters trees and shrubs (England and Laudenslayer Jr. 1993). At lower elevations Bendire's thrasher is associated with deserts and grasslands, such as the Mojave desert scrub. Characteristic plant species within areas where it occurs include western Joshua tree, Mojave yucca (*Yucca schidigera*), cholla cactus (*Opuntia* spp.) and other succulents, palo verde (*Cercidium* spp.), mesquite (*Prosopis* spp.), catclaw (*Acacia* spp.), desert-thorn (*Lycium* spp.), and agave (*Agave* spp.) (England and Laudenslayer Jr. 1989a, 1989b, 1993).

Bendire's thrasher has a moderate potential to occur. This species is known to nest in yucca, cholla, and other desert shrubs, which are present within the BSA. The nearest known occurrence is approximately 5 miles east of the BSA (CDFW 2022c).

LeConte's Thrasher

LeConte's thrasher is a USFWS Bird of Conservation Concern and a California Species of Special Concern. LeConte's thrasher is found from below sea level up to 1,600 meters amsl in Southern California deserts in southern Mono County to the Mexican border (Dobkin and Granholm 2005; Sheppard 1996).

Preferred habitat for LeConte's thrasher is open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; LeConte's thrasher also occurs in western Joshua tree habitat with scattered shrubs (Dobkin and Granholm 2005). This species prefers gently rolling to well-drained slopes occupied by saltbush and joint fir (*Ephedra* sp.) with bare ground or sparse grass (Fitton 2008). These conditions are generally found on bajadas or alluvial fans where the slopes are bisected by dry washes (Fitton 2008). Much of the LeConte's thrasher's diet consists of insects found within leaf litter under desert shrubs; therefore, habitat must contain a sufficient ground cover (Sheppard 1996).

This species was incidentally observed during 2022 protocol Mohave ground squirrel trapping surveys; however, the location of the observation was not documented. The BSA supports suitable foraging habitat (desert scrub) and nesting habitat (spiny shrubs and cactus).

Mohave Ground Squirrel

Mohave ground squirrel is a State of California threatened species. This species' distribution range is restricted to the Mojave Desert in San Bernardino, Los Angeles, Kern, and Inyo Counties (Zeiner et al. 1990). Mohave ground squirrels generally inhabit areas where the soil is friable and sandy or gravelly. Mohave ground squirrels occur in desert scrub habitats dominated by creosote bush and desert saltbush scrub at elevations between 1,800 and 5,000 feet amsl.

Mohave ground squirrel was not observed during 2022 focused protocol surveys within the on-site BSA. The Mohave ground squirrel habitat assessment for the off-site improvement areas conducted in January and August 2023 determined that while Mohave ground squirrel habitat occurs within the off-site improvement areas, this area was unlikely to contain Mohave ground squirrel due to the high levels of disturbance along the roadways, as well as a lack of connectivity between this area and known population areas (see Appendix D). Therefore, focused protocol surveys were not warranted. This species' known occurrences in the southeastern portion of its range have historically been rare and population densities low. A query of the CNDDDB for the Apple Valley North quadrangle and the surrounding eight quadrangles showed that the closest occurrence to the BSA was recorded in 1977 approximately 6.9 miles southwest of the BSA, and on the west side of I-15 (CDFW 2022c). The most recent occurrence was recorded in 2007 approximately 11.3 miles west of the BSA; however, this occurrence was on the west side of I-15 (CDFW 2022c). No occurrences have been recorded in the southeastern extent of the species' range to the east of I-15 since the establishment of I-15 in its current alignment. Additionally, the BSA is outside of known Mohave ground squirrel core population areas, peripheral population areas, and/or linkage areas, making colonization from adjacent populations unlikely. Therefore, this species is not expected to occur within the BSA and is not further analyzed in this report.

American Badger

American badger is a California Species of Special Concern. American badgers prefer open scrub or grassy areas (USGS 2020). The BSA includes Joshua tree woodland but lacks creosote bush flats, sand dunes, or larger areas of open scrub or grassy areas with friable soils that could support this species.

American badger has a moderate potential to occur within the BSA. The BSA contains suitable open creosote flats with friable soils, and potentially suitable burrows were observed and mapped within the BSA.

Desert Kit Fox

Desert kit fox is considered a "fur-bearing mammal," protected from take under the California Fish and Game Commission's Mammal Hunting Regulations (Subdivision 2, Chapter 5), which effectively protects it from hunting pressure. Desert kit fox is not listed by USFWS or CDFW under any special-status designation. Desert kit fox lives in the open desert, on creosote bush flats, and among sand dunes (NPS 2015).

Desert kit fox was observed within the BSA via a camera trap deployed for Mohave ground squirrel focused surveys (Appendix D). The BSA provides suitable creosote bush flats habitat for this species, and other suitable desert kit dens were observed within the BSA (Figure 5).

5.3.5 Potential Aquatic Resources

The jurisdictional aquatic resources delineation identified numerous ephemeral drainages within the BSA (Appendix A). The results of the jurisdictional delineation concluded that there are approximately 0.909 acres of jurisdictional aquatic resources within the BSA (Figure 6, Jurisdictional Aquatic Resources). Of that total, 0.881 acres (8,504 linear feet) are non-wetland waters of the state under RWQCB jurisdiction and jurisdictional streambed under CDFW. An additional 0.028 acres are solely jurisdictional streambed under CDFW. The ephemeral drainages present are not likely subject to USACE jurisdiction because these features are isolated and do not meet the relatively permanent standard as a water of the United States.

The ultimate decision on the amount and location of jurisdictional resources is made by the resource agencies (i.e., USACE, CDFW, and RWQCB), and, therefore, impacts to potential aquatic resources may increase or decrease. See Appendix A for further descriptions of these resources.

5.4 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Wildlife corridors contribute to population viability by ensuring continual exchange of genes between populations, providing access to adjacent habitat areas for foraging and mating, and providing routes for recolonization of habitat after local extirpation or ecological catastrophes (e.g., fires).

Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. Habitat linkages provide a potential route for gene flow and long-term dispersal of plants and animals, and may also serve as primary habitat for smaller animals, such as reptiles and amphibians. Habitat linkages may be continuous habitat or discrete habitat islands that function as stepping stones for dispersal.

The BSA is not mapped as an essential connectivity area, natural landscape block, or linkage for the California Desert Linkage Network; however, it is approximately 2.5 miles south and approximately 5.2 miles west of an area mapped as a linkage for the California Desert Linkage Network. Additionally, the BSA is mapped as an Area of Conservation Emphasis, Rank 3 (CDFW 2022c).

According to CDFW (2019), Rank 3 is defined as follows:

[O]ther areas that have been identified as having connectivity importance, but have not been identified as channelized areas, species corridors, or habitat linkages at this time. This may change with future changes in surrounding land use or regional specific information. Hexagons included in this category include areas mapped as “intensified” in the TNC Omniscap study, core habitat areas, and hexagons on the periphery of mapped habitat linkages when not included in the categories above [i.e., Rank 4 and Rank 5].

Additionally, due to the undeveloped land on the BSA, there are opportunities for wildlife to move across the site when migrating through the region. However, the BSA does not currently function as a corridor or linkage between two larger habitat blocks. Although the BSA may function as local dispersal habitat for wildlife movement and/or foraging/hunting, the project would not create a significant impediment to wildlife movement that would warrant a wildlife corridor study.

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6 Project Impacts

This section addresses direct and indirect impacts to special-status biological resources that would result from implementation of the project. The significance determinations for proposed or potential impacts are described in this chapter, and proposed mitigation is provided in Chapter 7, Mitigation. Cumulative impacts are addressed in the project's environmental impact report.

6.1 Explanation of Findings of Significance

Impacts to special-status vegetation communities, plant and wildlife species, and jurisdictional waters, including wetlands, must be quantified and analyzed to determine whether such impacts are significant under CEQA. CEQA Guidelines Section 15064(b) states that an ironclad definition of "significant" effect is not possible, because the significance of an activity may vary with the setting. Appendix G, Environmental Checklist, of the CEQA Guidelines, however, does provide "examples of consequences which may be deemed to be a significant effect on the environment" (14 California Code of Regulations [CCR] 15064[e]). These effects include substantial effects on rare or endangered species of animal or plant or the habitat of the species. CEQA Guidelines Section 15065(a) is also helpful in defining whether a project may have a significant effect on the environment. Under that section, a proposed project may have a significant effect on the environment if the project has the potential to (1) substantially degrade the quality of the environment, (2) substantially reduce the habitat of a fish or wildlife species, (3) cause a fish or wildlife population to drop below self-sustaining levels, (4) threaten to eliminate a plant or animal community, (5) reduce the number or restrict the range of a rare or endangered plant or animal, or (6) eliminate important examples of a major period of California history or prehistory.

The following are the significance thresholds for biological resources provided in the CEQA Guidelines Appendix G, which states that a project would potentially have a significant effect if it does any of the following:

- **Impact BIO-1.** Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- **Impact BIO-2.** Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- **Impact BIO-3.** Has a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- **Impact BIO-4.** Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites.
- **Impact BIO-5.** Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- **Impact BIO-6.** Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

The evaluation of whether an impact to a particular biological resource is significant must consider both the resource itself and the role of that resource in a regional context. Substantial impacts are those that contribute to, or result in, permanent loss of an important resource, such as a population of a rare plant or wildlife species. Impacts may be important locally, because they result in an adverse alteration of existing site conditions, but considered not significant because they do not contribute substantially to the permanent loss of that resource regionally. The severity of an impact is the primary determinant of whether that impact can be mitigated to a level below significance.

6.2 Definition of Impacts

Direct permanent impacts refer to complete loss of a biological resource. For purposes of this report, it refers to the area where vegetation clearing, grubbing, or grading replaces biological resources. Direct permanent impacts were quantified by overlaying the proposed impact limits on the biological resources map of the BSA. Direct permanent impacts would occur from construction of an industrial/warehouse building and associated off-site improvements including loading docks, truck and vehicle parking, bike parking, landscaped areas, and construction of Johnson Road and Lafayette Street east of Central Road.

Direct temporary impacts refer to impacts that would be restored to existing conditions after the project activity is complete. Direct temporary impacts were quantified by overlaying the proposed impact limits on the biological resources map of the BSA. Direct temporary impacts would occur from installation of utility improvements west of Central Road along Johnson Road and Lafayette Road, and along Sycamore Lane within the eastern portion of the project site. Trenching would be required to install the water and sewer infrastructure and temporary impact areas would be returned to pre-project conditions.

Indirect impacts are reasonably foreseeable effects caused by a project's implementation on remaining or adjacent biological resources outside the direct disturbance zone. For purposes of this report, indirect impacts may affect areas outside the disturbance. Indirect impacts may be short-term and construction-related, or long-term and associated with development in proximity to biological resources.

Cumulative impacts refer to the combined environmental effects of a project and other relevant projects. These impacts may be minor when analyzed individually but become collectively significant as they occur over time. Cumulative impacts are addressed in the project's environmental impact report.

The evaluation of project impacts is organized below using Appendix G of the CEQA Guidelines.

6.3 Impacts Analysis

The acreage of impacts is provided in Table 6. Figure 7, Impacts to Biological Resources, depicts the areas where permanent and temporary impacts are anticipated to occur.

Table 6. Impacts to Vegetation Communities, Floristic Alliances and Associations, and Land Cover Types within the Biological Survey Area

Floristic Alliance	Association	Vegetation Community ¹	Ranking ²	Total Existing BSA (Acres)	On-Site Permanent Impacts (Acres)	Off-Site Permanent Impacts (Acres)	Off-Site Temporary Impacts (Acres)	Total Impacts (Acres) ³
Scrub								
<i>Larrea tridentata</i>	<i>Larrea tridentata</i>	Creosote bush scrub	S5	127.5	65.0	5.8	8.5	79.3
<i>Larrea tridentata</i> - <i>Ambrosia dumosa</i>	N/A	Creosote bush- white bursage scrub	S5	1.1	—	—	0.1	0.1
<i>Ericameria nauseosa</i>	<i>Ericameria nauseosa</i>	Rubber rabbitbrush scrub	S5	0.4	—	—	—	—
Unvegetated Land Covers								
N/A	N/A	Unvegetated wash and river bottom	N/A	0.9	0.5	0.1	<0.1	0.6
Disturbed and Developed								
N/A	N/A	Disturbed habitat	N/A	11.8	1.9	1.8	4.5	8.2
N/A	N/A	Urban/ developed	N/A	7.8	—	3.0	0.9	3.9
Total³			—	149.6	67.3	10.6	14.0	92.0

Notes:

BSA = biological survey area; N/A = not applicable.

¹ The spatial distribution of permanent impacts to vegetation communities and land covers are presented in Figure 7, Impacts to Biological Resources.

² The conservation status of a vegetation community is designated by a number from 1 to 5, preceded by a letter reflecting the appropriate geographic scale of the assessment (G = global, N = national, and S = subnational). The numbers have the following meaning (NatureServe 2022):

5 = demonstrably widespread, abundant, and secure

³ Total acreages may not sum exactly due to rounding.

6.3.1 Impact BIO-1: Special-Status Species

The following significance determinations were made based on the impacts of the project. Proposed mitigation measures referenced in this section are provided in Chapter 7.

6.3.1.1 Impacts to Special-Status Plants

6.3.1.1.1 Direct Impacts

No non-listed special-status plant species were observed or have high or moderate potential to occur within the BSA; therefore, the project would have no direct or indirect impacts to non-listed special-status plant species. In addition, the BSA does not occur within federally designated critical habitat for special-status plant species, and there would be no direct impacts to critical habitat.

One listed special-status plant species was observed within the BSA: western Joshua tree.

Western Joshua Tree

Western Joshua tree, a candidate for state listing under CESA, was observed and would be directly impacted by the project. Based on the site plan, implementation of the project would result in direct impacts to one western Joshua tree individual. All ground-disturbing activities are considered permanent impacts to western Joshua trees. Direct impacts to western Joshua tree would be significant absent mitigation under CEQA. Seven trees would remain in place based on the project site plan.

Based on a literature review completed by CDFW (Vander Wall et al. 2006), western Joshua trees should be buffered by 186 feet to account for the impacts to the seed bank for western Joshua trees and their associated habitat. Therefore, a 186-foot buffer (or radius) was applied to each western Joshua tree on site. Direct impacts to this 186-foot buffer were analyzed, and the project would result in 6.9 acres of direct impacts to western Joshua trees, their seed bank, and their associated habitat (Figure 8, Impacts to Joshua Trees).

Based on the Western Joshua Tree Conservation Act, impacts to western Joshua tree can be mitigated on a per-tree basis. Therefore, the project would result in direct impacts to one western Joshua tree.

As required by **MM-BIO-1** (Conservation of Western Joshua Tree Lands), direct impacts to 6.9 acres of western Joshua trees (which includes the associated 186-foot buffer applied to each individual western Joshua tree) shall be mitigated through payment to a CDFW-approved mitigation bank; alternatively, direct impacts to one individual would be mitigated through payment through the Western Joshua Tree Conservation Act. Additionally, as required by **MM-BIO-2** (Relocation of Desert Native Plants) and in accordance with Chapter 9.76 of the Apple Valley Municipal Code, the preparation of a western Joshua tree and desert native plants relocation plan is required to mitigate impacts to western Joshua trees as a result of the project. As such, a Joshua Tree Preservation, Protection, and Relocation Plan, and California Desert Native Plant Relocation Plan (Appendix B) was prepared to provide detailed specifications for the project applicant to meet the requirements of Chapter 9.76 of the Apple Valley Municipal Code to protect, preserve, and mitigate impacts to western Joshua trees. In addition, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Programs), and **MM-BIO-6** (Construction Monitoring Notebook) would reduce potential direct impacts to less than significant.

Implementation of **MM-BIO-1** (Conservation of Western Joshua Tree Lands), **MM-BIO-2** (Relocation of Desert Native Plants), **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Programs), and **MM-BIO-6** (Construction Monitoring Notebook) would reduce potential direct impacts to western Joshua trees, Mojave monkeyflower, and beaver dam breadroot to less than significant.

6.3.1.1.2 Indirect Impacts

Typically, CDFW considers any western Joshua tree within 186 feet of a direct impact to be indirectly impacted. Thus, the Project would result in 6.9 acres of indirect impacts to western Joshua trees.

Construction-related, short-term indirect impacts may include inadvertent spillover impacts outside of the construction footprint, dust accumulation on Joshua trees or other special-status plants with a moderate potential to occur, chemical spills, stormwater erosion and sedimentation, and increased wildfire risk.

Potential long-term (post-construction) indirect impacts from operation and maintenance activities may include effects of herbicides, changes in water quality, increased wildfire risk, induced demand of the surrounding area, increased traffic and vehicle emissions, and accidental chemical spills. Indirect impacts to Joshua trees or other special-status plants with a moderate potential to occur would be significant absent mitigation.

Implementation of **MM-BIO-3** (Designated Biologist Authority) gives the project's designated biologist the authority to stop work if construction is not compliant with this CEQA document. **MM-BIO-4** (Compliance Monitoring) requires that an experienced biologist oversee compliance with the protective measures, including limiting impacts to the project footprint. **MM-BIO-5** (Education Program) would provide construction personnel with training related to special-status plants that could potentially occur on or adjacent to the impact footprint. **MM-BIO-6** (Construction Monitoring Notebook) provides for documentation that the education program was administered to applicable personnel. **MM-BIO-7** (Delineation of Property Boundaries) requires that impacts occur within the fenced, staked, or flagged area that is clearly delineated within the project impact footprint. The construction crew would be responsible for unauthorized impacts from construction activities to special-status plants that are outside the permitted project footprint. Thus, implementation of **MM-BIO-3** through **MM-BIO-7** would help to avoid and minimize inadvertent spillover impacts outside of the approved impact footprint.

To reduce fugitive dust resulting from project construction and to minimize adverse air quality impacts, the project would employ dust mitigation measures in accordance with the Mojave Desert Air Quality Management District's Rules 401 and 403.2, which limit the amount of fugitive dust generated during construction.

MM-BIO-8 (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills would be implemented, and that repair and clean-up of any hazardous waste occurs. Thus, implementation of **MM-BIO-8** (Hazardous Waste) would help to avoid and minimize impacts to special-status plants from any construction-related chemical spills.

A Stormwater Pollution Prevention Plan (SWPPP) would be prepared and implemented to prevent all construction pollutants from contacting stormwater during construction activities, with the intent of keeping sediment and any other pollutants from moving off site and into receiving waters. Best management practice (BMP) categories employed on site would include erosion control, sediment control, and non-stormwater good housekeeping. Preparation and implementation of a SWPPP would help to avoid and minimize the potential effects of stormwater erosion during construction.

Construction of the project would introduce potential ignition sources to the project site, including the use of heavy machinery and the potential for sparks during welding activities or other hot work. However, the project would be required to comply with Town and state requirements for fire safety practices to reduce the possibility of fires during construction activities. Further, vegetation would be removed from the site prior to the start of construction. Adherence to Town and state regulatory standards during project construction would reduce the risk of wildfire ignition and spread during construction activities. Therefore, short-term construction impacts involving wildland fires would be less than significant.

Implementation of **MM-BIO-9** (Herbicides) would limit herbicide use to instances where hand or mechanical efforts are infeasible and would only be applied when wind speeds are less than 7 miles per hour to prevent drift into off-site special-status plants.

Implementation of low-impact-development features and BMPs would, to the maximum extent practicable, reduce the discharge of pollutants into receiving waters, including inadvertent release of pollutants (e.g., hydraulic fluids and petroleum); the improper management of hazardous materials, trash, and debris; and the improper management of portable restroom facilities (e.g., regular service) in accordance with all relevant local and state development standards. In addition, in accordance with CalGreen requirements (California Green Building Standards Code, CCR, Title 24, Part 11), project source controls to improve water quality would be provided for outdoor material storage areas, outdoor trash storage/waste handling areas, and outdoor loading/unloading areas. Therefore, impacts to special-status plants due to changes in water quality would be avoided and minimized through implementation of low-impact-development features and BMPs.

Upon completion of project construction, with adherence to the Town of Apple Valley Municipal Code, and because of the low ignitability of the proposed structures and implementation of fire-resistant and irrigated landscaping, the project would not facilitate wildfire spread or exacerbate wildfire risk. Further, given that surrounding off-site fuels consist of moderately spaced vegetation, wildfires in the immediate surrounding area are not common, and it is unlikely that the project site would be exposed to the uncontrolled spread of a wildfire. It is not anticipated that the project, due to slope, prevailing winds, and other factors, would exacerbate wildfire risks or the uncontrolled spread of a wildfire; thus, with adherence to the Town of Apple Valley Municipal Code, long-term indirect impacts to special-status plants associated with increased wildlife risk is not expected to occur.

Implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-7** (Delineation of Property Boundaries), **MM-BIO-8** (Hazardous Waste), and **MM-BIO-9** (Herbicides) would reduce potential indirect impacts to western Joshua tree to less than significant.

6.3.1.2 Impacts to Special-Status Wildlife

6.3.1.2.1 Direct Impacts

Direct impacts can potentially occur to special-status wildlife species from impacts to habitat and impacts to the species from injury or mortality of individuals from construction activities.

The project could result in significant, direct impacts to four special-status wildlife species that have a moderate to high potential to occur within the BSA (Mojave desert tortoise, loggerhead shrike, Bendire's thrasher, and American badger), and three special-status wildlife species that were observed within the BSA (burrowing owl, LeConte's thrasher and desert

kit fox⁸). Focused surveys conducted for Mohave ground squirrel were negative; therefore, this species is not expected to occur and will not be analyzed further. These species are detailed in the following discussion.

Mojave Desert Tortoise

Protocol surveys completed on October 4, 2022, and January 17, 2023, resulted in no observations of active desert tortoise burrows, active desert tortoise sign (e.g., scat, drink basins, footprints), or individual desert tortoises. However, the BSA contains suitable sandy soils, ephemeral washes, and creosote scrub to support this species. In addition, the nearest CNDDDB occurrence was from 2004 and is mapped approximately 3.3 miles northwest of the BSA (CDFW 2022c), and the BSA is within a high probability predicted habitat for the species (CDFW 2022e). Therefore, based on the discussion above, and because Mojave desert is a mobile species that could enter the BSA prior to construction, this species was determined to have a moderate potential to occur, and potential direct and indirect impacts to Mojave desert tortoise would be significant absent mitigation under CEQA.

A pre-construction Mojave desert tortoise clearance survey in compliance with current USFWS protocol would be necessary to reevaluate the locations of potential Mojave desert tortoise burrows within the project limits so take of Mojave desert tortoise can be avoided. Consistent with **MM-BIO-10** (Pre-Construction Clearance Surveys for Mojave Desert Tortoise and Avoidance), a pre-construction clearance survey for Mojave desert tortoise would be conducted in areas supporting potentially suitable habitat 1 week prior to the start of construction, and a second survey would be repeated within 72 hours prior to the start of construction activities; or, alternatively, pre-construction clearance surveys may be conducted following construction of a desert-tortoise-proof fence encompassing the project site that would ensure that tortoises cannot enter the project after clearance surveys are completed. Should Mojave desert tortoises be located during the clearance survey, additional measures in compliance with current USFWS protocol would be required, as described further in **MM-BIO-10** (Pre-Construction Clearance Surveys for Mojave Desert Tortoise and Avoidance). In addition, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Programs), and **MM-BIO-6** (Construction Monitoring Notebook) would reduce potential direct impacts to less than significant.

Should Mojave desert tortoise be located during the clearance survey, the project would result in the permanent loss of 75.1 acres of suitable habitat for Mojave desert tortoise, including impacts to creosote bush scrub, unvegetated wash and river bottom, and disturbed habitat. These direct permanent impacts would be significant absent mitigation. As required by **MM-BIO-10** (Pre-Construction Clearance Surveys for Mojave Desert Tortoise and Avoidance), mitigation for direct impacts to 75.1 acres, should Mojave desert tortoise be found during pre-construction clearance surveys, would be fulfilled through conservation of suitable Mojave desert tortoise habitat through the purchase of credits at a minimum of 1:1 in-kind habitat replacement. Thus, mitigation for impacts to western Joshua tree would also mitigate for impacts to loss of suitable habitat for Mojave desert tortoise, should they be found during pre-construction clearance surveys, because they are found in similar habitat.

The project would also result in the temporary loss of 13.1 acres of suitable habitat for Mojave desert tortoise, specifically 8.5 acres of creosote bush scrub, 0.1 acres of creosote bush white bursage scrub, 0.03 acres of unvegetated wash and river bottom, and 4.5 acres of disturbed habitat. These direct temporary impacts would be significant absent mitigation. As required by **MM-BIO-11** (Restoration of Temporary Impacts), temporarily disturbed areas would be recontoured to natural grade (if the grade was modified during the temporary disturbance activity). The project would not include revegetation or restoration of temporary impacts after project completion. However, natural vegetation would be allowed

⁸ Although this species does not have any federal or state designation, Section 4000 of the California Fish and Game Code defines “kit fox” as a fur-bearing animal, and it is therefore considered “special-status” for purposes of this report.

to regenerate in temporary disturbed areas. Furthermore, if topsoil were to be removed during construction, the segregated topsoil would be replaced and the native seed allowed to regenerate naturally.

Implementation of **MM-BIO-1** (Conservation of Western Joshua Tree Lands), **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-10** (Pre-Construction Clearance Surveys for Mojave Desert Tortoise and Avoidance), and **MM-BIO-11** (Restoration of Temporary Impacts) would reduce potential direct impacts (permanent and temporary) to Mojave desert tortoise to less than significant.

Burrowing Owl

Focused surveys for burrowing owl were not conducted; however, an individual burrowing owl was incidentally observed flushing from a previously mapped active burrow that is part of a larger burrow complex did contain recent active sign (i.e., whitewash, feathers, pellets, and fresh prey remains at a burrow entrance) during the June 3, 2022, biological reconnaissance survey. Therefore, suitable habitat exists on site, and the species could occupy the BSA prior to construction. Potential direct and indirect impacts to burrowing owl would be significant absent mitigation under CEQA.

Pursuant to the California Fish and Game Code and MBTA, a pre-construction survey in compliance with the Staff Report on Burrowing Owl Mitigation (CDFW 2012) would be necessary to reevaluate the locations of potential burrowing owl burrows within the project limits so take of owls or active owl nests can be avoided. Consistent with **MM-BIO-12** (Pre-Construction Surveys for Burrowing Owl Avoidance), a pre-construction survey for burrowing owl would be conducted in areas supporting potentially suitable habitat and within 14 days prior to the start of construction activities. A Burrowing Owl Relocation Plan has been prepared to facilitate implementation of this mitigation measure and is attached to this report as Appendix I. In addition, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Programs), and **MM-BIO-6** (Construction Monitoring Notebook) would reduce potential direct impacts to less than significant.

Furthermore, should burrowing owl be located during the pre-construction survey, the project would result in the permanent loss of 75.1 acres of suitable habitat for burrowing owl, including impacts to creosote bush scrub, unvegetated wash and river bottom, and disturbed habitat. These direct permanent impacts would be significant absent mitigation. As required by **MM-BIO-12** (Pre-Construction Surveys for Burrowing Owl Avoidance), mitigation for direct impacts to 75.1 acres, should burrowing owl be found during pre-construction surveys, would be fulfilled through conservation of suitable burrowing owl habitat through the purchase of credits at a minimum of 1:1 in-kind habitat replacement. Thus, mitigation for impacts to western Joshua tree would also mitigate for impacts to loss of suitable habitat for burrowing owl, which use similar habitat.

The project would also result in the temporary loss of 13.1 acres of suitable habitat for burrowing owl, specifically 8.5 acres of creosote bush scrub, 0.1 acres of creosote bush white bursage scrub, 0.03 acres of unvegetated wash and river bottom, and 4.5 acres of disturbed habitat. These direct temporary impacts would be significant absent mitigation. As required by **MM-BIO-11** (Restoration of Temporary Impacts), temporarily disturbed areas would be recontoured to natural grade (if the grade was modified during the temporary disturbance activity). The project would not include revegetation or restoration of temporary impacts after project completion. However, natural vegetation would be allowed to regenerate in temporary disturbed areas. Furthermore, if topsoil were to be removed during construction, the segregated topsoil would be replaced and the native seed allowed to regenerate naturally.

Implementation of **MM-BIO-1** (Conservation of Western Joshua Tree Lands), **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-11** (Restoration of Temporary Impacts), and **MM-BIO-12** (Pre-Construction Surveys for Burrowing Owl and Avoidance) would reduce potential direct impacts (permanent and temporary) to burrowing owl to less than significant.

Loggerhead Shrike

Loggerhead shrike was not observed during any of the survey efforts conducted in 2022; however, this species has a moderate potential to occur within the BSA. Suitable nesting habitat, particularly western Joshua trees, is present within the BSA.

The project would result in the permanent loss of 70.9 acres of suitable habitat for loggerhead shrike (i.e., impacts to creosote bush scrub). However, due to the surrounding vacant lands available with comparable suitable habitat, the loss 70.9 acres of suitable habitat for loggerhead shrike would be considered less than significant. Thus, mitigation for impacts to western Joshua tree would also provide suitable habitat for loggerhead shrike.

The project would also result in the temporary loss of 8.6 acres of suitable habitat for loggerhead shrike, specifically 8.5 acres of creosote bush scrub and 0.1 acres of creosote bush white bursage scrub. However, due to the surrounding vacant lands available with comparable suitable habitat, the temporary loss of 8.6 acres of suitable habitat for loggerhead shrike would be considered less than significant. Nonetheless, **MM-BIO-11** (Restoration of Temporary Impacts) would require that temporarily disturbed areas be recontoured to natural grade (if the grade was modified during the temporary disturbance activity). The project would not include revegetation or restoration of temporary impacts after project completion. However, natural vegetation would be allowed to regenerate in temporary disturbed areas. Furthermore, if topsoil were to be removed during construction, the segregated topsoil would be replaced and the native seed allowed to regenerate naturally. To avoid potential impacts to nesting loggerhead shrike, vegetation removal activities would be conducted outside the general bird nesting season (February 1 through August 31). If vegetation cannot be removed outside the bird nesting season, a pre-construction nesting bird survey by a qualified biologist is required prior to vegetation removal. This requirement is outlined in **MM-BIO-13** (Pre-Construction Nesting Bird Surveys and Avoidance).

Implementation of **MM-BIO-1** (Conservation of Western Joshua Tree Lands), **MM-BIO-11** (Restoration of Temporary Impacts), and **MM-BIO-13** (Pre-Construction Nesting Bird Surveys and Avoidance) would reduce potential direct impacts to loggerhead shrike to less than significant.

Bendire's Thrasher

Bendire's thrasher was not observed during any of the survey efforts conducted in 2022; however, this species has a moderate potential to occur within the BSA. Suitable nesting habitat, particularly western Joshua trees, yucca, cholla, and other desert shrubs, are present within the BSA.

The project would result in the loss of 70.9 acres of suitable habitat for Bendire's thrasher (i.e., impacts to creosote bush scrub). However, due to the surrounding vacant lands available with comparable suitable habitat, the loss of 70.9 acres of suitable habitat for Bendire's thrasher would be considered less than significant.

The project would also result in the temporary loss of 8.6 acres of suitable habitat for Bendire's thrasher, specifically 8.5 acres of creosote bush scrub and 0.1 acres of creosote bush white bursage scrub. However, due to the

surrounding vacant lands available with comparable suitable habitat, the temporary loss of 8.6 acres of suitable habitat for Bendire's thrasher would be considered less than significant. Nonetheless, **MM-BIO-11** (Restoration of Temporary Impacts) would require that temporarily disturbed areas be recontoured to natural grade (if the grade was modified during the temporary disturbance activity). The project would not include revegetation or restoration of temporary impacts after project completion. However, natural vegetation would be allowed to regenerate in temporary disturbed areas. Furthermore, if topsoil were to be removed during construction, the segregated topsoil would be replaced and the native seed allowed to regenerate naturally.

To avoid potential impacts to nesting Bendire's thrasher, vegetation removal activities would be conducted outside the general bird nesting season (February 1 through August 31). If vegetation cannot be removed outside the bird nesting season, a pre-construction nesting bird survey by a qualified biologist is required prior to vegetation removal. This requirement is outlined in **MM-BIO-13** (Pre-Construction Nesting Bird Surveys and Avoidance).

Implementation of **MM-BIO-1** (Conservation of Western Joshua Tree Lands), **MM-BIO-11** (Restoration of Temporary Impacts), and **MM-BIO-13** (Pre-Construction Nesting Bird Surveys and Avoidance) would reduce potential direct impacts to Bendire's thrasher to less than significant.

LeConte's Thrasher

LeConte's thrasher was incidentally observed during 2022 protocol Mohave ground squirrel trapping surveys. The BSA supports suitable foraging habitat (desert scrub) and nesting habitat (spiny shrubs and cactus) for LeConte's thrasher.

The project would result in the loss of approximately 70.9 acres of suitable habitat for LeConte's thrasher (i.e., impacts to creosote bush scrub). However, due to the surrounding vacant lands available with comparable suitable habitat, the loss 70.9 acres of suitable habitat for LeConte's thrasher would be considered less than significant.

The project would also result in the temporary loss of 8.6 acres of suitable habitat for LeConte's thrasher, specifically 8.5 acres of creosote bush scrub and 0.1 acres of creosote bush white bursage scrub. However, due to the surrounding vacant lands available with comparable suitable habitat, the temporary loss of 8.6 acres of suitable habitat for LeConte's thrasher would be considered less than significant. Nonetheless, **MM-BIO-11** (Restoration of Temporary Impacts) would require that temporarily disturbed areas be recontoured to natural grade (if the grade was modified during the temporary disturbance activity). The project would not include revegetation or restoration of temporary impacts after project completion. However, natural vegetation would be allowed to regenerate in temporary disturbed areas. Furthermore, if topsoil were to be removed during construction, the segregated topsoil would be replaced and the native seed allowed to regenerate naturally.

To avoid potential impacts to nesting LeConte's thrasher, vegetation removal activities would be conducted outside the general bird nesting season (February 1 through August 31). If vegetation cannot be removed outside the bird nesting season, a pre-construction nesting bird survey by a qualified biologist is required prior to vegetation removal. This requirement is outlined in **MM-BIO-13** (Pre-Construction Nesting Bird Surveys and Avoidance).

Implementation of **MM-BIO-1** (Conservation of Western Joshua Tree Lands), **MM-BIO-11** (Restoration of Temporary Impacts), and **MM-BIO-13** (Pre-Construction Nesting Bird Surveys and Avoidance) would reduce potential direct impacts to LeConte's thrasher to less than significant.

American Badger

The BSA contains open creosote flats with friable soils, which is suitable habitat for American badger. In addition, suitable burrows were mapped within the BSA; therefore, the species could occupy the BSA prior to construction.

The project would result in the loss of 75.1 acres of suitable habitat for American badger, including impacts to creosote bush scrub, unvegetated wash and river bottom, and disturbed habitat. However, due to the surrounding vacant lands available with comparable suitable habitat, the loss 75.1 acres of suitable habitat for American badger would be considered less than significant.

The project would also result in the temporary loss of 13.1 acres of suitable habitat for American badger, specifically 8.5 acres of creosote bush scrub, 0.1 acres of creosote bush white bursage scrub, 0.03 acres of unvegetated wash and river bottom, and 4.5 acres of disturbed habitat. However, due to the surrounding vacant lands available with comparable suitable habitat, the temporary loss of 13.1 acres of suitable habitat for American badger would be considered less than significant. Nonetheless, **MM-BIO-11** (Restoration of Temporary Impacts) would require that temporarily disturbed areas be recontoured to natural grade (if the grade was modified during the temporary disturbance activity). The project would not include revegetation or restoration of temporary impacts after project completion. However, natural vegetation would be allowed to regenerate in temporary disturbed areas. Furthermore, if topsoil were to be removed during construction, the segregated topsoil would be replaced and the native seed allowed to regenerate naturally.

To avoid potential direct impacts to American badger, a pre-construction survey for American badger would be conducted within 10 days prior to the start of construction to determine the presence/absence of American badger. As such, in an abundance of caution and to ensure that potential impacts to this species are less than significant, the project applicant would prepare a mitigation and monitoring plan that addresses American badger if the species is determined to occur on the project site prior to the start of construction, pursuant to **MM-BIO-14** (Pre-Construction Survey for American Badger and Avoidance). With the incorporation of mitigation, impacts associated with American badger would be less than significant. In addition, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), and **MM-BIO-6** (Construction Monitoring Notebook) would reduce potential direct impacts to less than significant.

Implementation of **MM-BIO-1** (Conservation of Western Joshua Tree Lands), **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-11** (Restoration of Temporary Impacts), and **MM-BIO-14** (Pre-Construction Survey for American Badger and Avoidance) would reduce potential direct impacts to American badger to less than significant.

Desert Kit Fox

Desert kit fox was observed within the BSA through camera trapping as part of the Mohave ground squirrel focused surveys. Additionally, several suitable burrows were mapped within the BSA; therefore, the species could occupy the BSA prior to construction.

The project would result in the loss of 75.1 acres of suitable habitat for desert kit fox, including impacts to creosote bush scrub, unvegetated wash and river bottom, and disturbed habitat. However, due to the surrounding vacant lands available with comparable suitable habitat, the loss of 75.1 acres of suitable habitat for desert kit fox is considered less than significant.

The project would also result in the temporary loss of 13.1 acres of suitable habitat for desert kit fox, specifically 8.5 acres of creosote bush scrub, 0.1 acres of creosote bush white bursage scrub, 0.03 acres of unvegetated wash and river bottom, and 4.5 acres of disturbed habitat. However, due to the surrounding vacant lands available with comparable suitable habitat, the temporary loss of 13.1 acres of suitable habitat for desert kit fox would be considered less than significant. Nonetheless, **MM-BIO-11** (Restoration of Temporary Impacts) would require that temporarily disturbed areas be recontoured to natural grade (if the grade was modified during the temporary disturbance activity). The project would not include revegetation or restoration of temporary impacts after project completion. However, natural vegetation would be allowed to regenerate in temporary disturbed areas. Furthermore, if topsoil were to be removed during construction, the segregated topsoil would be replaced and the native seed allowed to regenerate naturally.

To avoid potential direct impacts to desert kit fox, a pre-construction survey for desert kit fox would be conducted within 10 days prior to the start of construction to determine the presence/absence of desert kit fox, pursuant to **MM-BIO-15** (Pre-Construction Survey for Desert Kit Fox and Avoidance). To ensure that potential impacts to this species are less than significant, a Desert Kit Fox Relocation and Mitigation Plan has been prepared to facilitate implementation of this mitigation measure and is attached to this report as Appendix J. In addition, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), and **MM-BIO-6** (Construction Monitoring Notebook) would reduce potential direct impacts to less than significant.

Implementation of **MM-BIO-1** (Conservation of Western Joshua Tree Lands), **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-11** (Restoration of Temporary Impacts), and **MM-BIO-15** (Pre-Construction Survey for Desert Kit Fox and Avoidance) would reduce potential direct impacts to desert kit fox to less than significant.

Nesting Migratory Birds and Raptors

Similar to most other sites containing trees, shrubs, and other vegetation, the BSA contains opportunities for birds of prey (raptors) and other avian species to nest on site. Native nesting bird species with potential to occur within the BSA are protected by California Fish and Game Code Sections 3503 and 3503.5, and by the federal MBTA (16 USC 703–711). In particular, California Fish and Game Code Section 3503 provides that it is unlawful to take, possess, or needlessly destroy the active nests or eggs of any bird in California; Section 3503.5 protects all raptors and their eggs and active nests; and the MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of native migratory bird species throughout the United States. Currently, California considers any nest that is under construction or modification, or is supporting eggs, nestlings, or juveniles, as “active.” Therefore, impacts to nesting migratory birds and raptors would be significant absent mitigation under CEQA.

To ensure compliance with the California Fish and Game Code and MBTA and to avoid potential impacts to nesting birds, vegetation removal activities would be conducted outside the general bird nesting season (February 1 through August 31, depending on the species), and if vegetation cannot be removed outside the bird nesting season, a pre-construction nesting bird survey by a qualified biologist is required prior to vegetation removal. This requirement is outlined in **MM-BIO-13** (Pre-Construction Nesting Bird Surveys and Avoidance). With the incorporation of mitigation, impacts associated with nesting birds, including raptors, would be less than significant.

Implementation of **MM-BIO-13** (Pre-Construction Nesting Bird Surveys and Avoidance) would reduce potential direct impacts to nesting migratory birds and raptors to less than significant.

6.3.1.2.2 Indirect Impacts

Indirect impacts to special-status wildlife species are those that occur during construction to species present near the site, but not within the construction zone. These include fugitive dust that can degrade habitat and result in health implications for wildlife species; noise and vibration that can stress wildlife species or cause them to leave an area of otherwise suitable habitat, or that can result in disruption of bird nesting and abandonment of nests; increased human presence, which can also disrupt daily activities of wildlife and cause them to leave an area; night-time lighting, which can disrupt the activity patterns of nocturnal species, including many mammals and some birds, amphibians, and reptiles; and release of chemical pollutants, such as from oil leaks from construction vehicles and machinery.

The project site could result in significant, indirect impacts to seven special-status wildlife: Mohave desert tortoise, burrowing owl, loggerhead shrike, Bendire's thrasher, LeConte's thrasher, American badger, and desert kit fox. Therefore, these species are further discussed below.

Mojave Desert Tortoise

Based on the results of focused surveys within the BSA, Mojave desert tortoise is not expected to occur within the BSA due to the negative survey results; however, this species may enter the site, albeit there is a low potential, before construction begins. Therefore, a pre-construction protocol clearance survey is needed to confirm Mojave desert tortoise absence prior to construction. Should Mojave desert tortoise occur on site, construction activities have the potential to result in significant indirect impacts to Mojave desert tortoise and their habitat. Those impacts could include dust, noise and vibration, trash and debris, increased human presence, vehicle collisions, and chemical spills. These potential short-term or temporary indirect impacts to Mojave desert tortoise would be significant absent mitigation under CEQA.

MM-BIO-10 (Pre-Construction Clearance Surveys for Mojave Desert Tortoise and Avoidance) would require pre-construction protocol clearance surveys for Mojave desert tortoise to limit effects from most short-term indirect impacts, including noise and vibration, increased human presence, night-time lighting, and vehicle collisions. **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), and **MM-BIO-6** (Construction Monitoring Notebook) would require that all workers complete Worker Environmental Awareness Program (WEAP) training, and would require ongoing biological monitoring and compliance with all biological resource mitigation requirements. **MM-BIO-8** (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills would be implemented, and that repair and clean-up of any hazardous waste occurs. To reduce fugitive dust resulting from project construction and to minimize adverse air quality impacts, the project would employ dust mitigation measures in accordance with the Mojave Desert Air Quality Management District's Rules 401 and 403.2, which would limit the amount of fugitive dust generated during construction. **MM-BIO-16** (Trash and Debris) would require trash and debris to be removed regularly, and would require animal-resistant trash receptacles to avoid attracting urban-related predator species.

Potential long-term indirect impacts that could result from development within or adjacent to Mojave desert tortoise habitat include increased invasive plant species that may degrade habitat. **MM-BIO-17** (Invasive Plant Management) would require that landscape plants within 200 feet of native vegetation communities not be on the most recent version of the California Invasive Plant Council's (Cal-IPC) California Invasive Plant Inventory (Cal-IPC 2006).

As discussed above, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-8** (Hazardous Waste), **MM-BIO-10** (Pre-Construction Clearance Surveys for Mojave Desert Tortoise and Avoidance), **MM-BIO-16** (Trash and Debris), and **MM-BIO-17** (Invasive Plant Management) would reduce potential indirect (short-term and long-term) impacts to Mojave desert tortoise to less than significant.

Burrowing Owl

Focused surveys for burrowing owl were not conducted; however, an individual burrowing owl was incidentally observed flushing from a previously mapped active burrow that is part of a larger burrow complex did contain recent active sign (i.e., whitewash, feathers, pellets, and fresh prey remains at a burrow entrance) during the June 3, 2022, desert tortoise protocol presence/absence survey. A pre-construction survey is needed to confirm their absence prior to construction. Should burrowing owls occur on site, construction (short-term) activities have the potential to result in indirect impacts to burrowing owls and their habitat. Those impacts could include dust, noise and vibration, trash and debris, increased human presence, vehicle collisions, chemical spills, and night-time lighting. These potential short-term or temporary indirect impacts to burrowing owls would be significant absent mitigation under CEQA.

Post-construction (long-term) activities have the potential to result in indirect impacts to burrowing owls and their habitat. Long-term impacts that could result from development within or adjacent to burrowing owl habitat include nighttime lighting and increased invasive plant species that may degrade habitat. These potential long-term indirect impacts to burrowing owls would be significant absent mitigation under CEQA. Burrowing owls are considered absent until pre-construction surveys further confirm so, so impacts to burrowing owls associated with the project would be less than significant under CEQA.

MM-BIO-12 (Pre-Construction Surveys for Burrowing Owl and Avoidance) would require pre-construction burrowing owl surveys and result in establishment of construction buffers around any burrowing owl burrows found, thus limiting effects from most short-term indirect impacts, including noise and vibration, increased human presence, night-time lighting, and vehicle collisions. **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), and **MM-BIO-6** (Construction Monitoring Notebook) would require that all workers complete WEAP training and would require ongoing biological monitoring and compliance with all biological resource mitigation. **MM-BIO-8** (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills would be implemented, and that repair and clean-up of any hazardous waste occurs. To reduce fugitive dust resulting from project construction and to minimize adverse air quality impacts, the project would employ dust mitigation measures in accordance with the Mojave Desert Air Quality Management District's Rules 401 and 403.2, which would limit the amount of fugitive dust generated during construction. **MM-BIO-16** (Trash and Debris) would require trash and debris to be removed regularly and would require animal-resistant trash receptacles to avoid attracting urban-related predator species. **MM-BIO-18** (Lighting) would require night-time lighting during construction within 50 feet of habitat for special-status species to be shielded downward.

Potential long-term indirect impacts that could result from development within or adjacent to burrowing owl habitat include nighttime lighting and increased invasive plant species that may degrade habitat. **MM-BIO-17** (Invasive Plant Management) would require that landscape plants within 200 feet of native vegetation communities not be on the most recent version of Cal-IPC's California Invasive Plant Inventory (Cal-IPC 2006). **MM-BIO-18** (Lighting) would require night-time lighting during operations within 50 feet of habitat for special-status species to be shielded downward.

As discussed above, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-8** (Hazardous Waste), **MM-BIO-12** (Pre-Construction Surveys for Burrowing Owl and Avoidance), **MM-BIO-16** (Trash and Debris), **MM-BIO-17** (Invasive Plant Management), and **MM-BIO-18** (Lighting) would reduce potential indirect (short-term and long-term) impacts to burrowing owl to less than significant.

Loggerhead Shrike

Construction (short-term) activities have the potential to result in indirect impacts to loggerhead shrike and their habitat. Those impacts could include dust, noise and vibration, increased human presence, vehicle collisions, chemical spills, and night-time lighting. These potential short-term or temporary indirect impacts to loggerhead shrike would be significant absent mitigation under CEQA.

Post-construction (long-term) activities have the potential to result in indirect impacts to loggerhead shrike and their habitat. Long-term impacts that could result from development within or adjacent to loggerhead shrike habitat include nighttime lighting and increased invasive plant species that may degrade habitat. These potential long-term indirect impacts to loggerhead shrike would be significant absent mitigation under CEQA.

MM-BIO-13 (Pre-Construction Nesting Bird Surveys and Avoidance) would require nesting bird surveys and would result in establishment of construction buffers around nests, thus limiting effects from most short-term indirect impacts, including noise and vibration, increased human presence, night-time lighting, and vehicle collisions. **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), and **MM-BIO-6** (Construction Monitoring Notebook) would require that all workers complete WEAP training and would require ongoing biological monitoring and compliance with all biological resource mitigation. **MM-BIO-8** (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills be implemented, and that repair and clean-up of any hazardous waste occurs. To reduce fugitive dust resulting from construction and to minimize adverse air quality impacts, the project would employ dust mitigation measures in accordance with the Mojave Desert Air Quality Management District's Rules 401 and 403.2, which would limit the amount of fugitive dust generated during construction. **MM-BIO-18** (Lighting) would require night-time lighting during construction within 50 feet of habitat for special-status species to be shielded downward.

Potential long-term indirect impacts that could result from development within or adjacent to loggerhead shrike habitat include night-time lighting and increased invasive plant species that may degrade habitat. **MM-BIO-17** (Invasive Plant Management) would require that landscape plants within 200 feet of native vegetation communities not be on the most recent version of Cal-IPC's Inventory of Invasive Plants (Cal-IPC 2006). **MM-BIO-18** (Lighting) would require night-time lighting during operations within 50 feet of habitat for special-status species to be shielded downward.

Implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-8** (Hazardous Waste), **MM-BIO-13** (Pre-Construction Nesting Bird Surveys and Avoidance), **MM-BIO-17** (Invasive Plant Management), and **MM-BIO-18** (Lighting) would reduce potential indirect (short-term and long-term) impacts to loggerhead shrike to less than significant.

Bendire's Thrasher

Construction (short-term) activities have the potential to result in indirect impacts to Bendire's thrasher and their habitat. Those impacts could include dust, noise and vibration, increased human presence, vehicle collisions, chemical spills, and night-time lighting. These potential short-term or temporary indirect impacts to Bendire's thrasher would be significant absent mitigation under CEQA.

Post-construction (long-term) activities have the potential to result in indirect impacts to Bendire's thrasher and their habitat. Long-term impacts that could result from development within or adjacent to Bendire's thrasher habitat include nighttime lighting and increased invasive plant species that may degrade habitat. These potential long-term indirect impacts to Bendire's thrasher would be significant absent mitigation under CEQA.

MM-BIO-13 (Pre-Construction Nesting Bird Surveys and Avoidance) would require nesting bird surveys and would result in establishment of construction buffers around nests, thus limiting effects from most short-term indirect impacts, including noise and vibration, increased human presence, night-time lighting, and vehicle collisions. **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), and **MM-BIO-6** (Construction Monitoring Notebook) would require that all workers complete WEAP training, and would require ongoing biological monitoring and compliance with all biological resource mitigation. **MM-BIO-8** (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills be implemented, and that repair and clean-up of any hazardous waste occur. To reduce fugitive dust resulting from construction and to minimize adverse air quality impacts, the project would employ dust mitigation measures in accordance with the Mojave Desert Air Quality Management District's Rules 401 and 403.2, which would limit the amount of fugitive dust generated during construction. **MM-BIO-18** (Lighting) would require night-time lighting during construction within 50 feet of habitat for special-status species to be shielded downward.

Potential long-term indirect impacts that could result from development within or adjacent to Bendire's thrasher habitat include night-time lighting and increased invasive plant species that may degrade habitat. **MM-BIO-17** (Invasive Plant Management) would require that landscape plants within 200 feet of native vegetation communities not be on the most recent version of Cal-IPC's Inventory of Invasive Plants (Cal-IPC 2006). **MM-BIO-18** (Lighting) would require night-time lighting during operations within 50 feet of habitat for special-status species to be shielded downward.

As discussed above, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-8** (Hazardous Waste), **MM-BIO-13** (Pre-Construction Nesting Bird Surveys and Avoidance), **MM-BIO-17** (Invasive Plant Management), and **MM-BIO-18** (Lighting) would reduce potential indirect (short-term and long-term) impacts to Bendire's thrasher to less than significant.

LeConte's Thrasher

LeConte's thrasher was incidentally observed during 2022 protocol Mohave ground squirrel trapping surveys. The BSA supports suitable foraging habitat (desert scrub) and nesting habitat (spiny shrubs and cactus); therefore, construction (short-term) activities have the potential to result in indirect impacts to LeConte's thrasher and its habitat. Those impacts could include dust, noise and vibration, increased human presence, vehicle collisions, chemical spills, and night-time lighting. These potential short-term or temporary indirect impacts to loggerhead shrike would be significant absent mitigation under CEQA.

Post-construction (long-term) activities have the potential to result in indirect impacts to LeConte's thrashers and their habitat. Long-term impacts that could result from development within or adjacent to LeConte's thrasher habitat include nighttime lighting and increased invasive plant species that may degrade habitat. These potential long-term indirect impacts to LeConte's thrasher would be significant absent mitigation under CEQA.

MM-BIO-13 (Pre-Construction Nesting Bird Surveys and Avoidance) would require nesting bird surveys and would result in establishment of construction buffers around nests, thus limiting effects from most short-term indirect impacts, including noise and vibration, increased human presence, night-time lighting, and vehicle collisions. **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), and **MM-BIO-6** (Construction Monitoring Notebook) would require that all workers complete WEAP training and would require ongoing biological monitoring and compliance with all biological resource mitigation requirements. **MM-BIO-8** (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills be implemented, and that repair and clean-up of any hazardous waste occurs. To reduce fugitive dust resulting from construction and to minimize adverse air quality impacts, the project would employ dust mitigation measures in accordance with the Mojave Desert Air Quality Management District's Rules 401 and 403.2, which would limit the amount of fugitive dust generated during construction. **MM-BIO-18** (Lighting) would require night-time lighting during construction within 50 feet of habitat for special-status species to be shielded downward.

Potential long-term indirect impacts that could result from development within or adjacent to LeConte's thrasher habitat include night-time lighting and increased invasive plant species that may degrade habitat. **MM-BIO-17** (Invasive Plant Management) would require that landscape plants within 200 feet of native vegetation communities not be on the most recent version of Cal-IPC's Inventory of Invasive Plants (Cal-IPC 2006). **MM-BIO-18** (Lighting) would require night-time lighting during operations within 50 feet of habitat for special-status species to be shielded downward.

As discussed above, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-8** (Hazardous Waste), **MM-BIO-13** (Pre-Construction Nesting Bird Surveys and Avoidance), **MM-BIO-17** (Invasive Plant Management), and **MM-BIO-18** (Lighting) would reduce potential indirect (short-term and long-term) impacts to LeConte's thrasher to less than significant.

American Badger

Although no American badger individuals (or sign of individuals) were observed within the BSA, the project site does provide suitable habitat for this species. As such, construction activities have the potential to result in short-term indirect impacts to American badger and their habitat.

Those short-term indirect impacts could include dust, noise and vibration, trash and debris, increased human presence, vehicle collisions, chemical spills, and nighttime lighting. These potential short-term or temporary indirect impacts to the species would be significant absent mitigation under CEQA.

Post-construction (long-term) activities have the potential to result in indirect impacts to the species and their habitat. These impacts could include trash and debris, increased human presence, vehicle collisions, chemical spills, and nighttime lighting. Given the species could occupy the BSA prior to construction, potential long-term indirect impacts to American badger would be significant absent mitigation under CEQA.

MM-BIO-14 (Pre-Construction Survey for American Badger and Avoidance) would require a pre-construction survey for American badger, and if determined present, would result in establishment of an American badger mitigation and monitoring plan, which would include avoidance and minimization measures to reduce potential impacts, as well as compensatory mitigation to offset indirect impacts, including noise and vibration, increased human presence, nighttime lighting, and vehicle collisions. **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), and **MM-BIO-6** (Construction Monitoring Notebook) would require that all workers complete WEAP training and would require ongoing biological monitoring and compliance with all biological resource mitigation. **MM-BIO-8** (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills would be implemented, and that repair and clean-up of any hazardous waste occurs. To reduce fugitive dust resulting from project construction and to minimize adverse air quality impacts, the project would employ dust mitigation measures in accordance with the Mojave Desert Air Quality Management District's Rules 401 and 403.2, which would limit the amount of fugitive dust generated during construction.

Potential long-term indirect impacts that could result from development within or adjacent to the BSA include trash and debris, increased human presence, chemical spills, nighttime lighting, and increased invasive plant species that may degrade habitat. **MM-BIO-8** (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills would be implemented, and that repair and clean-up of any hazardous waste occurs. **MM-BIO-16** (Trash and Debris) would require trash and debris to be removed regularly and would require animal-resistant trash receptacles to avoid attracting urban-related predator species. **MM-BIO-17** (Invasive Plant Management) would require that landscape plants within 200 feet of native vegetation communities not be on the most recent version of Cal-IPC's California Invasive Plant Inventory (Cal-IPC 2006). **MM-BIO-18** (Lighting) would require nighttime lighting during operations within 50 feet of habitat for special-status species to be shielded downward.

As discussed above, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-8** (Hazardous Waste), **MM-BIO-14** (Pre-Construction Survey for American Badger and Avoidance), **MM-BIO-16** (Trash and Debris), **MM-BIO-17** (Invasive Plant Management), and **MM-BIO-18** (Lighting) would reduce potential indirect (short-term and long-term) impacts to American badger to less than significant.

Desert Kit Fox

Desert kit fox was observed within the BSA through camera trapping as part of the Mohave ground squirrel focused surveys. Therefore, construction (short-term) activities have the potential to result in short-term indirect impacts to desert kit fox and their habitat. Those impacts could include dust, noise and vibration, trash and debris, increased human presence, vehicle collisions, chemical spills, and nighttime lighting. These potential short-term or temporary indirect impacts to desert kit fox would be significant absent mitigation under CEQA.

Post-construction (long-term) activities have the potential to result in indirect impacts to this species and their habitat. These impacts could include trash and debris, increased human presence, vehicle collisions, chemical spills, and nighttime lighting. These potential long-term indirect impacts to desert kit fox would be significant absent mitigation under CEQA.

MM-BIO-15 (Pre-Construction Survey for Desert Kit Fox and Avoidance) would require a pre-construction survey for desert kit, and if determined present, would result in implementation of the prepared Desert Kit Fox Relocation and Mitigation Plan (Appendix J), which includes avoidance and minimization measures to reduce potential impacts, as well as compensatory mitigation to offset indirect impacts, including noise and vibration,

increased human presence, nighttime lighting, and vehicle collisions. **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), and **MM-BIO-6** (Construction Monitoring Notebook) would require that all workers complete WEAP training and would require ongoing biological monitoring and compliance with all biological resource mitigation. **MM-BIO-8** (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills would be implemented, and that repair and clean-up of any hazardous waste occurs. **MM-BIO-18** (Lighting) would require nighttime lighting during construction within 50 feet of habitat for special-status species to be shielded downward. To reduce fugitive dust resulting from project construction and to minimize adverse air quality impacts, the project would employ dust mitigation measures in accordance with the Mojave Desert Air Quality Management District's Rules 401 and 403.2, which would limit the amount of fugitive dust generated during construction.

Potential long-term indirect impacts that could result from development within or adjacent to the BSA include trash and debris, increased human presence, chemical spills, nighttime lighting, and increased invasive plant species that may degrade habitat. **MM-BIO-8** (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills would be implemented, and that repair and clean-up of any hazardous waste occurs. **MM-BIO-16** (Trash and Debris) would require trash and debris to be removed regularly and would require animal-resistant trash receptacles to avoid attracting urban-related predator species. **MM-BIO-17** (Invasive Plant Management) would require that landscape plants within 200 feet of native vegetation communities not be on the most recent version of Cal-IPC's California Invasive Plant Inventory (Cal-IPC 2006). **MM-BIO-18** (Lighting) would require nighttime lighting during operations within 50 feet of habitat for special-status species to be shielded downward.

As discussed above, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-8** (Hazardous Waste), **MM-BIO-15** (Pre-Construction Survey for Desert Kit Fox and Avoidance), **MM-BIO-16** (Trash and Debris), **MM-BIO-17** (Invasive Plant Management), and **MM-BIO-18** (Lighting) would reduce potential (short-term and long-term) indirect impacts to desert kit fox to less than significant.

Nesting Migratory Birds and Raptors

Construction activities have the potential to result in indirect impacts to nesting migratory birds and raptors and their habitats. Those impacts could include the loss of a nest through increased dust, noise and vibration, increased human presence, and night-time lighting. These potential short-term or temporary indirect impacts to these species would be significant absent mitigation under CEQA.

To ensure compliance with the California Fish and Game Code and MBTA, and to avoid potential indirect impacts to nesting birds, vegetation removal activities would be conducted outside of the general bird nesting season (February 1 through August 31, depending on the species), and if vegetation cannot be removed outside the bird nesting season, a pre-construction nesting bird survey (**MM-BIO-13**) by a qualified biologist would be required prior to vegetation removal. Indirect impacts, including increased dust, noise and vibration, increased human presence, and night-time lighting, would be offset through implementation of **MM-BIO-18** (Lighting), which would require night-time lighting during construction within 50 feet of habitat for special-status species to be shielded downward. **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), and **MM-BIO-6** (Construction Monitoring Notebook) would require that all workers complete WEAP training and would require ongoing biological monitoring and compliance with all biological resource mitigation requirements. To reduce fugitive dust resulting from project construction and to minimize adverse air quality impacts, the project would employ dust mitigation measures in accordance with the Mojave Desert Air Quality Management District's Rules 401 and 403.2, which would limit the amount of fugitive dust generated during construction.

Post-construction (long-term) activities have the potential to result in indirect impacts to migratory birds and raptors and their habitat. Those long-term impacts could result from development within or adjacent to suitable habitat, including nighttime lighting. These potential long-term indirect impacts to migratory birds and raptors are considered significant absent mitigation under CEQA.

MM-BIO-18 (Lighting) would require nighttime lighting during operations within 50 feet of habitat for special-status species to be shielded downward.

As discussed above, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-13** (Pre-Construction Nesting Bird Surveys and Avoidance), and **MM-BIO-18** (Lighting) would reduce potential indirect (short-term and long-term) impacts to nesting migratory birds and raptors to less than significant.

6.3.2 Impact BIO-2: Sensitive Vegetation Communities

6.3.2.1 Direct Impacts

A total of 92 acres would be directly impacted from the project, including 67.3 acres of permanent impacts within the project site, 10.6 acres of permanent impacts within the off-site improvement areas, and 14 acres of temporary impacts within the off-site improvement areas (Figure 7). As stated in Section 5.1, Vegetation Communities and Land Covers, and Section 6.3, Impacts Analysis, CDFW state rankings of 1, 2, and 3 are considered high priority for inventory or special-status and impacts to these communities typically require mitigation. The project site does not contain any sensitive vegetation communities; therefore, direct impacts to sensitive vegetation communities are not anticipated to occur, and no additional measures are recommended. No direct impacts would occur.

6.3.2.2 Indirect Impacts

No sensitive vegetation communities occur within the 100-foot buffer of the project site, as stated in Section 5.1 and Table 3. Therefore, implementation of the project would likely not result in any indirect impacts to sensitive vegetation communities. However, implementation of **MM-BIO-3** (Designated Biologist Authority) gives the project's designated biologist the authority to stop work if construction is not compliant with this CEQA document. **MM-BIO-4** (Compliance Monitoring) requires that an experienced biologist oversee compliance with the protective measures, including limiting impacts to the project impact footprint. **MM-BIO-5** (Education Program) would provide construction personnel with training related to sensitive vegetation communities that could potentially occur adjacent to the impact footprint (e.g., Joshua tree woodland that may be present outside of the project's 100-foot buffer). **MM-BIO-6** (Construction Monitoring Notebook) provides for documentation that the education program was administered to applicable personnel. **MM-BIO-7** (Delineation of Property Boundaries) requires that impacts occur within the fenced, staked, or flagged area that is clearly delineated within the project impact footprint. Thus, implementation of **MM-BIO-3** through **MM-BIO-7** would enable the project to avoid and minimize inadvertent spillover impacts outside of the approved impact footprint.

To reduce fugitive dust resulting from project construction and to minimize adverse air quality impacts, the project would employ dust mitigation measures in accordance with the Mojave Desert Air Quality Management District's Rules 401 and 403.2, which would limit the amount of fugitive dust generated during construction.

MM-BIO-8 (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills would be implemented, and that repair and clean-up of any hazardous waste occurs. Thus, implementation of

MM-BIO-8 (Hazardous Waste) would help to avoid and minimize indirect impacts to sensitive vegetation communities that could potentially occur adjacent to the impact footprint (e.g., Joshua tree woodland that may be present outside of the project's 100-foot buffer) from any construction-related chemical spills.

A SWPPP would be prepared and implemented to prevent all construction pollutants from contacting stormwater during construction activities, with the intent of keeping sediment and any other pollutants from moving off site and into receiving waters. BMP categories employed on site would include erosion control, sediment control, and non-stormwater good housekeeping. Preparation and implementation of a SWPPP would help to avoid and minimize the potential effects of stormwater erosion during construction.

Construction of the project would introduce potential ignition sources to the project site, including the use of heavy machinery and the potential for sparks during welding activities or other hot work. However, the project would be required to comply with Town and state requirements for fire safety practices to reduce the possibility of fires during construction activities. Further, vegetation would be removed from the site prior to the start of construction. Adherence to Town and state regulatory standards during project construction would reduce the risk of wildfire ignition and spread during construction activities. Therefore, short-term construction impacts involving wildland fires would not be substantial.

MM-BIO-9 (Herbicides) would limit herbicide use to instances where hand or mechanical efforts are infeasible and would only be applied when wind speeds are less than 7 miles per hour to prevent drift into off-site adjacent areas that may potentially contain sensitive vegetation communities.

Implementation of low-impact-development features and BMPs would, to the maximum extent practicable, reduce the discharge of pollutants into receiving waters, including inadvertent release of pollutants (e.g., hydraulic fluids and petroleum), the improper management of hazardous materials, trash and debris, and the improper management of portable restroom facilities (e.g., regular service) in accordance with all relevant local and state development standards. In addition, in accordance with CalGreen requirements (California Green Building Standards Code, CCR, Title 24, Part 11), project source controls to improve water quality would be provided for outdoor material storage areas, outdoor trash storage/waste handling areas, and outdoor loading/unloading areas. Therefore, impacts to sensitive vegetation communities that could potentially occur on and or adjacent to the impact footprint (e.g., Joshua tree woodland that may be present outside of the project's 100-foot buffer) due to changes in water quality would be avoided and minimized through implementation of low-impact-development features and BMPs.

Upon completion of project construction, with adherence to the Town of Apple Valley Municipal Code and because of the low ignitability of the proposed structures and implementation of fire-resistant and irrigated landscaping, the project would not facilitate wildfire spread or exacerbate wildfire risk. Further, given that surrounding off-site fuels consist of moderately spaced vegetation, wildfires in the immediate surrounding area are not common, and it is unlikely that the project site would be exposed to the uncontrolled spread of a wildfire. It is not anticipated that the project, due to slope, prevailing winds, and other factors, would exacerbate wildfire risks or the uncontrolled spread of a wildfire; thus, with adherence to the Town of Apple Valley Municipal Code, long-term indirect impacts to sensitive vegetation communities that could potentially occur adjacent to the impact footprint (e.g., Joshua tree woodland that may be present outside of the project's 100-foot buffer) associated with increased wildlife risk is not expected to occur.

Implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-7** (Delineation of Property Boundaries), **MM-BIO-8** (Hazardous Waste), and **MM-BIO-9** (Herbicides) would reduce potential indirect impacts to sensitive vegetation communities that could potentially occur adjacent to the impact footprint to less than significant.

6.3.3 Impact BIO-3: State or Federally Protected Wetlands

The BSA supports 0.9 (specifically 0.909) acres of ephemeral drainages consisting of 0.9 (specifically 0.881) acres of non-wetland waters of the state under RWQCB, and 0.9 (specifically 0.909) acres of jurisdictional streambed under CDFW.

6.3.3.1 Direct Impacts

The project would result in direct impacts to 0.580 acres of potential non-wetland waters of the state under RWQCB jurisdiction and streambed under CDFW jurisdiction, specifically 0.464 acres of on-site permanent impacts, 0.083 acres of permanent impacts within off-site improvement areas, and 0.033 acres of temporary impacts within off-site improvement areas (Figure 9, Impacts to Jurisdictional Aquatic Resources). The ephemeral drainages present are not likely subject to USACE jurisdiction because these features are isolated and do not meet the relatively permanent or significant nexus standard as a water of the United States. However, the ultimate decisions on the amount and location of jurisdictional resources are made by the resource agencies (i.e., USACE, CDFW, and RWQCB). These potential direct impacts to jurisdictional waters would be significant absent mitigation under CEQA.

There would be direct permanent impacts to 0.580 acres of jurisdictional aquatic resources with project implementation. While the project would result in direct temporary impacts to 0.033 acres of jurisdictional aquatic resources, due to the minimal temporary impact acreage and for purposes of this analysis, the 0.033 acres of temporary impacts to jurisdictional aquatic resources is being considered a permanent impact. Therefore, due to direct permanent impacts to 0.580 acres of non-wetland waters and streams that are regulated under the California Porter–Cologne Act and California Fish and Game Code, permits would be required from each of the regulatory agencies and typically entail providing mitigation to offset the impacts and loss of beneficial uses, functions, and values to the jurisdictional waters and habitats. RWQCB regulates waters of the state under California’s Porter–Cologne Act. California Fish and Game Code Sections 1600–1616 give CDFW regulatory powers over streams and lakes, as well as vegetation associated with these features. **MM-BIO-19** (Aquatic Resources Mitigation) would require obtaining permits from each of the regulatory agencies (RWQCB and CDFW). Based on the project design, it is assumed that the project would require a waste discharge requirement; therefore, an application must be submitted to RWQCB. A Streambed Alteration Agreement would be required for impacts to jurisdictional streambed under CDFW.

In addition, **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), and **MM-BIO-6** (Construction Monitoring Notebook) would require that all workers complete WEAP training and would require ongoing biological monitoring and compliance with all biological resource mitigation requirements. **MM-BIO-7** (Delineation of Property Boundaries) requires that impacts occur within the fenced, staked, or flagged area that is clearly delineated within the project impact footprint. The construction crew would be responsible for unauthorized impacts from construction activities to waters of the state that are outside the permitted project footprint, if applicable. **MM-BIO-8** (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills would be implemented, and that repair and clean-up of any hazardous

waste occurs. To reduce fugitive dust resulting from project construction and to minimize adverse air quality impacts, the project would employ dust mitigation measures in accordance with the Mojave Desert Air Quality Management District's Rules 401 and 403.2, which limit the amount of fugitive dust generated during construction.

Implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-7** (Delineation of Property Boundaries), **MM-BIO-8** (Hazardous Waste), and **MM-BIO-19** (Aquatic Resources Mitigation) would reduce potential direct impacts to jurisdictional aquatic resources to less than significant.

6.3.3.2 Indirect Impacts

Construction-related (short-term) indirect impacts may include inadvertent spillover impacts outside of the construction footprint, chemical spills, and stormwater erosion and sedimentation. These potential short-term or temporary indirect impacts to jurisdictional aquatic resources would be significant absent mitigation under CEQA.

Post-construction (long-term) indirect impacts from operations and maintenance activities may include changes in water quality and accidental chemical spills. These potential long-term indirect impacts to jurisdictional aquatic resources would be significant absent mitigation under CEQA.

Potential short-term indirect impacts would be significant absent mitigation. Implementation of **MM-BIO-3** (Designated Biologist Authority) gives the project's designated biologist the authority to stop work if construction is not compliant with this CEQA document. **MM-BIO-4** (Compliance Monitoring) requires that an experienced biologist oversee compliance with the protective measures, including limiting impacts within the project footprint. **MM-BIO-5** (Education Program) would provide construction personnel with training related to waters of the state that are present on and adjacent to the impact footprint. **MM-BIO-6** (Construction Monitoring Notebook) provides for documentation that the education program was administered to applicable personnel. **MM-BIO-7** (Delineation of Property Boundaries) requires that impacts occur within the fenced, staked, or flagged area that is clearly delineated within the project impact footprint. The construction crew would be responsible for unauthorized impacts from construction activities to waters of the state that are outside the permitted project footprint, if applicable. Thus, implementation of **MM-BIO-3** through **MM-BIO-5** and **MM-BIO-7** would enable the project to avoid and minimize inadvertent spillover impacts outside of the approved impact footprint.

MM-BIO-8 (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills would be implemented, and that repair and clean-up of any hazardous waste occurs. Thus, implementation of **MM-BIO-8** (Hazardous Waste) would help to avoid and minimize impacts to waters of the state from any construction-related chemical spills.

A SWPPP would be prepared and implemented to prevent construction pollutants from contacting stormwater during construction activities, with the intent of keeping sediment and any other pollutants from moving off site and into receiving waters. BMP categories employed on site would include erosion control, sediment control, and non-stormwater good housekeeping. Preparation and implementation of a SWPPP would help to avoid and minimize the potential effects of stormwater erosion during construction.

Potential long-term (post-construction) indirect impacts from operations and maintenance activities may include changes in water quality and accidental chemical spills. Implementation of low-impact-development features and BMPs would, to the maximum extent practicable, reduce the discharge of pollutants into receiving waters, including

inadvertent release of pollutants (e.g., hydraulic fluids and petroleum); the improper management of hazardous materials; trash and debris; and the improper management of portable restroom facilities (e.g., regular service) in accordance with all relevant local and state development standards. In addition, in accordance with CalGreen requirements (California Green Building Standards Code, CCR, Title 24, Part 11), project source controls to improve water quality would be provided for outdoor material storage areas, outdoor trash storage/waste handling areas, and outdoor loading/unloading areas. Therefore, impacts to jurisdictional aquatic resources due to changes in water quality would be avoided and minimized through implementation of low-impact-development features and BMPs.

MM-BIO-8 (Hazardous Waste) would ensure that a prompt and effective response to any accidental chemical spills would be implemented, and that repair and clean-up of any hazardous waste occurs. Thus, implementation of **MM-BIO-8** (Hazardous Waste) would help to avoid and minimize impacts to jurisdictional aquatic resources from any operations-related chemical spills.

As discussed above, implementation of **MM-BIO-3** (Designated Biologist Authority), **MM-BIO-4** (Compliance Monitoring), **MM-BIO-5** (Education Program), **MM-BIO-6** (Construction Monitoring Notebook), **MM-BIO-7** (Delineation of Property Boundaries), and **MM-BIO-8** (Hazardous Waste) would reduce potential indirect (short-term and long-term) impacts to jurisdictional aquatic resources to less than significant.

6.3.4 Impact BIO-4: Wildlife Corridors and Habitat Linkages

6.3.4.1 Direct Impacts

No significant direct permanent impacts would occur on wildlife movement or use of native wildlife nursery sites associated with project activities. Existing nearby habitat linkages and wildlife corridor functions would remain intact while construction activities are conducted and following project completion. Wildlife movement may be temporarily disrupted during the construction phase of the project, although this effect would be both localized and short-term. Nearby corridors that could support wildlife movement in the region, such as the Mojave River, which is approximately 8 miles southeast of the BSA, would not be impacted by the project. Further, the project site does not contain nursery sites, such as bat colony roosting sites or colonial bird nesting areas. Therefore, impacts associated with wildlife movement, wildlife corridors, and wildlife nursery sites would be less than significant under CEQA.

6.3.4.2 Indirect Impacts

Construction-related short-term noise and work in the vicinity would be temporary and would not be expected to significantly disrupt wildlife movement due to ambient noise conditions and the ability for wildlife to continue to move around the construction area and upland portions of the BSA during and after construction. Temporary disturbance to local species may occur but would not substantially degrade the quality or use of the vegetation communities in the vicinity. Work activities are not currently proposed during the nighttime. Therefore, implementation of the project would not result in significant short-term indirect impacts to wildlife corridors or migratory routes.

Potential long-term (post-construction) indirect impacts from operations and maintenance activities could disrupt wildlife movement around the project site due to increased lighting from buildings. **MM-BIO-18** (Lighting) would ensure all lighting during operations and within 50 feet of the outside edge of the impact footprint containing habitat for special-status wildlife would be directed away from natural areas.

Implementation of **MM-BIO-18** (Lighting) would reduce potential indirect impacts to wildlife movement to less than significant.

6.3.5 Impact BIO-5: Associated with Local Policies and Ordinances

California Desert Native Plants and Western Joshua Tree

Eight western Joshua trees were documented within the BSA; however, only one individual was documented within the project site and would be directly removed by the project (Figure 8). In addition to western Joshua tree, two desert native plants were observed within the BSA during the focused desert native plant survey: Wiggins' cholla and branched pencil cholla. Specifically, 6 Wiggins' cholla and 12 branched pencil cholla would be directly removed by the project (Figure 9).

Therefore, because the focused desert native plant survey was positive for western Joshua tree, Wiggins' cholla, and branched pencil cholla, and in accordance with the CDNPA and Chapter 9.76 of the Apple Valley Municipal Code, a native plant removal permit must be obtained from the Town prior to the removal of these individuals. These impacts are addressed in the Joshua Tree Preservation, Protection, and Relocation Plan, and Desert Native Plant Relocation Plan (Appendix B), prepared to provide detailed specifications for the project applicant to meet the requirements of Chapter 9.76 of the Apple Valley Municipal Code to protect, preserve, and mitigate impacts to desert native plants.

Pursuant to **MM-BIO-2** (Relocation of Desert Native Plants), the project applicant will submit an application and applicable fee paid to the Town for removal or relocation of protected native desert plants under Town of Apple Valley Municipal Code Chapter 9.76. The application will include certification from a qualified Joshua tree and native desert plant expert to determine that proposed removal or relocation of protected native desert plants are appropriate, supportive of a healthy environment, and in compliance with the Town of Apple Valley's Municipal Code. The application will include the Joshua Tree Preservation, Protection, and Relocation Plan, and Desert Native Plant Relocation Plan (Appendix B). The plan was prepared by a qualified Joshua tree and native desert plant expert. The Joshua Tree Preservation, Protection, and Relocation Plan addresses the requirements of the Town's Protected Plant Policy and provides details for the initial survey of the BSA's Joshua trees, detailed specifications for the protection of trees to be preserved on site, and relocation/salvage requirements for those trees requiring removal and relocation. With the incorporation of mitigation, and with adherence to both the CDNPA and the Town of Apple Valley's Municipal Code, impacts associated with western Joshua tree and desert native plants would be less than significant.

The project could result in potentially significant impacts to native desert plants and western Joshua trees protected by state and local plant and tree preservation regulations, absent mitigation. Implementation of **MM-BIO-1** (Conservation of Western Joshua Tree Lands) and **MM-BIO-2** (Relocation of Desert Native Plants) would reduce potential impacts California desert native plants and western Joshua tree to less than significant.

6.3.6 Impact BIO-6: Habitat Conservation Plans

The project is within the California Desert Conservation Area Plan (BLM 1980). The project is also within the Draft West Mojave Plan area (BLM 2005) and the Desert Renewable Energy Conservation Plan area (BLM 2016). The West Mojave Plan and Desert Renewable Energy Conservation Plan are amendments to the California Desert Conservation Area Plan. The BLM issued a Record of Decision for the West Mojave Plan in 2006, although the West

Mojave Plan has not been formally adopted. The project would not conflict with the conservation criteria associated with the California Desert Conservation Area Plan or Desert Renewable Energy Conservation Plan. Therefore, impacts associated with an adopted habitat conservation plan would be less than significant under CEQA.

7 Mitigation

MM-BIO-1 Conservation of Western Joshua Tree Lands. Mitigation for direct impacts to one western Joshua tree will be fulfilled through a payment of the elected fees as described in Section 1927.3 of the Western Joshua Tree Conservation Act. In conformance with the fee schedule, mitigation will consist of payment of \$1,000 for each western Joshua tree 5 meters or greater in height and \$500 for each western Joshua tree less than 5 meters in height. Alternatively, mitigation will occur through off-site conservation, through a CDFW approved mitigation bank, or as required by an Incidental Take Permit, if received.

MM-BIO-2 Relocation of Desert Native Plants. Prior to the issuance of grading permits, the project applicant shall submit an application and applicable fee paid to the Town of Apple Valley for removal or relocation of protected native desert plants under Town of Apple Valley Municipal Code Chapter 9.76, as required, and shall schedule a pre-construction site inspection with the appropriate authority. In addition, a plot plan shall be approved by the appropriate Town of Apple Valley Review Authority (County Certified Plant Expert, Planning Commission, or Town Council) indicating exactly which trees or plants are authorized to be removed.

The application shall include certification from a qualified western Joshua tree and native desert plant expert(s) to determine that proposed removal or relocation of protected native desert plants are appropriate, supportive of a healthy environment, and in compliance with the Town of Apple Valley Municipal Code. Protected plants subject to Town of Apple Valley Municipal Code Chapter 9.76 may be relocated on site or within an area designated for the species.

The application shall include a detailed plan for removal of all protected plants on the project site. The plan shall be prepared by a qualified western Joshua tree and native desert plant expert(s). The plan shall include the following measures:

- Salvaged plants shall be transplanted expeditiously to either their final on-site location or to an approved off-site area. If the plants cannot be expeditiously taken to their permanent relocation area at the time of excavation, they may be transplanted in a temporary area (stockpiled) prior to being moved to their permanent relocation site(s).
- Western Joshua trees shall be marked on their north-facing side prior to excavation. Transplanted western Joshua trees shall be planted in the same orientation as they currently occur on the project site, with the marking on the north side of the trees facing north at the relocation site(s).
- Transplanted plants shall be watered prior to and at the time of transplantation. The schedule of watering shall be determined by the qualified tree expert and desert native plant expert(s) to maintain plant health. Watering of the transplanted plants shall continue under the guidance of a qualified tree expert and desert native plant expert(s) until it has been determined that the transplants have become established in the permanent relocation site(s) and no longer require supplemental watering.

- MM-BIO-3 **Designated Biologist Authority.** The designated biologist shall have authority to immediately stop any activity that does not comply with the biological resources mitigation measures and/or to order any reasonable measure to avoid the unauthorized take of an individual western Joshua tree.
- MM-BIO-4 **Compliance Monitoring.** The designated biologist shall be on site daily when impacts occur. The designated biologist shall conduct compliance inspections to minimize incidental take of western Joshua trees and impacts to other sensitive biological resources; prevent unlawful take of western Joshua trees; and ensure that signs, stakes, and fencing are intact, and that impacts are only occurring outside the permitted impact footprint. Weekly written observation and inspection records that summarize oversight activities and compliance inspections and monitoring activities required by the Incidental Take Permit shall be prepared.
- MM-BIO-5 **Education Program.** An education program (Worker Environmental Awareness Program [WEAP]) for all persons employed or otherwise working in the Project area shall be administered before performing impacts. The WEAP shall consist of a presentation from the designated biologist that includes a discussion of the biology and status of western Joshua trees, burrowing owls, and loggerhead shrikes, and other biological resources mitigation measures described in the California Environmental Quality Act document. Interpretation for non-English-speaking workers shall be provided, and the same instruction shall be provided to all new workers before they are authorized to perform work in the project area. Upon completion of the WEAP, employees shall sign a form stating they attended the program and understand all protection measures. This training shall be repeated at least once annually for long-term and/or permanent employees who will be conducting work in the project area.
- MM-BIO-6 **Construction Monitoring Notebook.** The designated biologist shall maintain a construction-monitoring notebook on site throughout the construction period that shall include a copy of the biological resources mitigation measures with attachments and a list of signatures of all personnel who have successfully completed the education program. The permittee shall ensure that a copy of the construction monitoring notebook is available for review at the project site upon request by the California Department of Fish and Wildlife.
- MM-BIO-7 **Delineation of Property Boundaries.** Before beginning activities that would cause impacts, the contractor shall, in consultation with the designated biologist, clearly delineate the boundaries with fencing, stakes, or flags, consistent with the grading plan, within which project impacts will take place. All impacts outside the fenced, staked, or flagged areas shall be avoided, and all fencing, stakes, and flags shall be maintained until the completion of impacts in that area.
- MM-BIO-8 **Hazardous Waste.** The applicant shall immediately stop work and, pursuant to pertinent state and federal statutes and regulations, arrange for repair and clean up by qualified individuals of any fuel or hazardous waste leaks or spills at the time of occurrence, or as soon as it is safe to do so.
- MM-BIO-9 **Herbicides.** The applicant shall limit herbicide use for invasive plant species and shall use herbicides only if it has been determined that hand or mechanical efforts are infeasible. To prevent drift, the permittee shall apply herbicides only when wind speeds are less than 7 miles per hour. All herbicide application shall be performed by a licensed applicator and in accordance with all applicable federal, state, and local laws and regulations.

MM-BIO-10 Pre-Construction Clearance Surveys for Mojave Desert Tortoise and Avoidance. Two consecutive pre-construction clearance survey in accordance with current U.S. Fish and Wildlife Service (USFWS) protocol shall be conducted to reevaluate locations of potential Mojave desert tortoise burrows within the project limits so take of Mojave desert tortoise can be avoided. The first pre-construction clearance survey shall be conducted in areas supporting potentially suitable habitat 14 to 21 days prior to the start of construction activities and a second survey shall be repeated within 72 hours prior to the start of construction activities; or alternatively, pre-construction clearance surveys may be conducted at any time following construction of a desert tortoise-proof fence encompassing the project site that would ensure that tortoises cannot enter the project after clearance surveys are completed. If no Mojave desert tortoises are found during the surveys, no further mitigation would be required; however, desert tortoise-proof fence encompassing the project site shall remain in place until project construction is completed, and shall be monitored by a qualified biologist in compliance with current USFWS protocol.

Should Mojave desert tortoise be located during the clearance survey, all methods used for handling desert tortoises during the clearance surveys must be in accordance with the USFWS Desert Tortoise Field Manual or project-specific guidance contained in a biological opinion or Incidental Take Permit. No take of Mojave desert tortoise shall occur without authorization in the form of an Incidental Take Permit pursuant to California Fish and Game Code Section 2081 and a biological opinion or Habitat Conservation Plan. The project applicant shall adhere to measures and conditions set forth within the Incidental Take Permit. Anyone who handles desert tortoises during clearance activities must have the appropriate authorizations from USFWS. The area cleared and number of Mojave desert tortoises found within that area shall be reported to the local USFWS and appropriate state wildlife agency. Notification shall be made in accordance with the conditions of the biological opinion or Incidental Take Permit.

Should Mojave desert tortoise be located during the clearance survey, the project would result in the loss of 75.1 acres of suitable habitat for Mojave desert tortoise. Mitigation for direct impacts to 75.1 acres shall be fulfilled through conservation of suitable Mojave desert tortoise habitat through the purchase of credits at a minimum of 1:1 in-kind habitat replacement of equal or better functions and values to those impacted by the project, for a total of 75.1 acres or as otherwise determined through coordination with the USFWS and/or California Department of Fish and Wildlife.

MM-BIO-11 Restoration of Temporary Impacts. Site construction areas subjected to temporary ground disturbance from the off-site utility improvement areas (e.g., trenching for installation of associated off-site utilities including sewer and gas) shall be recontoured to natural grade (if the grade was modified during the temporary disturbance activity). The project does not include revegetation or restoration of temporary impacts after project completion. However, natural vegetation will be allowed to regenerate in temporary disturbed areas. Furthermore, if topsoil is removed during construction, the segregated topsoil will be replaced, and the native seed will be allowed to regenerate naturally. This measure does not apply to areas that are urban/developed that are temporarily impacted and will be returned to an urban/developed land use.

MM-BIO-12 Pre-Construction Surveys for Burrowing Owl and Avoidance. One pre-construction burrowing owl survey shall be completed no more than 14 days before initiation of site preparation or grading activities, and a second survey shall be completed within 24 hours of the start of site preparation

or grading activities. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction surveys, the project site and off-site improvement areas shall be resurveyed. Surveys for burrowing owl shall be conducted in accordance with protocols established in the California Department of Fish and Wildlife's 2012 (or most recent version) Staff Report on Burrowing Owl Mitigation.

If burrowing owls are detected, the Burrowing Owl Relocation Plan shall be implemented in consultation with the California Department of Fish and Wildlife (CDFW). As required by the Burrowing Owl Relocation Plan, disturbance to burrows shall be avoided during the nesting season (February 1 through August 31). Buffers shall be established around occupied burrows in accordance with guidance provided in CDFW's Staff Report on Burrowing Owl Mitigation. No project activities shall be allowed to encroach into established buffers without the consent of a monitoring biologist. The buffer shall remain in place until it is determined that occupied burrows have been vacated or the nesting season has completed.

Outside of the nesting season, passive owl relocation techniques approved by CDFW shall be implemented. Owls shall be excluded from burrows in the immediate project area and within a buffer zone by installing one-way doors in burrow entrances. These doors shall be placed at least 48 hours prior to ground-disturbing activities. The project site shall be monitored daily for 1 week to confirm owl departure from burrows prior to any ground-disturbing activities. Compensatory mitigation for permanent loss of owl habitat shall be provided following the guidance in CDFW's Staff Report on Burrowing Owl Mitigation.

Where possible, burrows shall be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe shall be inserted into the tunnels during excavation to maintain an escape route for any wildlife inside the burrow.

Should burrowing owl be located during the clearance survey, the project would result in the loss of 75.1 acres of suitable habitat for burrowing owl. Mitigation for direct impacts to 75.1 acres shall be fulfilled through conservation of suitable burrowing owl habitat through the purchase of credits at a minimum of 1:1 in-kind habitat replacement of equal or better functions and values to those impacted by the project, for a total of 75.1 acres.

- MM-BIO-13 **Pre-Construction Nesting Bird Surveys and Avoidance.** Special-status bird species that were observed within the Project site include burrowing owl and LeConte's thrasher. Two additional special-status bird species have a moderate to high potential to occur: Bendire's thrasher and loggerhead shrike. The Project also contains trees, shrubs, and other vegetation that provide opportunities for other non-sensitive birds and raptors to nest on site. Construction activities shall avoid the migratory bird nesting season (typically February 1 through August 31) to reduce any potential significant impact to birds that may be nesting in the survey area. If construction activities must occur during the migratory bird nesting season, an avian nesting survey of the project site and within 500 feet of all impact areas must be conducted to determine the presence/absence of protected migratory birds and active nests. The avian nesting survey shall be performed by a qualified wildlife biologist within 72 hours prior to the start of construction in accordance with the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, and 3513. If an active bird nest is found, the nest shall be flagged and mapped on the construction plans, along

with an appropriate buffer established around the nest, which shall be determined by the biologist based on the species' sensitivity to disturbance (typically 300 feet for passerines and 500 feet for raptors and special-status species). The nest area shall be avoided until the nest is vacated and the juveniles have fledged. The nest area shall be demarcated in the field with flagging and stakes or construction fencing. On-site construction monitoring shall be conducted when construction occurs in close proximity to an active nest buffer. No project activities shall encroach into established buffers without the consent of a monitoring biologist. The buffer shall remain in place until it is determined that the nestlings have fledged and the nest is no longer active.

MM-BIO-14 **Pre-Construction Survey for American Badger and Avoidance.** A pre-construction survey for American badger shall be conducted within 10 days before initiation of site preparation or grading activities to determine the presence/absence of American badger. If discovered during the survey, an American badger mitigation and monitoring plan shall be developed. The mitigation and monitoring plan shall include avoidance and minimization measures to reduce potential impacts, as well as compensatory mitigation to offset direct or indirect impacts. The plan shall be developed in consultation with the California Department of Fish and Wildlife. At a minimum, the plan shall do the following:

- Identify pre-construction survey methods for American badger
- Describe feasible pre-construction and construction-phase avoidance methods
- Describe pre-construction and construction-phase relocation methods, including the possibility for passive relocation
- For burrows that will not be impacted by the project, identify an appropriate construction exclusion zone for both active and natal burrows

MM-BIO-15 **Pre-Construction Survey for Desert Kit Fox and Avoidance.** A pre-construction survey for desert kit fox shall be conducted within 10 days before initiation of site preparation or grading activities to determine the presence/absence of desert kit fox.

If desert kit fox is detected, the desert kit fox relocation and mitigation plan shall be implemented. As required by the desert kit fox relocation and mitigation plan, if an active non-natal desert kit fox den is detected, a 200-foot no disturbance buffer shall be established around the active den, unless otherwise authorized by the California Department of Fish and Wildlife (CDFW). Where required buffering will not be feasible, passive relocation, as outlined in the desert kit fox relocation and mitigation plan, shall be allowed with concurrence from the County of San Bernardino, CDFW, and U.S. Fish and Wildlife Service. If an active natal desert kit fox den is detected, an initial 200 foot no disturbance buffer shall be established around the natal den, and this buffer shall be maintained until the den can be verified to not host pups. Construction activities shall not be permitted in this area until the den has been vacated. Once the den is vacated, and if in danger by construction, it can be collapsed, if deemed necessary by a qualified biologist.

A report to evaluate the success of the relocation efforts and any subsequent re-occupation, if applicable, shall be provided (including a comprehensive summary, tables, maps, and other necessary materials) at the end of the construction period. Data shall be readily available to the CDFW upon request. If an injured, sick, or dead desert kit fox is detected on any area associated with the

project, the designated CDFW personnel at both the Ontario office and the Wildlife Investigation Lab shall be notified as described within the desert kit fox relocation and mitigation plan.

- MM-BIO-16 **Trash and Debris.** The following avoidance and minimization measures shall be implemented during project construction:
- Fully covered trash receptacles that are animal-proof shall be installed and used by the operator to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Trash contained within the receptacles shall be removed at least once a week from the project site.
 - Construction work areas shall be kept clean of debris, such as cable, trash, and construction materials. All construction/contractor personnel shall collect all litter, vehicle fluids, and food waste from the project site on a daily basis.
- MM-BIO-17 **Invasive Plant Management.** To reduce the spread of invasive plant species, landscape plants within 200 feet of native vegetation communities shall not be on the most recent version of the California Invasive Plant Council's Inventory of Invasive Plants (<http://www.cal-ipc.org/ip/inventory/index.php>). Post-construction, the project applicant shall continually remove invasive plant species on site by hand or mechanical methods, as feasible.
- MM-BIO-18 **Lighting.** Lighting for construction activities and operations within 50 feet of the outside edge of the impact footprint containing habitat for special-status wildlife shall be directed away from natural areas.
- MM-BIO-19 **Aquatic Resources Mitigation.** The project site supports aquatic resources that are considered jurisdictional under the Regional Water Quality Control Board (RWQCB) and the California Department of Fish and Wildlife (CDFW). Prior to construction activity, the applicant shall coordinate with the Lahontan RWQCB (Region 6) to ensure conformance with the requirements of the Porter–Cologne Water Quality Control Act (waste discharge requirement). Prior to activity within CDFW jurisdictional streambed or associated riparian habitat, the applicant shall coordinate with CDFW (Inland Deserts Region 6) relative to conformance to the Lake and Streambed Alteration permit requirements.

The project shall mitigate to ensure no-net-loss of waters at a minimum of 1:1 with purchase of credits (0.580 acres RWQCB/CDFW; specifically, 0.464 acres of on-site permanent impacts, 0.083 acres of permanent impacts within off-site improvement areas, and 0.033 acres of temporary impacts within off-site improvement areas) for impacts to aquatic resources as part of an overall strategy to ensure no net loss. Mitigation shall be completed through use of a mitigation bank (e.g., West Mojave Mitigation Bank) or other applicant-sponsored mitigation. Final mitigation ratios and credits shall be determined in consultation with RWQCB and/or CDFW based on agency evaluation of current resource functions and values and through each agency's respective permitting process. Additionally, the 0.033 acres of temporary impacts within the off-site improvement areas shall be recontoured to pre-project contours, and a native seed mix shall be applied. Should applicant-sponsored mitigation be implemented, a Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared in accordance with State Water Resources Control Board guidelines and approved by the agencies in accordance with the proposed program permits. The HMMP shall include a conceptual

planting plan including planting zones, grading, and irrigation, as applicable; a conceptual planting plant palette; a long-term maintenance and monitoring plan; annual reporting requirements; and proposed success criteria. Any off-site applicant-sponsored mitigation shall be conserved and managed in perpetuity.

Best management practices shall be implemented to avoid any indirect impacts on jurisdictional waters, including the following:

- Vehicles and equipment shall not be operated in ponded or flowing water except as described in permits.
- Water containing mud, silt, or other pollutants from grading or other activities shall not be allowed to enter jurisdictional waters or be placed in locations that may be subjected to high storm flows.
- Spoil sites shall not be located within 30 feet from the boundaries of jurisdictional waters or in locations that may be subject to high storm flows, where spoils might be washed back into drainages.
- Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources resulting from project-related activities shall be prevented from contaminating the soil and/or entering avoided jurisdictional waters.
- No equipment maintenance shall be performed within 100 feet of jurisdictional waters, including wetlands and riparian areas, where petroleum products or other pollutants from the equipment may enter these areas. Fueling of equipment shall not occur on the project site.

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8 Level of Significance After Mitigation

All direct and indirect impacts to sensitive and special-status biological resources that would result from implementation of the proposed project would be either less than significant or less than significant after mitigation.

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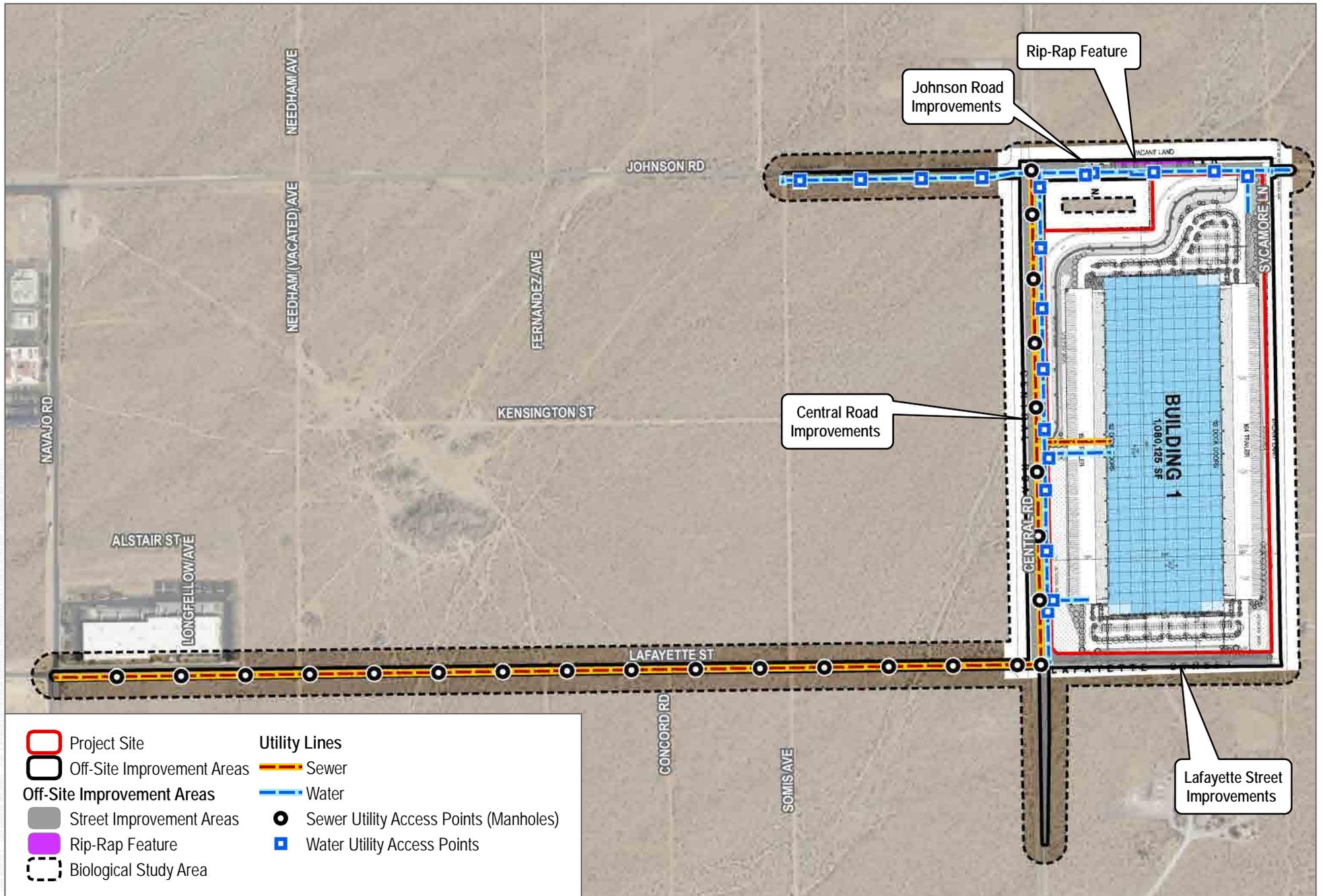
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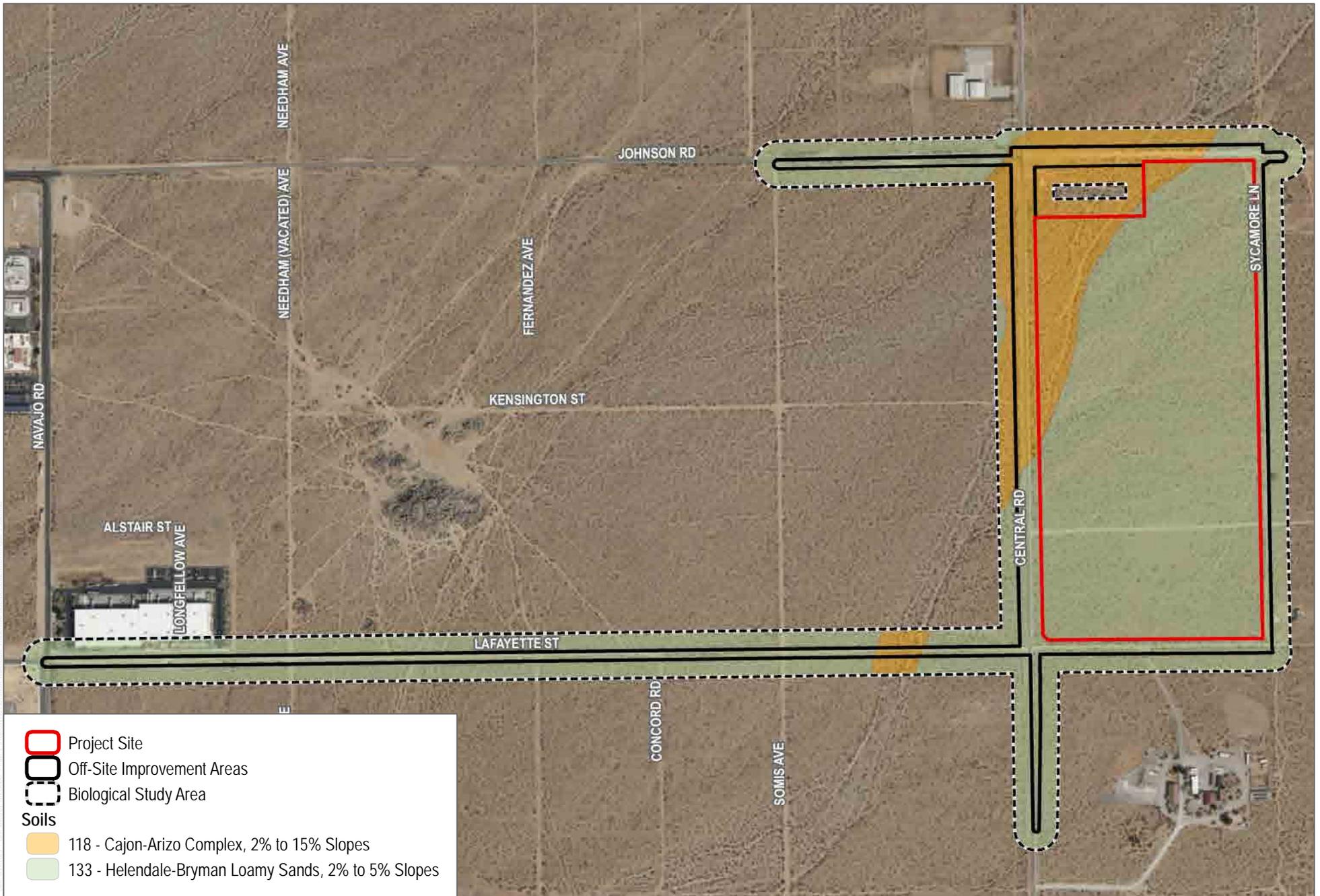


SOURCE: DigitalGlobe 2017; San Bernardino County 2021

FIGURE 2

Conceptual Site Plan

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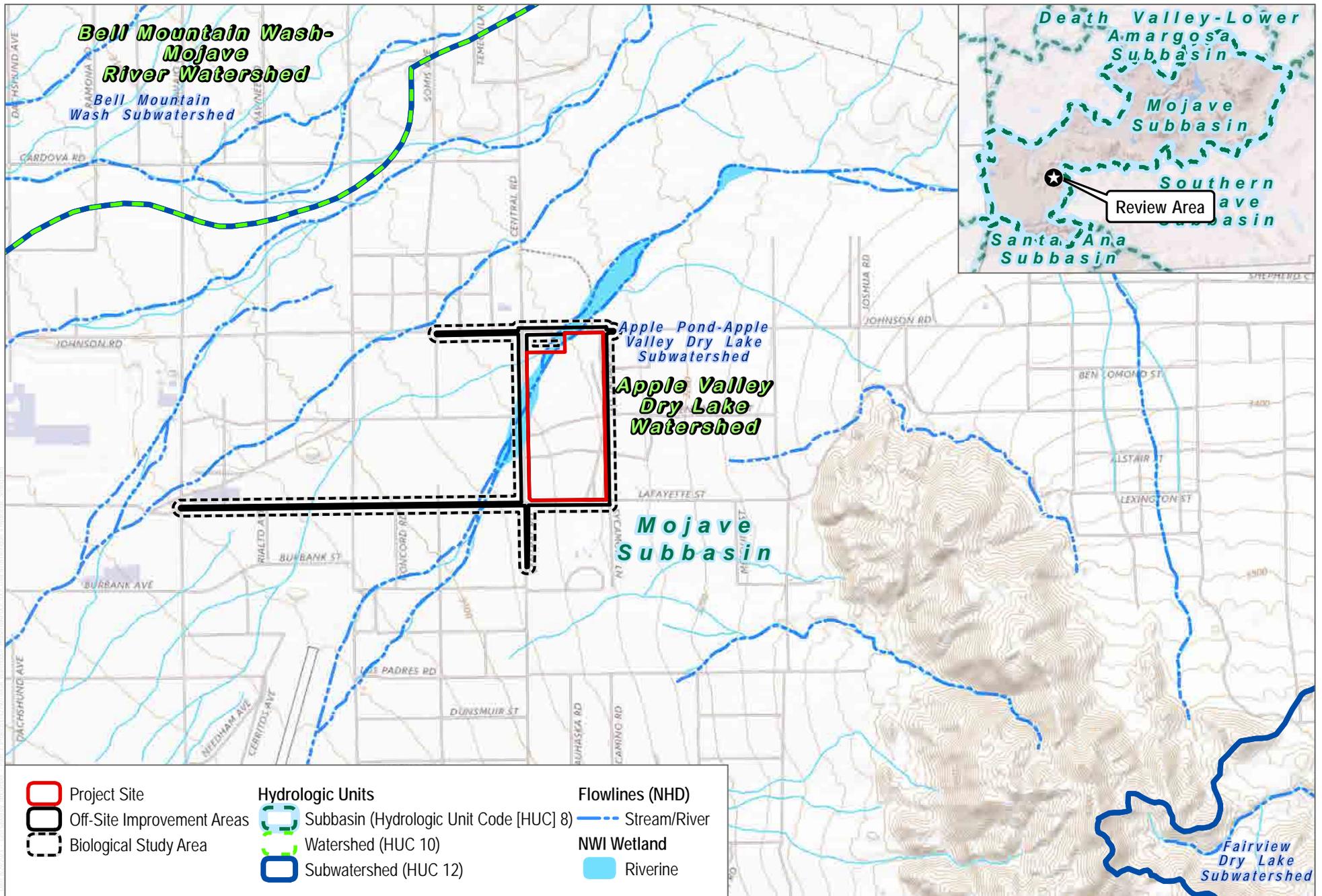


SOURCE: Bing Maps (accessed 2022); San Bernadino County 2022; USDA SSURGO 2022

FIGURE 3

Soils

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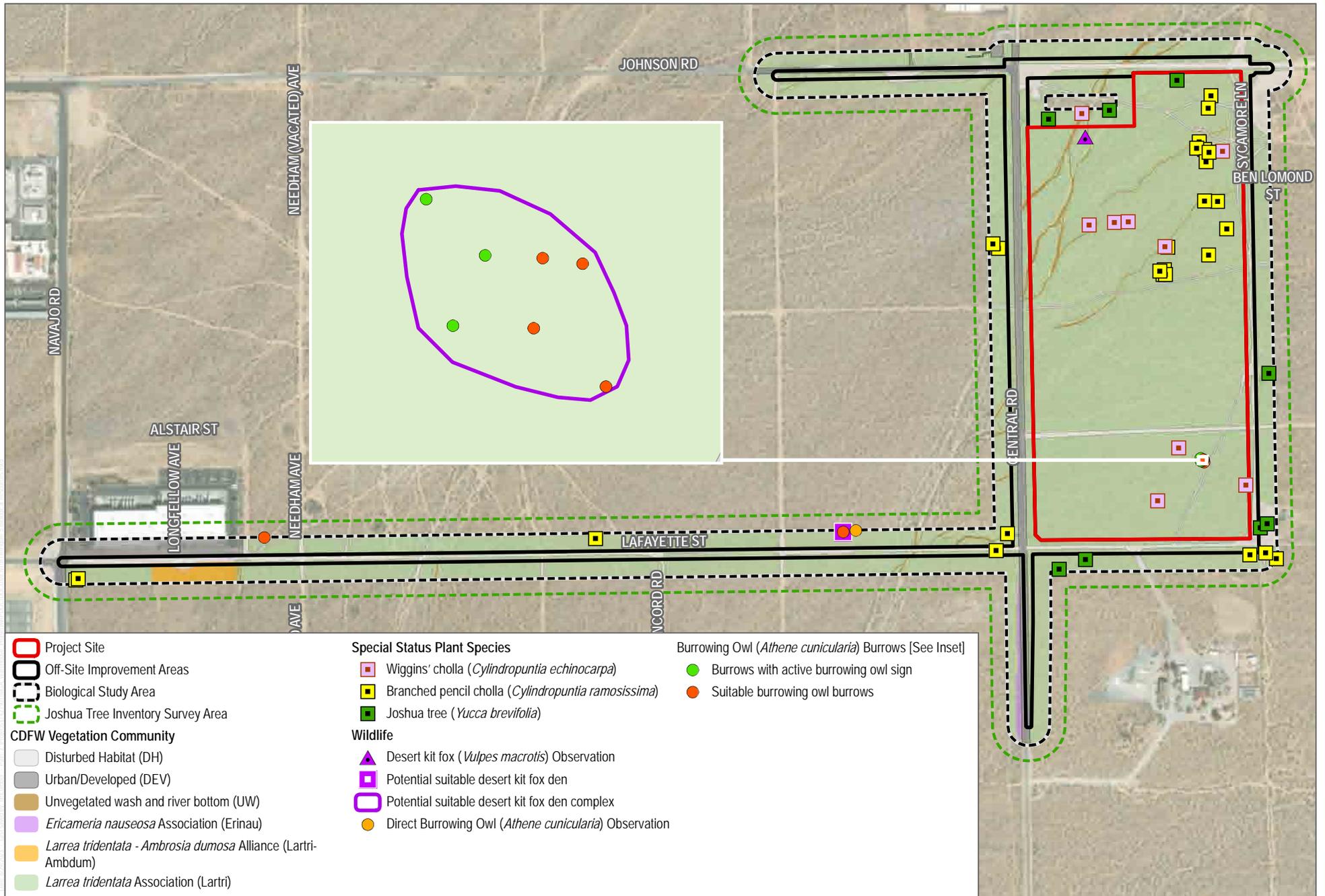
SOURCE: Bing Maps (accessed 2022); San Bernadino County 2022; DWR 2022; USGS WBD 2022

FIGURE 4

Hydrologic Setting

1M Warehouse Project Biological Technical Report

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SOURCE: DigitalGlobe 2017; San Bernardino County 2021

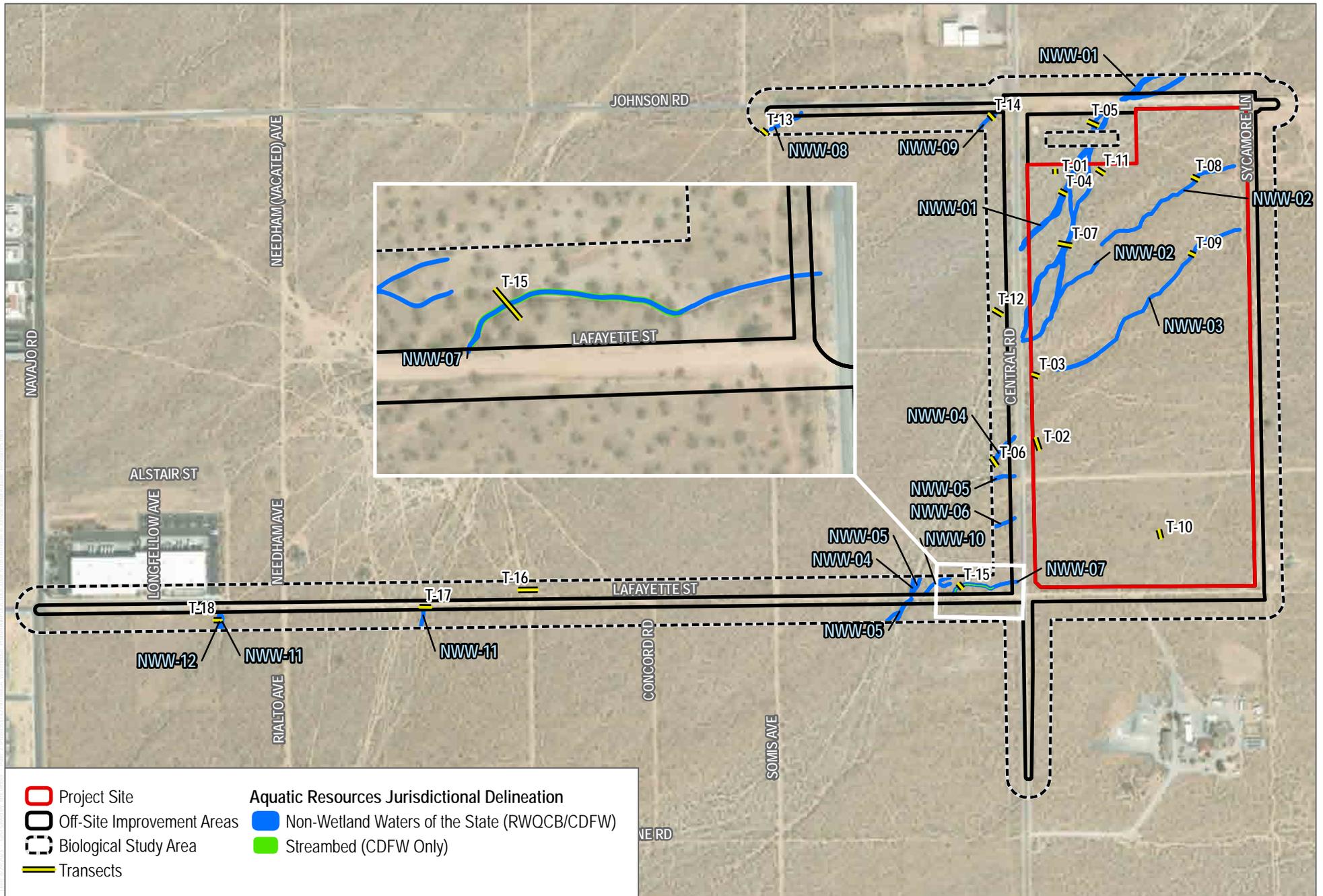


FIGURE 5

Biological Resources

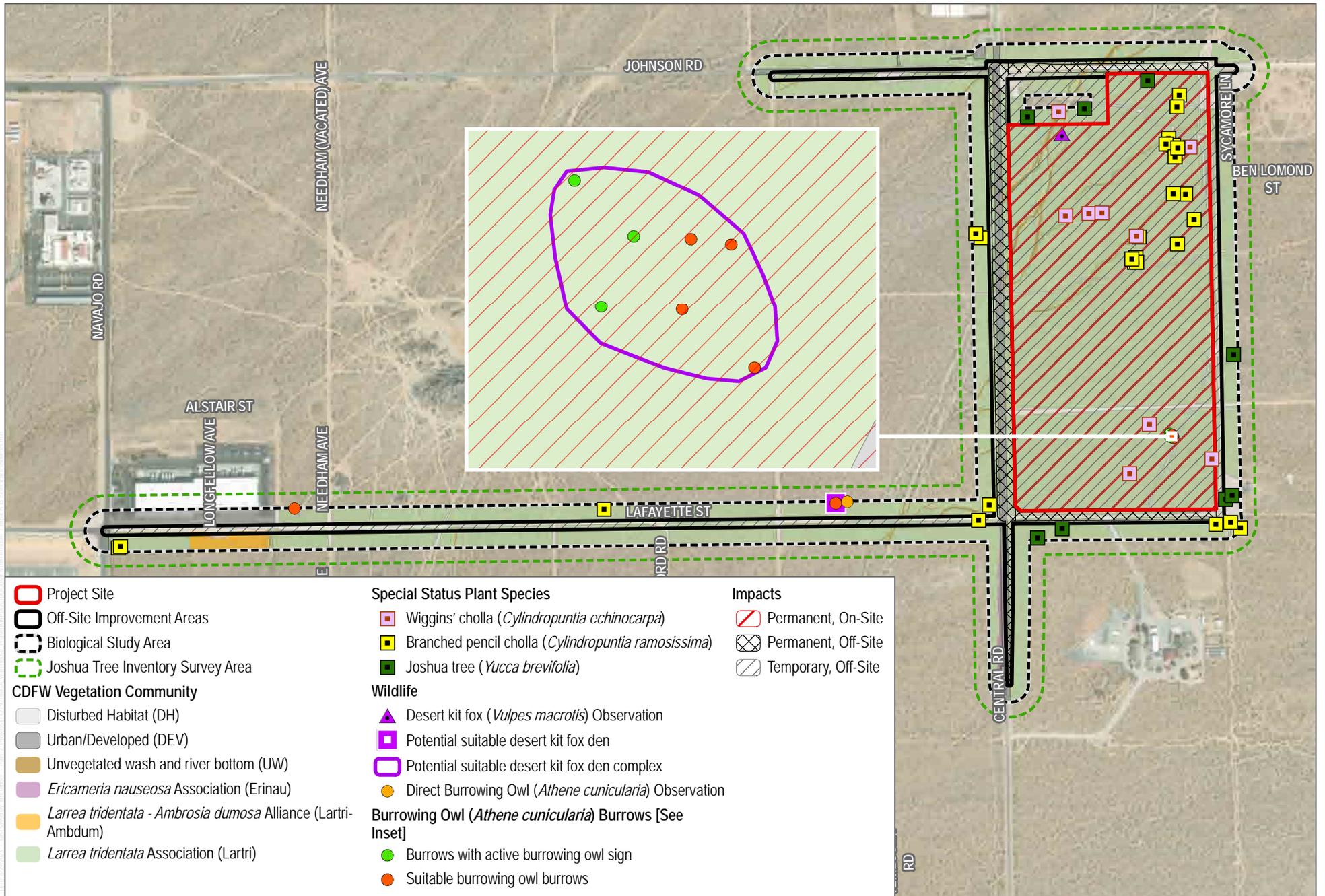
1M Warehouse Project Biological Technical Report

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SOURCE: DigitalGlobe 2017; San Bernardino County 2021

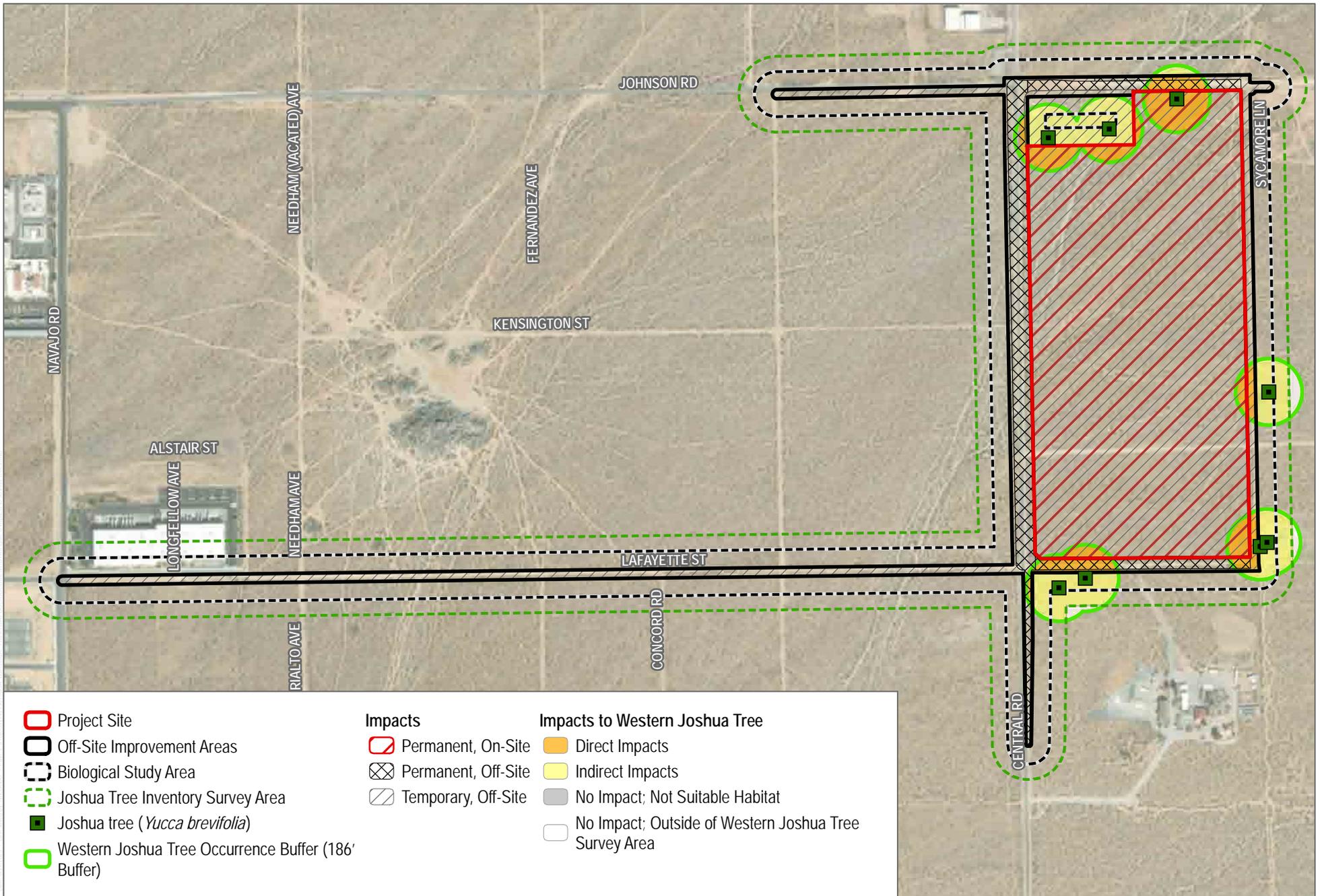
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SOURCE: DigitalGlobe 2017; San Bernardino County 2021

FIGURE 7

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SOURCE: DigitalGlobe 2017; San Bernadino County 2021

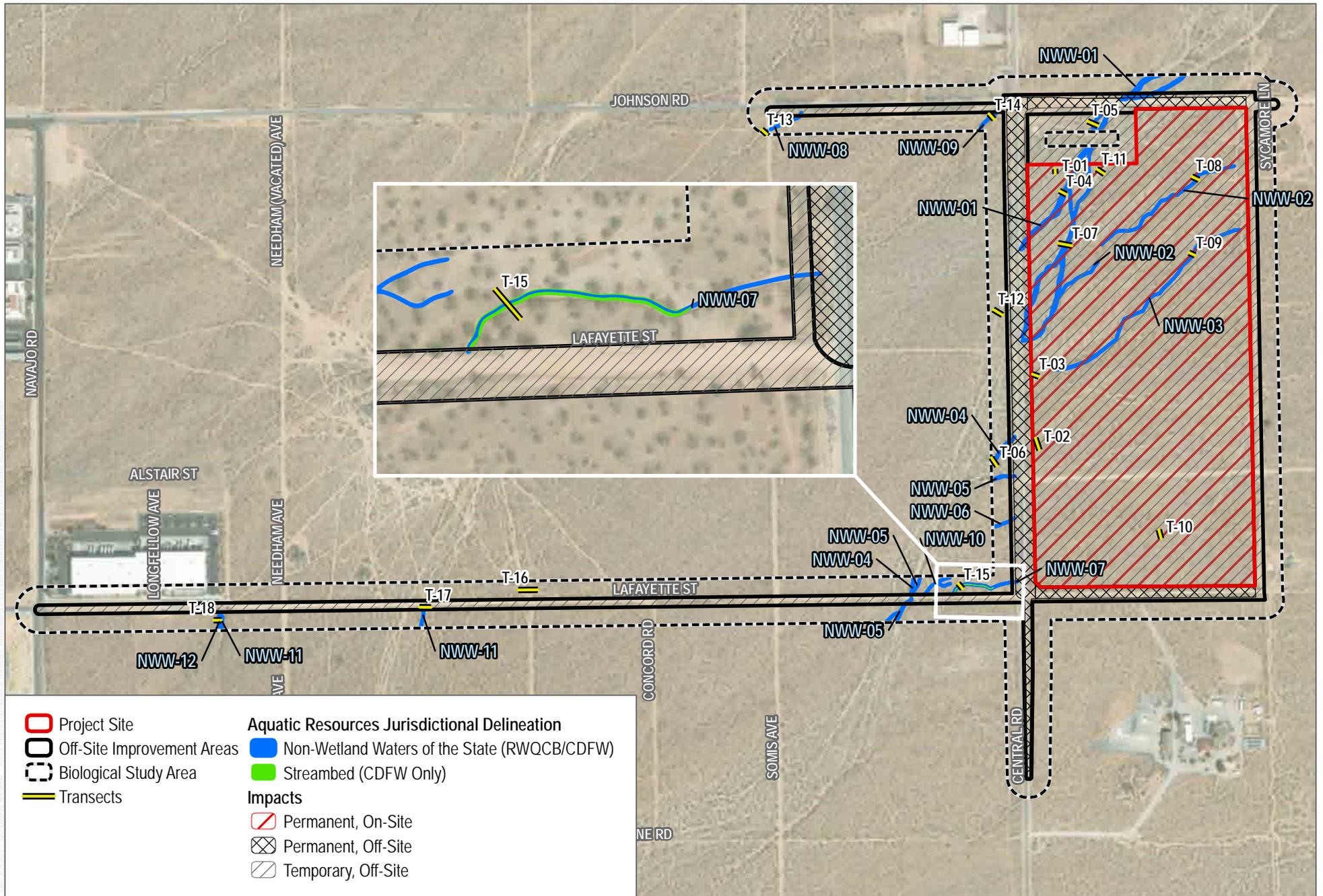


FIGURE 8

Impacts to Joshua Trees

1M Warehouse Project Biological Technical Report

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SOURCE: DigitalGlobe 2017; San Bernardino County 2021

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Appendix A

Aquatic Resources Delineation Report

Aquatic Resources Delineation Report

1M Warehouse Project

SEPTEMBER 2023

Prepared for:

AP INVESTORS GROUP LLC

9220 Winnetka Avenue

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DUDEK

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APPENDICES

- A Request for a Jurisdictional Determination
- B Antecedent Precipitation Tool Output
- C Data Forms
- D Review Area Photos

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APT	Antecedent Precipitation Tool
ARC	antecedent runoff condition
CDFW	California Department of Fish and Wildlife
NWW	non-wetland water
OHWM	ordinary high-water mark
PDSI	Palmer Drought Severity Index
project	1M Warehouse Project
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army Corps of Engineers

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1 Introduction

This Aquatic Resources Delineation Report was prepared in accordance with the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2017). This report and supporting appendices provide the 20 items listed in the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports, and presents the results of the jurisdictional aquatic resources delineation conducted by Dudek for the proposed 1M Warehouse Project (project) in the town of Apple Valley in San Bernardino County, California. The delineation was conducted to identify and map existing aquatic resources potentially subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (33 USC 1344), waters of the state potentially subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, and stream and riparian habitats potentially subject to the jurisdiction of the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code (collectively referred to as jurisdictional aquatic resources).

1.1 Disclaimer Statement

This report presents Dudek’s best efforts to quantify the extent of jurisdictional aquatic resources potentially regulated by USACE, RWQCB, and CDFW (i.e., regulatory agencies) within the identified review areas using the current regulations, written policies, and guidance of these regulatory agencies. The potential jurisdictional resources described in this report are subject to verification by the regulatory agencies. Only the regulatory agencies can make a final determination on whether the features present are subject to USACE, RWQCB, and/or CDFW regulation. A request for a USACE Jurisdictional Determination is provided in Appendix A.¹

1.2 Contact Information

Contact information for the project applicant and agent are provided in Table 1.² Access to the review area is not restricted, but if a site visit is requested, the project applicant or agent will accompany regulatory staff to the review area.³ AP Investors Group LLC is the project applicant and landowner.

Table 1. Contact Information

Project Applicant	AP Investors Group LLC	Agent	Dudek
Contact Name	Opher Benrimon	Contact Name	Anna Cassidy
Address	9220 Winnetka Avenue Los Angeles, California 91311	Address	605 Third Street Encinitas, California 92024
Phone	818.738.5688	Phone	951.300.1088
Email	Opher@uncommondevelopers.com	Email	acassady@dudek.com

¹ Minimum Standards Item 1 (Request for Jurisdictional Determination)

² Minimum Standards Item 2 (Contact Information)

³ Minimum Standards Item 3 (Site Access Statement)

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2 Review Area Description and Landscape Setting⁴

The approximately 149.6-acre review area, which includes the 67.3-acre project site, 24.7-acre off-site improvement area, plus a 100-foot buffer, is within the town of Apple Valley, San Bernardino, California. The review area is northwest of the City of San Bernardino, and generally west of State Route 15 at 34.597911°N and 117.169517°W (Figure 1, Project Location).⁵ Directions to the review area are as follows: From Interstate 15 north, take exit 157 for Stoddard Wells Road; turn east onto Stoddard Wells Road; head northwest toward Bell Mountain; turn right onto Johnson Road and head east; and turn south onto Central Road. The review area is along Johnson Road, east and west of Central Road, and along f Lafayette Street, and west of Sycamore Lane. The review area consists of 33 parcels as listed in Table 2.⁶ The review area is within Sections 14, 15, 21, 22, and 23, Township 6N, Range 3W, as depicted on the U.S. Geological Survey Apple Valley North, California 7.5-minute topographic quadrangle maps. Regional access to the review area is provided via Interstate 15, approximately 4.6 miles west of the review area.

Table 2. Project Site and Off-Site Improvement Area Assessor’s Parcel Numbers

Project Site Assessor’s Parcel Number						
046324102						
046324103						
Off-Site Improvement Area Assessor’s Parcel Number						
046320142	046323210	046323254	046324106	046333101	046336203	046350112
046320143	046323215	046323256	046324107	046336106	046336204	Right-of-way
046323206	046323217	046324101	046324108	046336107	046336205	—
046323208	046323249	046324104	046324301	046336108	046350109	—
046323209	046323252	046324105	046324302	046336109	046350110	—

2.1 Topography

Topography within the review area is a flat plane, with areas to the southwest containing hills that border the northwest corner of the town of Apple Valley. Elevation ranges from approximately 3,130 feet above mean sea level in the southeastern portion of the review area to 3,170 feet above mean sea level in the northwestern portion of the review area. Adjacent land uses include undeveloped land and a small existing structure to the north, undeveloped land and a small existing residential development to the west, Apple Valley Fire Center to the south, and undeveloped land to the east.

⁴ Minimum Standards Item 10 (Description of Existing Field Conditions)

⁵ Minimum Standard Item 14 (Site Location Map)

⁶ Minimum Standard Item 14 (Site Location Map)

2.2 Soils⁷

There are two soil series mapped in the review area: Cajon-Arizo complex (2% to 5% slopes) and Helendale-Bryman loamy sands (2% to 5% slopes) (Figure 2, Soils). The Cajon series consists of very deep, somewhat excessively drained soils that formed in sandy alluvium from dominantly granitic rocks. The Arizo Series consists of very deep, excessively drained soils that formed in mixed alluvium. The Helendale Series consists of very deep, well-drained soils that formed in alluvium from granitoid rocks. The Bryman series consists of deep, well-drained soils that formed in alluvium from dominantly granitic sources. None of these soil series are hydric (USDA 2022a, 2022b).

2.3 Vegetation

Six vegetation communities or land cover types were mapped within the review area: creosote bush scrub, creosote bush–white bursage scrub, rubber rabbitbrush scrub, unvegetated wash and river bottom, disturbed habitat, and urban/developed. The review area is dominated by creosote bush scrub, which is distributed throughout the review area. Creosote bush–white bursage scrub occurs in a small portion of the southwestern portion of the review area. Unvegetated wash and river bottom occurs within the ephemeral, unvegetated channels. Disturbed habitat is characterized by existing dirt roads that generally bisect the review area from east to west and north to south. The review area contains urban/developed land consisting of Central Road that runs north/south along the western boundary of the review area, and one structure northwest of the intersection of Central Road and Johnson Road.

2.4 Watershed

The review area occurs within the southwestern portion of the Mojave River subbasin, Hydrologic Unit Code [HUC] 18090208 (Figure 3, Hydrologic Setting). The Mojave River subbasin comprises approximately 4,500 square miles and is entirely within San Bernardino County. The primary geographic and surface hydrologic feature of the watershed is the Mojave River, which flows north for approximately 120 miles until it reaches Silver Dry Lake near the community of Baker. Some reaches of the Mojave River flow underground in the confined riverbed channel. The Mojave River is approximately 8 miles southeast of the review area; however, no drainages within the review area flow to the Mojave River.

The review area occurs within the central portion of the Apple Pond-Apple Valley Dry Lake subwatershed (HUC 180902080304) of the Apple Valley Dry Lake watershed (HUC 1809020803). The Apple Valley Dry Lake Watershed comprises approximately 126 square miles (80,640 acres) and is in the town of Apple Valley, in the high desert part of southwestern San Bernardino County, approximately 6 miles east of Victorville and 30 miles north of San Bernardino. The dry lake occupies the lowest part of a closed, desert basin floor. Runoff originates in the mountains surrounding the valley, but little water reaches the lake bed, and runoff that does reach it originates in the northern half of the basin. The streams in the valley are all ephemeral, carrying water only during and immediately after a storm. Most of the channels are only defined for approximately 1 mile after they leave the mountains, whereupon they become braided and ill-defined, and typically dissipate (Busby 1975).

⁷ Minimum Standards Item 13 (Soil Descriptions)

2.5 Review Area Alterations, Current and Past Land Use

The review area is undeveloped open space in the town of Apple Valley. The review area has had multiple dirt roads running through it since the mid-1990s that appeared to continue to experience frequent use at the time of the site visits. Specifically, active off-road ATV use was observed during the jurisdictional delineation along Lafayette Street, west of Central Road. This area contains numerous dirt road bisecting the review area.

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3 Precipitation Data and Analysis⁸

The USACE-developed Antecedent Precipitation Tool (APT) was used to assess whether the delineation date occurred in a drier, average, or wetter than normal period (USACE 2020). To determine what constitutes a “typical year,” USACE developed the APT. The information generated from the APT can help to determine whether normal hydrologic and/or climatic conditions were present during the site visit and assist with completing the Wetland Determination Data Form.

The APT provides three climatological parameters: Palmer Drought Severity Index (PDSI), season, and antecedent precipitation condition. The PDSI is a standardized index calculated on a monthly basis, with PDSI value outputs ranging from -4 (extreme drought) to +4 (very wet) (NOAA 2021) to assess drought conditions (i.e., PDSI Class). The APT determines wet vs. dry season based on related procedures provided in the applicable regional supplement for the review area (in this case, the Arid West Region supplement [USACE 2008a]). If the antecedent runoff condition (ARC) score is less than 10, then the antecedent precipitation condition is classified as drier than normal; normal conditions are present with an ARC score of 10 to 14; conditions are wetter than normal when an ARC score is greater than 14 (USACE 2020).

Table 3 summarizes the key data extrapolated from the APT output: estimated drought conditions (PDSI Class), wet or dry season determination, ARC score, and antecedent precipitation condition. Based on the APT output provided in Appendix B and summarized in Table 3, the precipitation and climatic conditions for the review area were within the wetter than normal and within the normal range during the time of the delineations.

Table 3. Antecedent Precipitation Tool Data for the Review Area

Main Field Survey Date	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
08/31/2022	Extreme drought	Dry Season	16	Wetter than normal
01/17/2023	Not available	Wet Season	14	Normal conditions
08/25/2023	Moderate wetness	Dry Season	15	Wetter than normal

Notes: PDSI = Palmer Drought Severity Index; ARC = antecedent runoff condition.

Additionally, according to the U.S. Department of Agriculture’s Agricultural Applied Climate Information System (USDA 2022c), the area around the review area receives an average of 4.57 inches of precipitation annually.

⁸ Minimum Standards Item 11 (Discussion of Hydrology)

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4 Investigation Methods⁹

The jurisdictional delineation was conducted by Dudek on August 31, 2022. An additional jurisdictional delineation to address areas designated for off-site improvements was conducted by Dudek biologists on January 17 and August 25, 2023 (Table 4). Prior to conducting the jurisdictional delineation, U.S. Fish and Wildlife Service’s National Wetland Inventory data (USFWS 2021) was reviewed to determine if the review area contained any features mapped by the U.S. Fish and Wildlife Service. Site-specific topographical data was reviewed in conjunction with aerials, both current and historical, to determine the potential presence of non-wetland waters. Current vegetation mapping was reviewed to assess whether the review area supported hydrophytic vegetation and potential wetlands. No areas within the review area supported hydrophytic vegetation, and therefore wetland data station forms were not completed. Jurisdictional boundaries were mapped in the field using ESRI Collector on a mobile device with submeter accuracy. Remote sensing was not used for the delineation.

Table 4. Schedule of the Aquatic Resources Delineation

Date	Hours	Personnel	Conditions
08/31/2022	6:25 a.m.–11:35 a.m.	Britney Schultz, Anna Cassady, Callie Amoaku	72–98 °F; 0% cloud cover; 1–2 mph wind
01/17/2023	9:00 a.m. – 11:55 a.m.	Britney Schultz, Kathleen Dayton	40–45 °F; 0–10% cloud cover; 2–15 mph wind
08/25/2023	10:20 a.m.–11:50 a.m.	Eilleen Salas	82 °F–88 °F; 0% cloud cover; 0 mph wind

Notes: mph = miles per hour.

4.1 U.S. Army Corps of Engineers

The USACE wetlands delineation was conducted in accordance with the 1987 USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a). A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (USACE 2008b) was used to determine the limits of non-wetland waters. Non-wetland waters were delineated on topographical maps in conjunction with ESRI Collector on a mobile device. The widths of each non-wetland water were determined in the field according to the OHWM manual.

Wetland Determination Forms were taken at certain points within drainages or vegetation communities where a predominance of hydrophytic vegetation was present; hydrology, vegetation, and soils were assessed to determine whether USACE three-parameter wetlands were present. USACE OHWM Forms were completed at representative cross-sections of non-wetland waters to capture their characteristics and widths. All data forms can be found in Appendix C.

⁹ Minimum Standards Item 8 (Dates of Field Work), Item 5 (Use of 1987 Manual, Regional Supplement, and OHWM guide), Item 12 (Statement Regarding Use of Remote Sensing), Item 18 (Data Forms) and Item 19 (Methods)

4.2 Regional Water Quality Control Board

Waters of the state regulated by the RWQCB were mapped in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (SWRCB 2021). As described in these procedures, wetland waters of the state are mapped based on the procedures in USACE's 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and its 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a). Non-wetland waters are mapped at the OHWM based on the procedures defined in USACE's 2008 A Field Guide to Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008b).

4.3 California Department of Fish and Wildlife

CDFW jurisdictional areas were mapped to include the bank of the stream/channel and outer dripline of adjacent riparian vegetation, as set forth under California Fish and Game Code Section 1602. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

5 Aquatic Resource Narrative¹⁰

5.1 Waters of the United States (USACE)

There are no non-wetland waters, culverts, or wetlands potentially regulated by USACE present in the review area (Figure 4, Potential Jurisdictional Aquatic Resources – USACE).¹¹ A copy of the ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet is not submitted with this report because Table 5 in this section provides all of the information requested.¹²

The non-wetland waters on site are presumed to be non-jurisdictional by USACE because they are isolated features and do not meet the relatively permanent standard as waters of the United States. Each of these features dissipates into the landscape at or before they reach Apple Valley Airport to the southwest. Non-Wetland Water (NWW) 01 through NWW-12 are similar; all are natural, ephemeral drainages, between 1 and 8 feet wide at their OHWM.

Non-Wetland Water 1

NWW-01 is a feature recorded on Transects 04, 05, and 07 during the August 31, 2022, site visit and is located in the northwest corner of the review area. NWW-01 is 3, 8, and 8 feet wide at the respective transects' OHWM. The drainage is an ephemeral desert feature with no vegetation cover. A culvert beneath Interstate 15 drains into this gravel channel, and it widens downstream. A cross-section of NWW-01 shows the following OHWM indicators: change in average sediment texture, change in vegetation cover, break in bank slope, sediment deposition, drainage pattern, saturated soils, and debris wracking. NWW-01 flows southwest through the review area, collects at a ditch along the east side of Central Road, and flows south along the roadway before filling NWW-04 in the southwest part of the review area. This feature flows southwest to where it dissipates near the Apple Valley Airport. This feature is ephemeral and does not meet the relatively permanent standard as a water of the United States, and is presumed to be non-jurisdictional to USACE.

Non-Wetland Water 2

NWW-02 is a feature recorded on Transect 08 during the August 31, 2022, site visit and is located in the northern half of the review area. NWW-02 is 1 foot wide at its OHWM. The drainage is an ephemeral drainage feature with no vegetation cover. NWW-02 flows southwest and joins NWW-01, a larger feature. A cross-section of NWW-02 shows the following OHWM indicators: change in average sediment texture and break in bank slope. This feature flows southwest to join with NWW-01, which flows southwest to where it dissipates near the Apple Valley Airport. This feature is ephemeral and does not meet the relatively permanent standard as a water of the United States and is presumed to be non-jurisdictional by USACE.

Non-Wetland Water 3

NWW-03 is a feature recorded on Transect 09 during the August 31, 2022, site visit and is located within approximately the center of the review area. NWW-03 is 1 and 5 feet wide at its OHWM at two sampled areas. The

¹⁰ Minimum Standards Item 6 (Aquatic Resource Narrative)

¹¹ Minimum Standards Items 7 and 16 (Delineation Maps)

¹² Minimum Standards Item 15 (ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet)

drainage is an ephemeral feature with no vegetation cover. A cross-section of NWW-03 shows the following OHWM indicators: change in average sediment texture and break in bank slope. NWW-03 flows southwest, becomes less defined, losing its OHWM indicators, and is classified as a swale at Transect 03. This feature presumably sheetflows west through the site and south along Central Road before emptying into NWW-04, which flows southwest to where it dissipates near the Apple Valley Airport. This feature is ephemeral and does not meet the relatively permanent standard as a water of the United States, and is presumed to be non-jurisdictional by USACE.

Non-Wetland Water 4

NWW-04 is a feature recorded on Transect 06 during the August 31, 2022, site visit and is located along the western boundary in the southern portion of the review area, west of Central Road. NWW-04 is 5 feet wide at its OHWM. The drainage is an ephemeral feature with no vegetation cover. A cross-section of NWW-04 shows the following OHWM indicators: change in average sediment texture, change in vegetation cover, break in bank slope, sediment deposition, drainage pattern, saturated soils, and debris wracking. NWW-04 flows southwest and appears to dissipate near the Apple Valley Airport. This feature is ephemeral and does not meet the relatively permanent standard as a water of the United States, and is presumed to be non-jurisdictional by USACE.

Non-Wetland Water 5

NWW-05 is a feature recorded during the August 31, 2022, site visit and is located in the southwestern portion of the review area, west of Central Road. NWW-05 is 5 feet wide at its OHWM. The drainage is an ephemeral feature with no vegetation cover. A cross-section of NWW-05 shows the following OHWM indicators: change in average sediment texture, change in vegetation cover, break in bank slope, sediment deposition, drainage pattern, saturated soils, and debris wracking. NWW-05 flows southwest and appears to dissipate near the Apple Valley Airport. This feature is ephemeral and does not meet the relatively permanent standard as a water of the United States and is presumed to be non-jurisdictional by USACE.

Non-Wetland Water 6

NWW-06 is a feature recorded during the August 31, 2022, site visit and is located in the southwest corner of the review area, west of Central Road. NWW-06 is 2 feet wide at its OHWM. The drainage is an ephemeral feature with no vegetation cover. A cross-section of NWW-06 shows the following OHWM indicators: change in average sediment texture, change in vegetation cover, break in bank slope, sediment deposition, drainage pattern, saturated soils, and debris wracking. NWW-06 flows southwest and appears to dissipate near the Apple Valley Airport. This feature is ephemeral and does not meet the relatively permanent standard as a water of the United States and is presumed to be non-jurisdictional by USACE.

Non-Wetland Water 7

NWW-07 is a feature recorded during the August 31, 2022, site visit and is located in the southwestern corner of the review area, west of Central Road. NWW-07 is 1 foot wide at its OHWM. The drainage is an ephemeral feature with no vegetation cover. A cross-section of NWW-07 shows the following OHWM indicators: change in average sediment texture, change in vegetation cover, break in bank slope, sediment deposition, drainage pattern, saturated soils, and debris wracking. NWW-07 flows southwest and appears to dissipate near the Apple Valley Airport. This feature is ephemeral and does not meet the relatively permanent standard as a water of the United States and is presumed to be non-jurisdictional by USACE.

Non-Wetland Water 8

NWW-08 is a feature recorded during the January 17, 2023, site visit and is located in the northwestern corner of the review area, south of Johnson Road. NWW-08 is 1 foot wide at its OHWM. The drainage is an ephemeral feature with no vegetation cover. A cross-section of the NWW-08 shows the following OHWM indicators: change in average sediment texture, change in vegetation cover, and break in slope. NWW-08 flows southwest and appears to dissipate near the Apple Valley Airport. This feature is ephemeral and does not meet the relatively permanent standard as a water of the United States and is presumed to be non-jurisdictional by USACE.

Non-Wetland Water 9

NWW-09 is a feature recorded during the January 17, 2023, site visit and is located in the northwestern corner of the review area, south of Johnson Road. NWW-09 is 2 feet wide at its OHWM. The drainage is an ephemeral feature with no vegetation cover. A cross-section of the NWW-09 shows the following OHWM indicators: change in average sediment texture, change in vegetation cover, and break in slope. NWW-09 flows southwest and appears to dissipate near the Apple Valley Airport. This feature is ephemeral and does not meet the relatively permanent standard as a water of the United States and is presumed to be non-jurisdictional by USACE.

Non-Wetland Water 10

NWW-10 is a feature recorded during the January 17, 2023, site visit and is located in the southern corner of the review area, just north of Lafayette Street and west of Central Road. NWW-10 is 1 foot wide at its OHWM. The drainage is an ephemeral feature with no vegetation cover. A cross-section of the NWW-10 shows the following OHWM indicators: change in vegetation cover and break in slope. NWW-10 flows southwest and appears to dissipate near the Apple Valley Airport. This feature is ephemeral and does not meet the relatively permanent standard as a water of the United States and is presumed to be non-jurisdictional by USACE.

Non-Wetland Water 11

NWW-11 is a feature recorded during the January 17, 2023, site visit and is located in the southwestern corner of the review area, south of Lafayette Street. NWW-11 is 3 feet wide at its OHWM. The drainage is an ephemeral feature with no vegetation cover. A cross-section of the NWW-11 shows the following OHWM indicators: change in average sediment texture, change in vegetation cover, and break in slope. NWW-11 flows southwest and appears to dissipate near the Apple Valley Airport. This feature is ephemeral and does not meet the relatively permanent standard as a water of the United States and is presumed to be non-jurisdictional by USACE.

Non-Wetland Water 12

NWW-12 is a feature recorded during the January 17, 2023, site visit and is located in the southwestern corner of the review area, south of Lafayette Street and Fresenius Medical Care Distribution development. NWW-12 is 1 foot wide at its OHWM. The drainage is an ephemeral feature with no vegetation cover. A cross-section of the NWW-11 shows the following OHWM indicators: change in average sediment texture, change in vegetation cover, and break in slope. NWW-11 flows southwest and appears to dissipate near the Apple Valley Airport. This feature is ephemeral and does not meet the relatively permanent standard as a water of the United States and is presumed to be non-jurisdictional by USACE.

Photos of the areas reviewed for the presence of potential resources are provided in Appendix D.¹³ The locations of these photos are shown in Figure 4.

Table 5. Potential USACE Aquatic Resource Summary for the Review Area¹⁴

Feature Name	Cowardin ¹	OHWM Indicators	Location (Latitude/Longitude; Decimal Degrees)	Acres/Linear Feet ²
Non-Wetland Waters				
NWW-01	Riverine, ephemeral	CAST, CVC, BBS, SD, DP, SS, DW	34.59997, -117.17000	0.662/3,778
NWW-02	Riverine, ephemeral	CAST, BBS	34.59927, -117.169167	0.034/1,178
NWW-03	Riverine, ephemeral	CAST, BBS	34.59782, -117.169550	0.053/1,320
NWW-04	Riverine, ephemeral	CAST, BBS, SD, DP, SS, DW	34.59587, -117.171900	0.034/300
NWW-05	Riverine, ephemeral	CAST, CVC, BBS, SD, DP, SS, DW	34.59541, -117.172000	0.043/484
NWW-06	Riverine, ephemeral	CAST, CVC, BBS, SD, DP, SS, DW	34.59473, -117.171900	0.006/131
NWW-07	Riverine, ephemeral	CAST, CVC, BBS, SD, DP, SS, DW	34.59383, -117.171900	0.009/384
NWW-08	Riverine, ephemeral	CAST, CVC, BBS	34.600614, -117.176159	0.011/218
NWW-09	Riverine, ephemeral	CAST, CVC, BBS	34.600811, -117.172050	0.009/149
NWW-10	Riverine, ephemeral	CAST, CVC, BBS	34.593807, -117.173224	0.006/255
NWW-11	Riverine, ephemeral	CAST, CVC, BBS	34.593538, -117.182356	0.010/201
NWW-12	Riverine, ephemeral	CVC, BBS	34.593373, -117.186101	0.003/108
Grand Total				0.881/8,504

Notes:

OHWM = ordinary high-water mark; NWW = non-wetland water; CAST = change in average sediment texture; BBS = break in bank slope; CVC = change in vegetation cover; DP = drainage patterns; DW = debris wracking; SD = sediment deposition; SS = saturated soils.

¹ Pursuant to Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) and USACE Cowardin Codes for ORM Data Entry (USACE 2022).

² Totals may not sum due to rounding.

¹³ Minimum Standards Item 17 (Ground Photos)

¹⁴ Minimum Standards Item 9 (Table Listing All Aquatic Resources)

5.2 Waters of the State (RWQCB)

There are 12 features subject to regulation by the RWQCB under the Porter-Cologne Water Quality Control Act (Figure 5, Potential Jurisdictional Aquatic Resources – RWQCB/CDFW). Table 6 lists all features within the review area that are subject to RWQCB regulation.

Table 6. RWQCB Aquatic Resource Summary for the Review Area

Feature Name	Location (Latitude/Longitude; Decimal Degrees)	Acreage/Linear Feet ¹
Non-Wetland Waters		
NWW-01	34.59997, -117.17000	0.662/3,778
NWW-02	34.59927, -117.169167	0.034/1,178
NWW-03	34.59782, -117.169550	0.053/1,320
NWW-04	34.59587, -117.171900	0.034/300
NWW-05	34.59541, -117.172000	0.043/484
NWW-06	34.59473, -117.171900	0.006/131
NWW-07	34.59383, -117.171900	0.009/384
NWW-08	34.600614, -117.176159	0.011/218
NWW-09	34.600811, -117.172050	0.009/149
NWW-10	34.593807, -117.173224	0.006/255
NWW-11	34.593538, -117.182356	0.010/201
NWW-12	34.593373, -117.186101	0.003/108
Grand Total		0.881/8,504

Notes:

RWQCB = Regional Water Quality Control Board; NWW = non-wetland water.

¹ Totals may not sum due to rounding.

5.3 CDFW Jurisdiction

There are 12 features subject to regulation by the CDFW under California Fish and Game Code Section 1602 (Figure 5). Table 7 lists all features within the review area that are subject to CDFW regulation.

Table 7. CDFW Aquatic Resource Summary for the Review Area

Feature Name	Location (Latitude/Longitude; Decimal Degrees)	Acreage/Linear Feet ¹
Streambed		
NWW-01	34.59997, -117.17000	0.662/3,778
NWW-02	34.59927, -117.169167	0.034/1,178
NWW-03	34.59782, -117.169550	0.053/1,319
NWW-04	34.59587, -117.171900	0.034/300
NWW-05	34.59541, -117.172000	0.043/484
NWW-06	34.59473, -117.171900	0.006/131
NWW-07	34.59383, -117.171900	0.009/384

Table 7. CDFW Aquatic Resource Summary for the Review Area

Feature Name	Location (Latitude/Longitude; Decimal Degrees)	Acreage/Linear Feet ¹
NWW-08	34.600614, -117.176159	0.011/218
NWW-09	34.600811, -117.172050	0.009/149
NWW-10	34.593807, -117.173224	0.006/255
NWW-11	34.593538, -117.182356	0.010/201
NWW-12	34.593373, -117.186101	0.003/108
Top of Bank		
NWW-07	34.59383, -117.171900	0.028/-
Grand Total		0.909/8,504

Notes:

CDFW = California Department of Fish and Wildlife; NWW = non-wetland water.

¹ Totals may not sum due to rounding.

5.4 National Wetland Inventory

The review area has one mapped resource from the U.S. Fish and Wildlife Service's National Wetland Inventory data (USFWS 2021; see Figure 3). Riverine (R4SBJ per Cowardin classification) habitat is mapped overlapping NWW-01. This feature spans across the braided feature of NWW-01. On the National Wetland Inventory, the drainage splits into two drainages, both continuing generally southwest off site and terminating at the Apple Valley Airport or just west of the airport.

6 Results and Conclusions

Based on the jurisdictional delineation and review of relevant information provided in this Aquatic Resources Delineation Report, no features, ephemeral or intermittent, within the review area are regulated by USACE given their lack of relatively permanent water. These features may be regulated by the RWQCB and CDFW. In total, 0.881 acres of non-wetland waters (below OHWM) fall under RWQCB jurisdiction, and 0.909 acres of CDFW streambed occurs in the review area.

This report can be used by those agencies to determine if they would regulate the features described herein. The GIS data for the delineation is provided digitally.¹⁵

¹⁵ Minimum Standards Item 20 (Digital Data)

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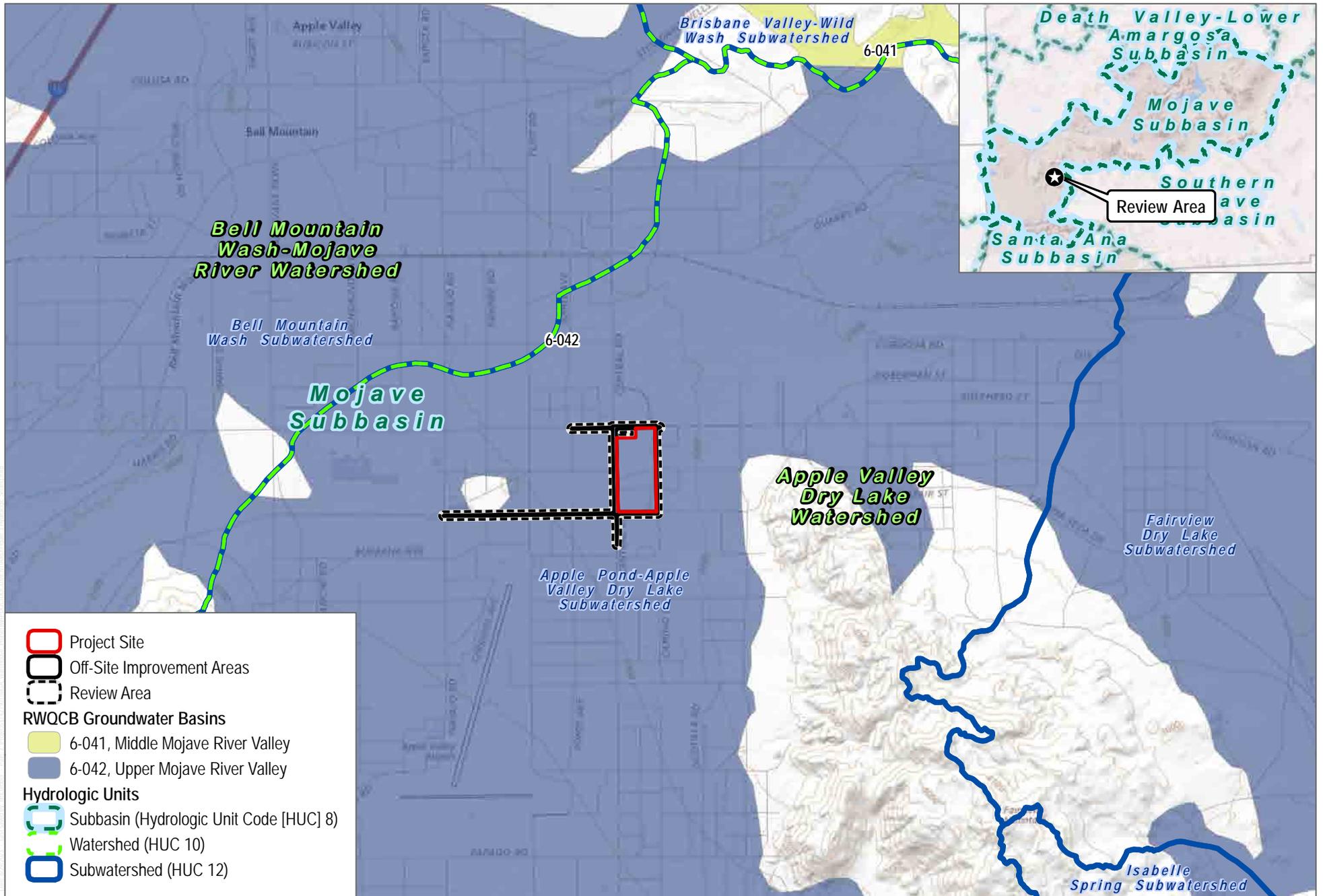
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SOURCE: Bing Maps (accessed 2022); San Bernadino County 2022; USDA SSURGO 2022

FIGURE 2
Soils

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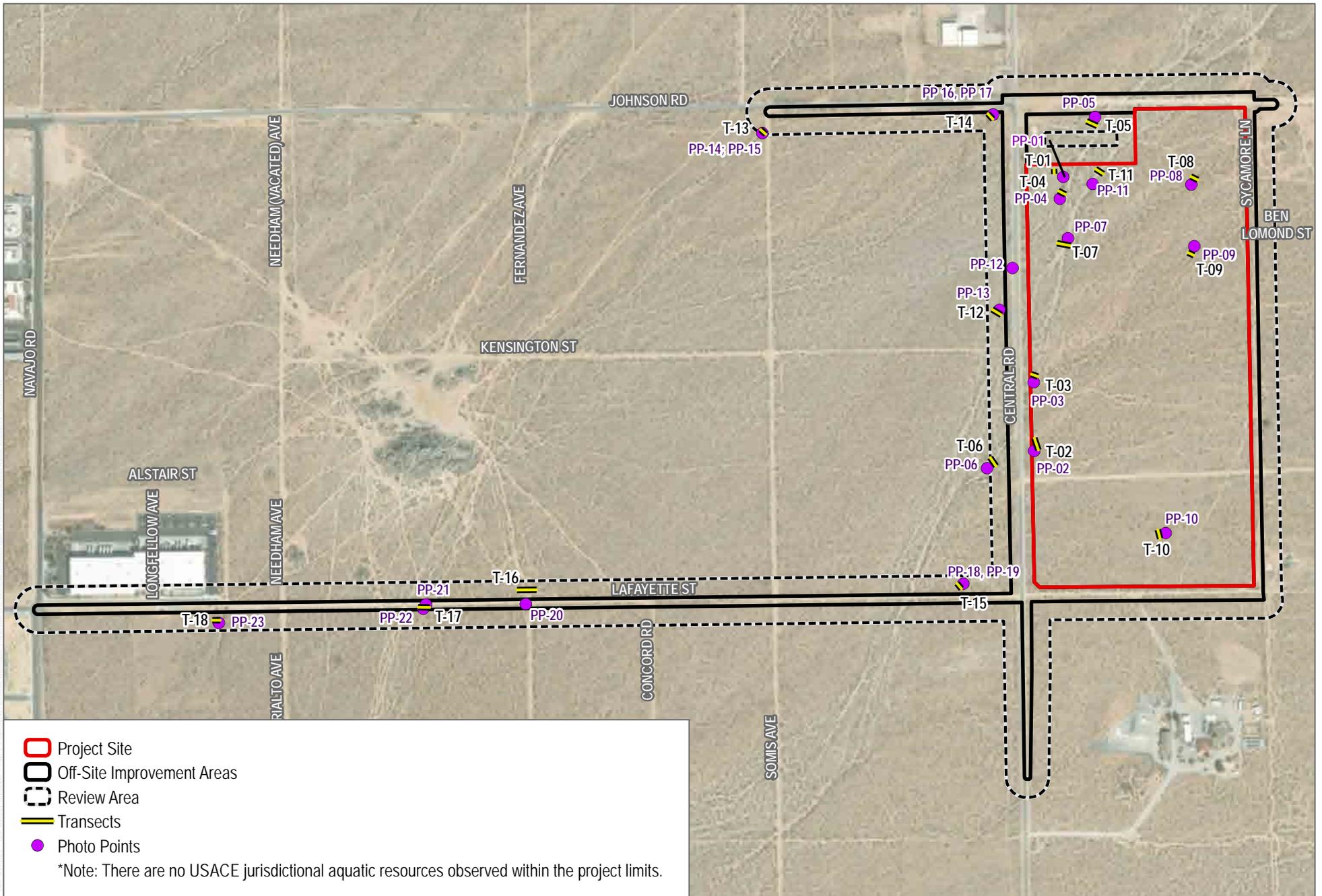


SOURCE: Bing Maps (accessed 2022); San Bernadino County 2022; DWR 2022; USGS WBD 2022

FIGURE 3

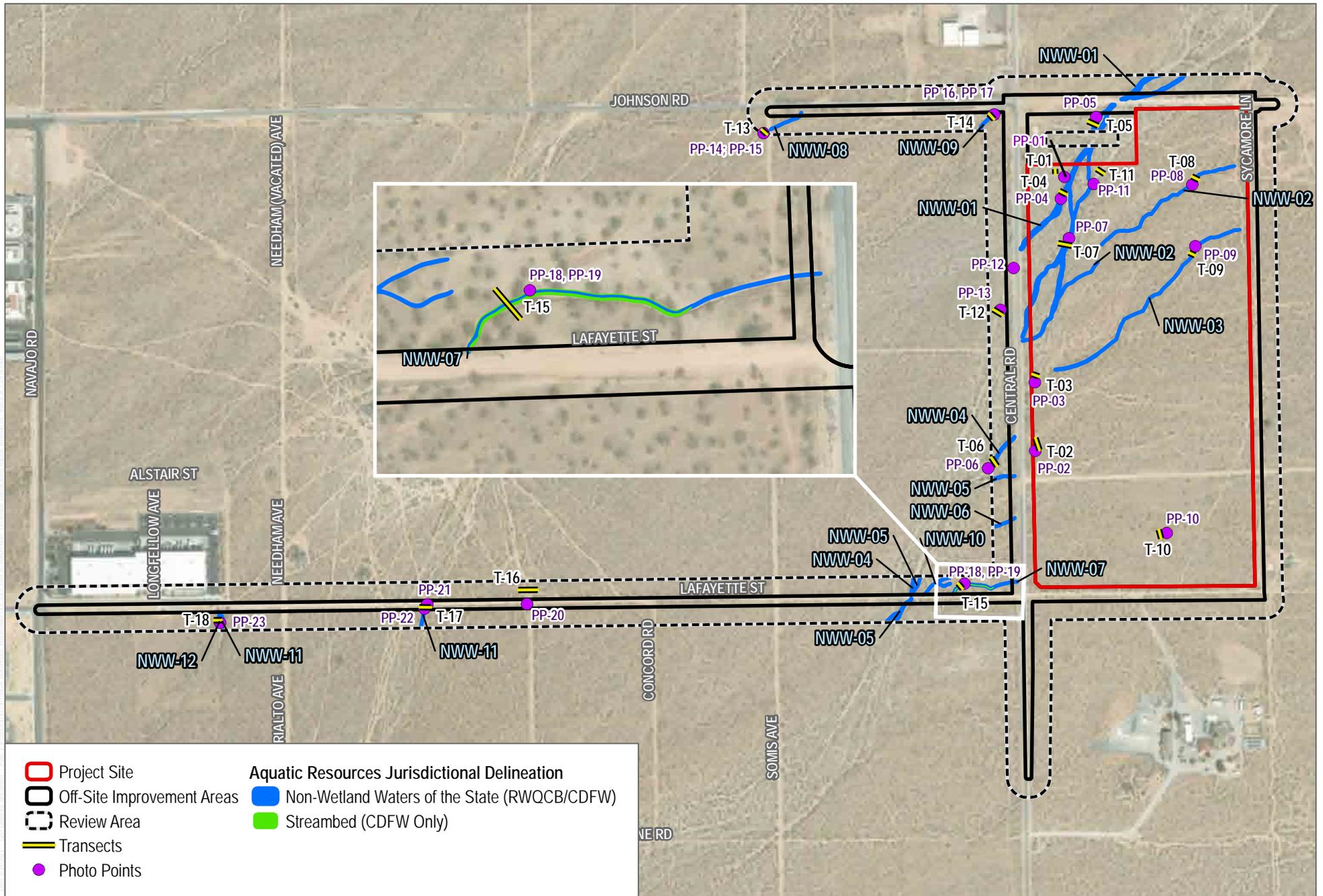
Hydrologic Setting

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SOURCE: DigitalGlobe 2017; San Bernardino County 2021

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SOURCE: DigitalGlobe 2017; San Bernardino County 2021

FIGURE 5
 Potential Jurisdictional Aquatic Resources - RWQCB/CDFW
 Aquatic Resources Delineation Report for the 1M Warehouse Project

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Appendix A

Request for a Jurisdictional Determination

Appendix 1 - REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)

To: District Name Here

- I am requesting a JD on property located at: SE corner of Central Road and Johnson Road
(Street Address)

City/Township/Parish: Apple Valley County: San Bernardino State: CA

Acreage of Parcel/Review Area for JD: 83.3

Section: 23 Township: 6N Range: 4W

Latitude (decimal degrees): 34.597911 Longitude (decimal degrees): -117.169517

(For linear projects, please include the center point of the proposed alignment.)

- Please attach a survey/plat map and vicinity map identifying location and review area for the JD.
- I currently own this property. I plan to purchase this property.
- I am an agent/consultant acting on behalf of the requestor.
- Other (please explain): _____.
- Reason for request: (check as many as applicable)
 - I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
 - I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
 - I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
 - I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
 - I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
 - A Corps JD is required in order to obtain my local/state authorization.
 - I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
 - I believe that the site may be comprised entirely of dry land.
 - Other: _____
- Type of determination being requested:
 - I am requesting an approved JD.
 - I am requesting a preliminary JD.
 - I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
 - I am unclear as to which JD I would like to request and require additional information to inform my decision.

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

*Signature: Anna Cassidy  Date: 10/25/22

• Typed or printed name: Anna Cassidy

Company name: Dudek

Address: 605 Third Street
Encinitas, CA 92024

Daytime phone no.: 951-300-1088

Email address: acassady@dudek.com

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.

Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.

Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.

Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): October 25, 2022

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: California

County/parish/borough: San Bernardino

City: Apple Valley

Center coordinates of site (lat/long in degree decimal format): Lat. 34.597329° N, Long. -117.169447° W.

Universal Transverse Mercator: UTM Easting (meters) 484462 and UTM Northing (meters) 3828403 in

Zone 11S.

Name of nearest waterbody: Bell Mountain Wash

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: None

Name of watershed or Hydrologic Unit Code (HUC): Bell Mountain Wash-Mojave River (Hydrologic Unit Code (HUC) 1809020807).

Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s): August 31, 2022

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

Waters subject to the ebb and flow of the tide.

Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

TNWs, including territorial seas

Wetlands adjacent to TNWs

Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs

Non-RPWs that flow directly or indirectly into TNWs

Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

Impoundments of jurisdictional waters

Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: 0 linear feet: 0 width (ft) and/or 0 acres.

Wetlands: 0 acres.

c. Limits (boundaries) of jurisdiction based on: Not Applicable.

Elevation of established OHWM (if known): .

2. Non-regulated waters/wetlands (check if applicable):³

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below.

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

³ Supporting documentation is presented in Section III.F.

- Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
Explain: **Ephemeral features without a significant nexus to waters of the U.S. are present in the Review Area.**

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: N/A.

Summarize rationale supporting determination: N/A.

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is “adjacent”: N/A.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are “relatively permanent waters” (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: acres

Drainage area: acres

Average annual rainfall: inches

Average annual snowfall: inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

Tributary flows directly into TNW.

Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.

Project waters are **Pick List** river miles from RPW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Project waters are **Pick List** aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain: No.

Identify flow route to TNW⁵: N/A.

Tributary stream order, if known: N/A.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: Natural
 Artificial (man-made). Explain: .
 Manipulated (man-altered). Explain: Generally natural, but NWW-2 and NWW-3 include excavation due to dirt roads.

Tributary properties with respect to top of bank (estimate):

Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

Silts Sands Concrete
 Cobbles Gravel Muck
 Bedrock Vegetation. Type/% cover:
 Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Eroding, sandy in most areas.

Presence of run/riffle/pool complexes. Explain: Few to none.

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): N/A %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime: Flow during and for a brief period after rain events typical of ephemeral channels in the region.

Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List.** Explain findings: .

Dye (or other) test performed: No.

Tributary has (check all that apply):

Bed and banks
 OHWM⁶ (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list):

Discontinuous OHWM.⁷ Explain: Due to drought conditions and development in region, OHWM indicators are ephemerally present within the Review Area. .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

High Tide Line indicated by: Mean High Water Mark indicated by:
 oil or scum line along shore objects survey to available datum;
 fine shell or debris deposits (foreshore) physical markings;
 physical markings/characteristics vegetation lines/changes in vegetation types.
 tidal gauges
 other (list):

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: .

Identify specific pollutants, if known: .

⁶A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁷Ibid.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- Riparian corridor. Characteristics (type, average width):
- Wetland fringe. Characteristics:
- Habitat for:
 - Federally Listed species. Explain findings:
 - Fish/spawn areas. Explain findings:
 - Other environmentally-sensitive species. Explain findings:
 - Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

Directly abutting

Not directly abutting

Discrete wetland hydrologic connection. Explain:

Ecological connection. Explain:

Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- Riparian buffer. Characteristics (type, average width):
- Vegetation type/percent cover. Explain:
- Habitat for:
 - Federally Listed species. Explain findings:
 - Fish/spawn areas. Explain findings:
 - Other environmentally-sensitive species. Explain findings:
 - Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N) Size (in acres) Directly abuts? (Y/N) Size (in acres)

Summarize overall biological, chemical and physical functions being performed: _____

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: N/A.
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: N/A.
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: N/A.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:

- TNWs: linear feet width (ft), Or, acres.
- Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**

- Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: _____
- Tributaries of TNW where tributaries have continuous flow “seasonally” (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: _____

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
 Other non-wetland waters: acres.

Identify type(s) of waters: .

3. Non-RPWs⁸ that flow directly or indirectly into TNWs.

- Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- Tributary waters: **23,232** linear feet width (ft).
 Other non-wetland waters: acres.

Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

- Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
 Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

- Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

- Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

- Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.⁹

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- Demonstrate that impoundment was created from "waters of the U.S.," or
 Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
 Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):¹⁰

- which are or could be used by interstate or foreign travelers for recreational or other purposes.
 from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
 which are or could be used for industrial purposes by industries in interstate commerce.
 Interstate isolated waters. Explain: .
 Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

⁸See Footnote # 3.

⁹To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

¹⁰Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
- Other non-wetland waters: acres.
Identify type(s) of waters: .
- Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: **Non-wetland waters on-site dissipate either within the review area or to the southwest of the review area, at or before the Apple Valley Airport.**
- Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- Non-wetland waters (i.e., rivers, streams): 6,883 linear feet, 8 width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: _____ acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

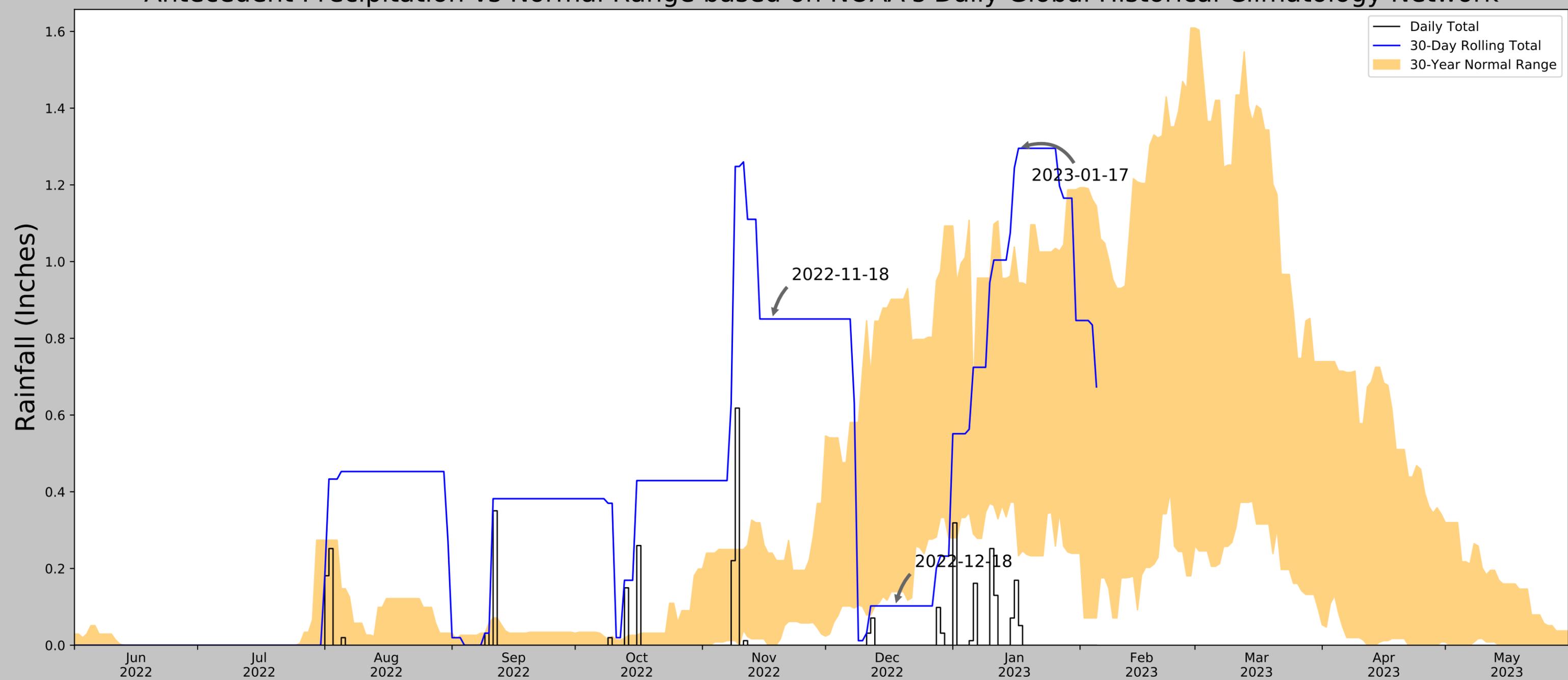
- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Figures 1-5.
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps: .
- Corps navigable waters' study: .
- U.S. Geological Survey Hydrologic Atlas: .
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: Apple Valley North and Victorville .
- USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed June 2022. <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.
- National wetlands inventory map(s). Cite name: NWI.
- State/Local wetland inventory map(s): .
- FEMA/FIRM maps: .
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): _____.
or Other (Name & Date): See Appendix G.
- Previous determination(s). File no. and date of response letter: .
- Applicable/supporting case law: .
- Applicable/supporting scientific literature: .
- Other information (please specify): Westland Group, Inc 2022 Hydrology Study.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Appendix B

Antecedent Precipitation Tool Output

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.593373, -117.186101
Observation Date	2023-01-17
Elevation (ft)	3071.56
Drought Index (PDSI)	Not available
WebWIMP H ₂ O Balance	Wet Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-01-17	0.233071	0.944488	1.295276	Wet	3	3	9
2022-12-18	0.13937	0.901969	0.102362	Dry	1	2	2
2022-11-18	0.0	0.240157	0.850394	Wet	3	1	3
Result							Normal Conditions - 14

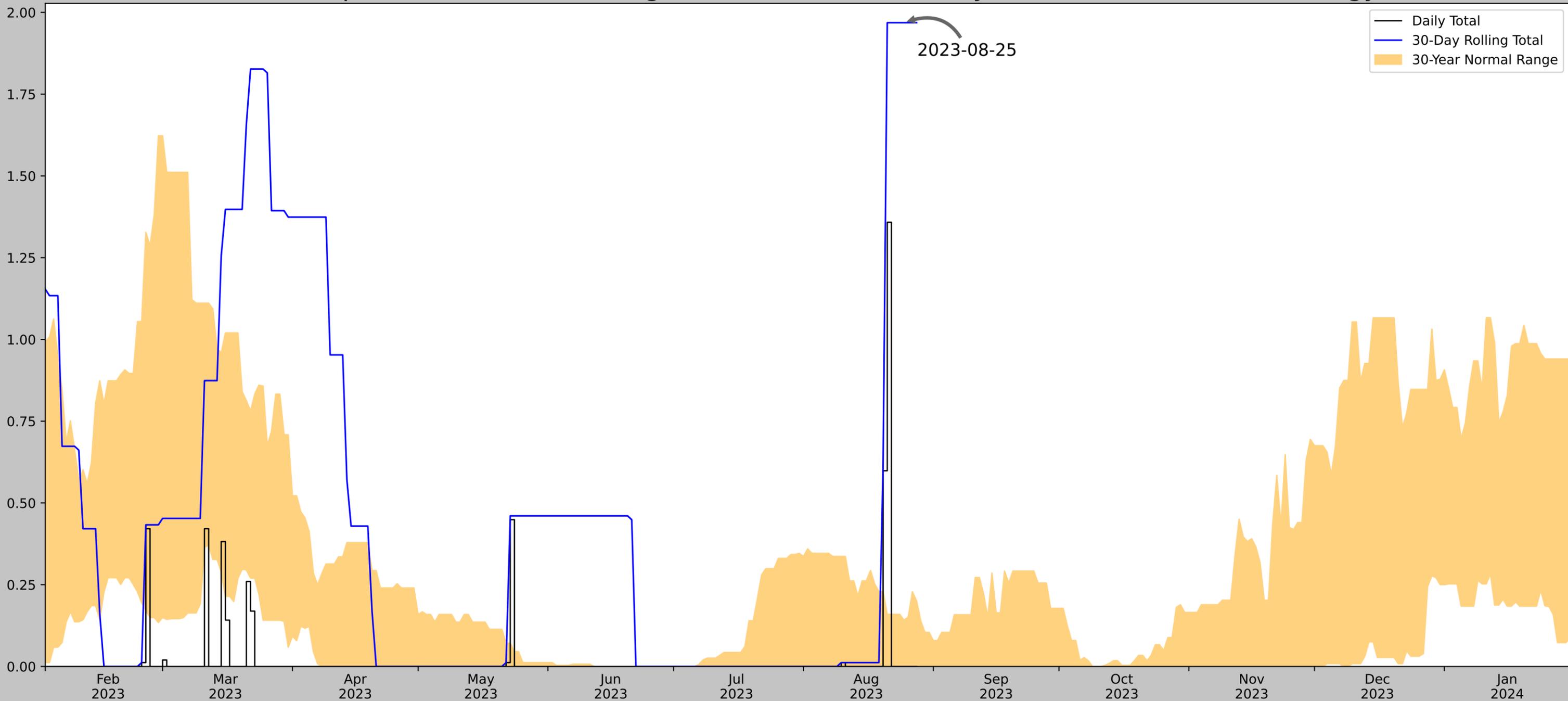
Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
VICTORVILLE	34.5292, -117.2928	2879.921	7.518	191.639	4.824	11065	80
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	3.092	47.535	1.538	0	10
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	2.948	136.521	1.729	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	6.162	130.615	3.578	59	0
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	7.306	190.654	4.681	37	0
EL MIRAGE	34.5892, -117.6303	2950.131	25.267	121.429	14.438	188	0
LYTLE CREEK RS	34.2383, -117.4708	2729.987	29.414	341.573	23.284	2	0

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network

Rainfall (Inches)



Coordinates	34.597911, -117.169517
Observation Date	2023-08-25
Elevation (ft)	3149.306
Drought Index (PDSI)	Moderate wetness (2023-07)
WebWIMP H ₂ O Balance	Dry Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-08-25	0.0	0.141732	1.968504	Wet	3	3	9
2023-07-26	0.0	0.330709	0.0	Normal	2	2	4
2023-06-26	0.0	0.0	0.0	Normal	2	1	2
Result							Wetter than Normal - 15

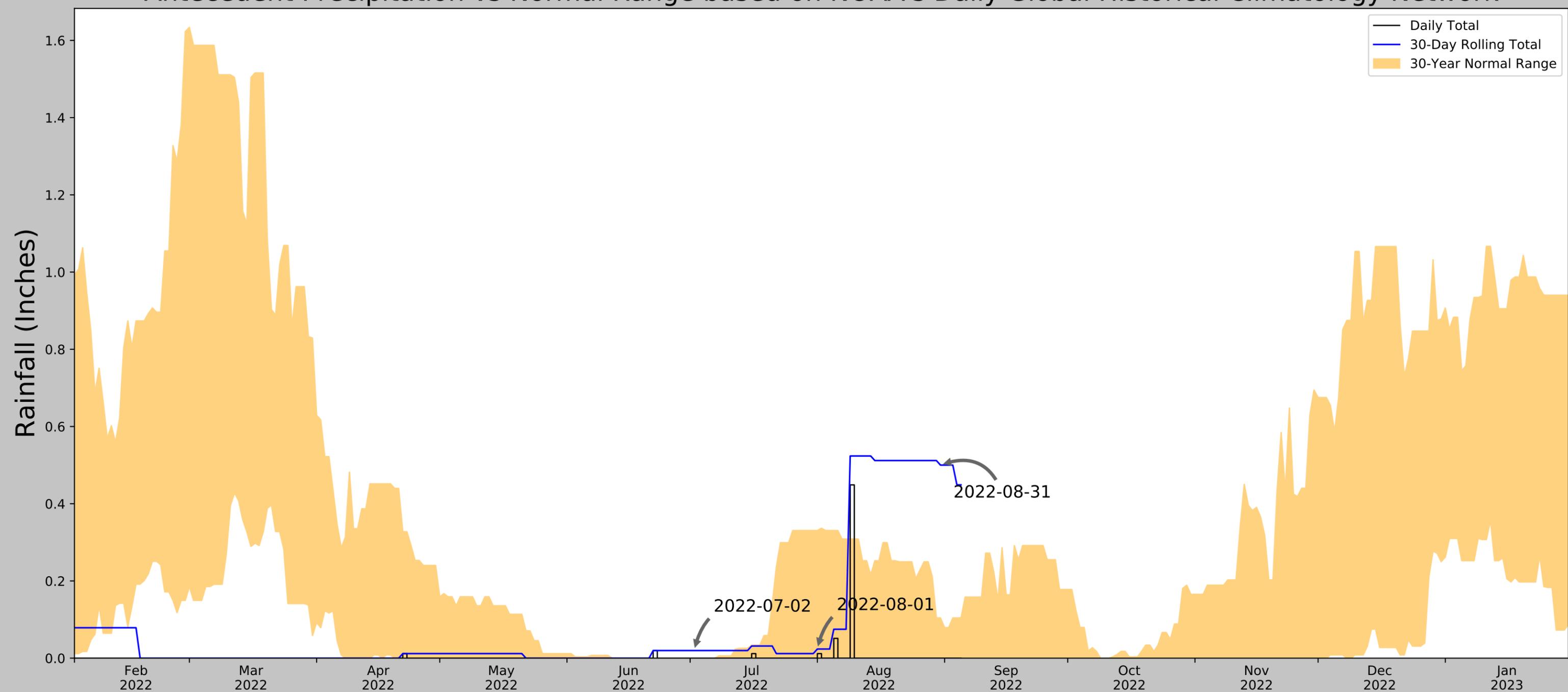


Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	22.031	929.162	30.385	11100	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW-DAGGETT AP	34.8536, -116.7869	1918.963	13.594	301.181	10.212	245	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.59704, -117.1694
Observation Date	2022-08-31
Elevation (ft)	3148.94
Drought Index (PDSI)	Extreme drought (2022-07)
WebWIMP H ₂ O Balance	Dry Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-08-31	0.0	0.104331	0.5	Wet	3	3	9
2022-08-01	0.0	0.330709	0.023622	Normal	2	2	4
2022-07-02	0.0	0.0	0.019685	Wet	3	1	3
Result							Wetter than Normal - 16



Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	22.084	928.796	30.45	11098	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	0

Appendix C

Data Forms

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: MGA Warehouse Project Number: 14279 Stream: N/A Investigator(s): Callie Amodeo	Date: 8/31/22 Time: Town: Apple Valley State: CA Photo begin file#: Photo end file#:
--	--

Y / N Do normal circumstances exist on the site?
 Y / N Is the site significantly disturbed?

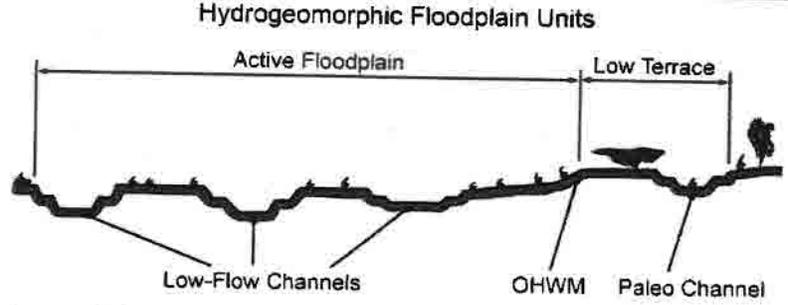
Location Details:
Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

Brief site description:
 Large undeveloped creosote-dominated area w/ dry washes + channels.

Checklist of resources (if available):

- | | |
|--|---|
| <input checked="" type="checkbox"/> Aerial photography
Dates:
<input type="checkbox"/> Topographic maps
<input type="checkbox"/> Geologic maps
<input checked="" type="checkbox"/> Vegetation maps
<input checked="" type="checkbox"/> Soils maps
<input type="checkbox"/> Rainfall/precipitation maps
<input type="checkbox"/> Existing delineation(s) for site
<input checked="" type="checkbox"/> Global positioning system (GPS)
<input type="checkbox"/> Other studies | <input type="checkbox"/> Stream gage data
Gage number:
Period of record:
<input type="checkbox"/> History of recent effective discharges
<input type="checkbox"/> Results of flood frequency analysis
<input type="checkbox"/> Most recent shift-adjusted rating
<input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event |
|--|---|



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:

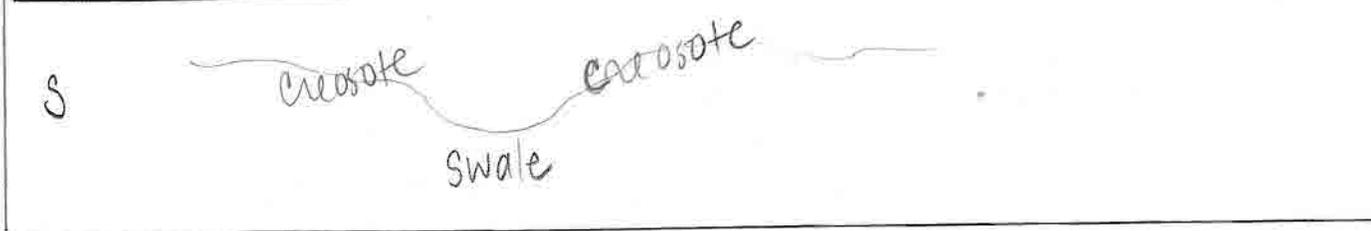
<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

Project ID:

Cross section ID: T-01

Date: 8/31/22 Time:

Cross section drawing:



OHW

GPS point: N/A

Indicators:

- Change in average sediment texture
- Change in vegetation species
- Change in vegetation cover
- Break in bank slope
- Other: _____
- Other: _____

Comments:

Recent storms flowed throughout site; this swale had no indicators of flow and does not (or any longer) have a connection to main channel.

Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace

GPS point: _____ Paleo channel

Characteristics of the floodplain unit:

Average sediment texture: _____
 Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- NA
- Early (herbaceous & seedlings)
- Mid (herbaceous, shrubs, saplings)
- Late (herbaceous, shrubs, mature trees)

Indicators:

- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: _____
- Other: _____
- Other: _____

Comments:

This paleo channel no longer receives ordinary flows - evident by no signs of flow from recent storms and generally lacking ohwm indicators.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

T-02

Project: MGA Warehouse Project Number: 14279 Stream: N/A Investigator(s): A. Cassidy; C. Amvaxu	Date: 8/31/22 Town: Apple Valley Photo begin file#:	Time: State: CA Photo end file#:
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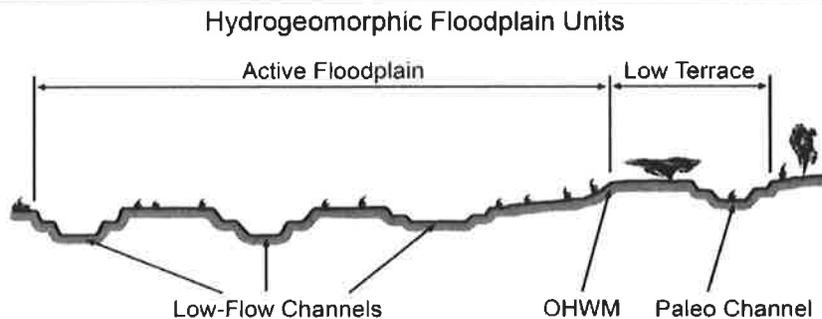
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: _____ Datum: _____ Coordinates: _____
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Potential anthropogenic influences on the channel system:
 Moderate OHV use throughout project site

Brief site description:
 Creosote bush scrub intersected with dirt trails and swales.

Checklist of resources (if available):

<input checked="" type="checkbox"/> Aerial photography Dates: _____ <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input checked="" type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: _____ Period of record: _____ <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
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- Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
 5. Identify the OHWM and record the indicators. Record the OHWM position via:

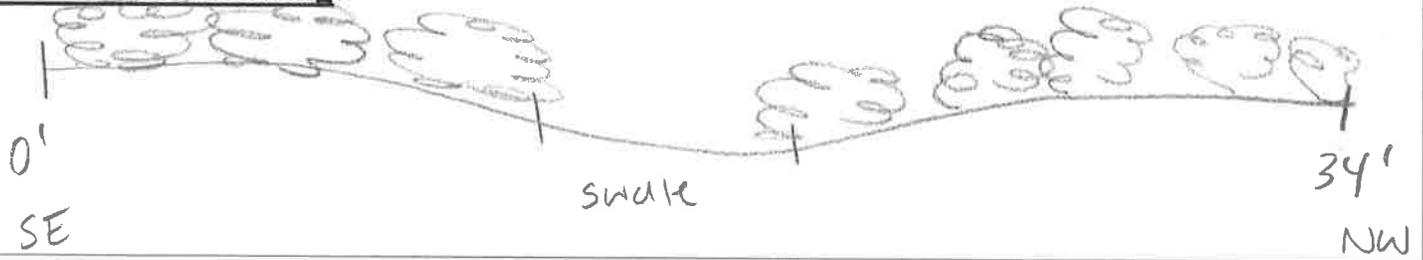
<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

Project ID:

Cross section ID: T-02

Date: 8/31/22 Time:

Cross section drawing:



OHW

GPS point: _____

Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Change in average sediment texture | <input type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

No OHWM indicators present. Recent rainfall did not result in hydrology to flow in feature.

Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- | | |
|---|--|
| <input type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input checked="" type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

T-03

Project: MGA Warehouse Project Number: 14279 Stream: N/A Investigator(s): A. Cassidy; C. Amoa Ku;	Date: 8/31/22 Town: Apple Valley Photo begin file#:	Time: State: CA Photo end file#:
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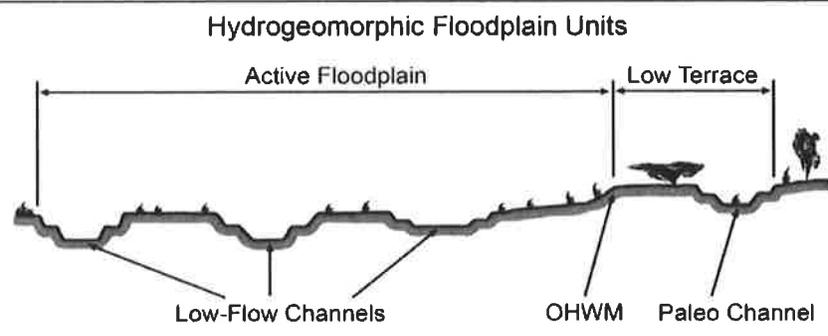
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: _____ Datum: _____ Coordinates: _____
--	---

Potential anthropogenic influences on the channel system:
 Moderate OHU use throughout project site.

Brief site description:
 Creosote bush scrub intersected with dirt roads and swales.

Checklist of resources (if available):

<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input checked="" type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
---	---



- Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
 5. Identify the OHWM and record the indicators. Record the OHWM position via:

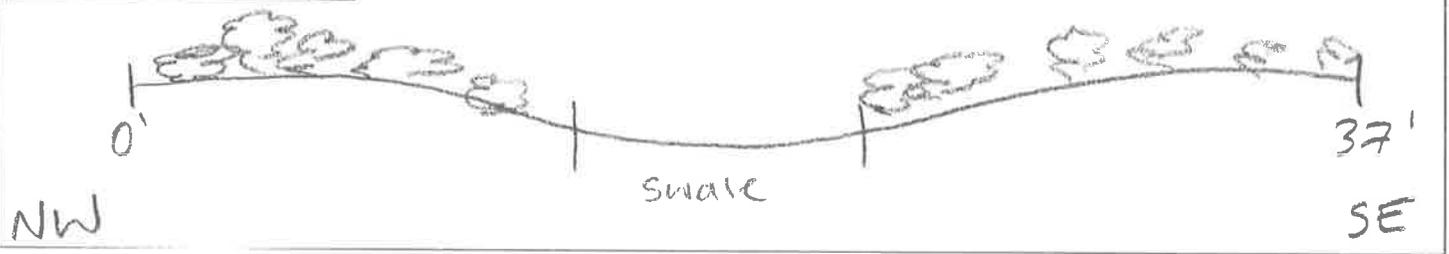
<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

Project ID:

Cross section ID: T-03

Date: 8/31/22 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Change in average sediment texture | <input type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

NO OHWM indicators. Recent rainfall in region did not cause hydrology to flow down feature.

Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

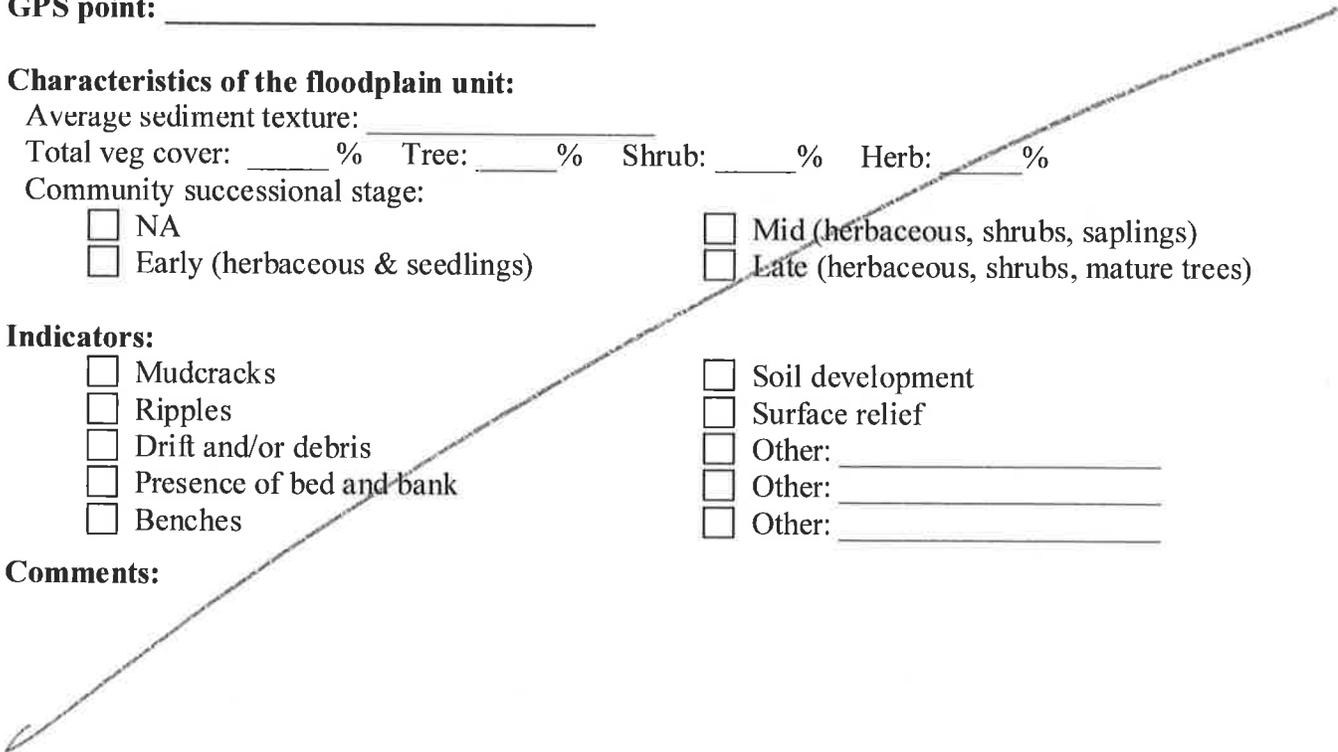
Community successional stage:

- | | |
|---|--|
| <input type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:



T-04

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: MGA Warehouse	Date: 8/31/22	Time:
Project Number: 14279	Town: Apple Valley	State:
Stream: NWW-01 - CJA NWW-01	Photo begin file#:	Photo end file#:
Investigator(s): Callie Amoku		

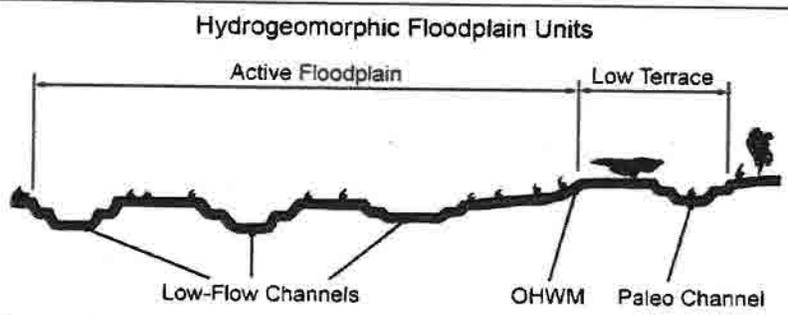
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?	Location Details:
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	
Projection:	
Datum:	
Coordinates:	

Potential anthropogenic influences on the channel system:

Brief site description:
undeveloped, creosote-dominated landscape w/ several ephemeral washes

Checklist of resources (if available):

<input type="checkbox"/> Aerial photography	<input type="checkbox"/> Stream gage data
Dates:	Gage number:
<input type="checkbox"/> Topographic maps	Period of record:
<input type="checkbox"/> Geologic maps	<input type="checkbox"/> History of recent effective discharges
<input checked="" type="checkbox"/> Vegetation maps	<input type="checkbox"/> Results of flood frequency analysis
<input checked="" type="checkbox"/> Soils maps	<input type="checkbox"/> Most recent shift-adjusted rating
<input type="checkbox"/> Rainfall/precipitation maps	<input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
<input type="checkbox"/> Existing delineation(s) for site	
<input checked="" type="checkbox"/> Global positioning system (GPS)	
<input type="checkbox"/> Other studies	



- Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
 5. Identify the OHWM and record the indicators. Record the OHWM position via:

<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

Project ID:

Cross section ID: T-04

Date: 8/31/22

Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- Change in average sediment texture
- Change in vegetation species
- Change in vegetation cover
- Break in bank slope
- Other: _____
- Other: _____

Comments:

Floodplain unit:

- Low-Flow Channel
- Active Floodplain
- Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____
 Total veg cover: ____% Tree: ____% Shrub: ____% Herb: ____%
 Community successional stage:

- NA
- Early (herbaceous & seedlings)
- Mid (herbaceous, shrubs, saplings)
- Late (herbaceous, shrubs, mature trees)

Indicators:

- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: _____
- Other: _____
- Other: _____

Comments:

wide channel w/ hydrology indicators present from recent storm event: drift + deposits, wracking, + sediment deposition/sorting.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: MGA Warehouse

Date: 8/31/22

Time:

Project Number: 14279

Town: Apple Valley

State: CA

Stream: NWW 1

Photo begin file#:

Photo end file#:

Investigator(s): Callie Amosaku, Anna Cassidy

Y / N Do normal circumstances exist on the site?

Location/Details:

Y / N Is the site significantly disturbed?

Projection:

Datum:

Coordinates:

Potential anthropogenic influences on the channel system:

Brief site description:

Checklist of resources (if available):

Aerial photography

Dates:

Topographic maps

Geologic maps

Vegetation maps

Soils maps

Rainfall/precipitation maps

Existing delineation(s) for site

Global positioning system (GPS)

Other studies

Stream gage data

Gage number:

Period of record:

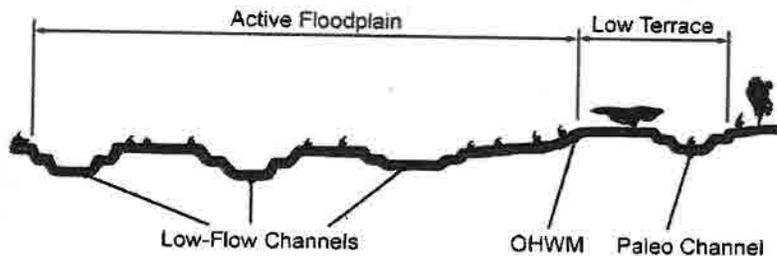
History of recent effective discharges

Results of flood frequency analysis

Most recent shift-adjusted rating

Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:

Mapping on aerial photograph

GPS

Digitized on computer

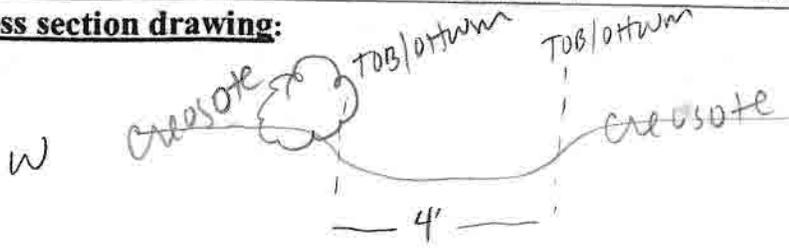
Other:

Project ID:

Cross section ID: T-05

Date: 8/31/22 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Change in average sediment texture | <input checked="" type="checkbox"/> Break in bank slope |
| <input checked="" type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input checked="" type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

Floodplain unit:

- Low-Flow Channel
 Active Floodplain
 Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____
 Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- | | |
|---|--|
| <input checked="" type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input checked="" type="checkbox"/> Surface relief |
| <input checked="" type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input checked="" type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:

side channel showing evidence of recent flows.
connects to larger channel.

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: MGA Warehouse Project Number: 14279 Stream: NWW 4 Investigator(s): Callie Amodeo	Date: 8/31/22 Town: Apple Valley Photo begin file#: Time: State: CA Photo end file#:
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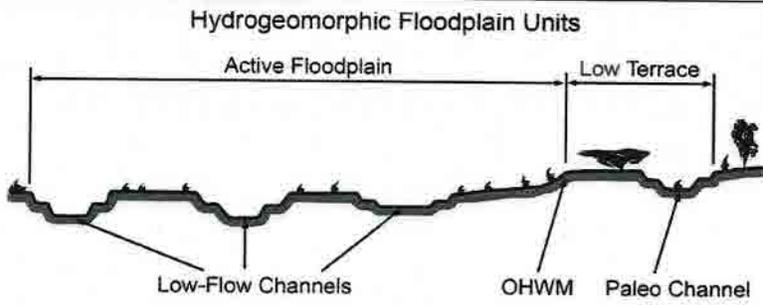
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: Coordinates: Datum:
--	--

Potential anthropogenic influences on the channel system:
 Road runoff, off road activity

Brief site description:

Checklist of resources (if available):

<input type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
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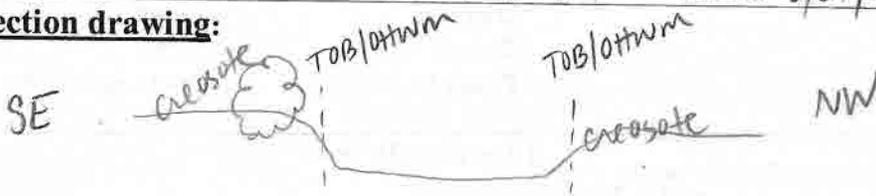


- Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M:**
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
 5. Identify the OHW M and record the indicators. Record the OHW M position via:

<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

Project ID: _____ Cross section ID: T-06 Date: 8/31/22 Time: _____

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- Change in average sediment texture
- Change in vegetation species
- Change in vegetation cover
- Break in bank slope
- Other: _____
- Other: _____

Comments:

Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____
Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- NA
- Early (herbaceous & seedlings)
- Mid (herbaceous, shrubs, saplings)
- Late (herbaceous, shrubs, mature trees)

Indicators:

- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: _____
- Other: _____
- Other: _____

Comments:

channel west of road w/ signs of recent flow.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet T-07

Project: MGA Warehouse Project Number: 14279 Stream: NWN-01 Investigator(s): A. Cassidy; C. Amosaku	Date: 8/31/22 Town: Apple Valley Photo begin file#:	Time: State: CA Photo end file#:
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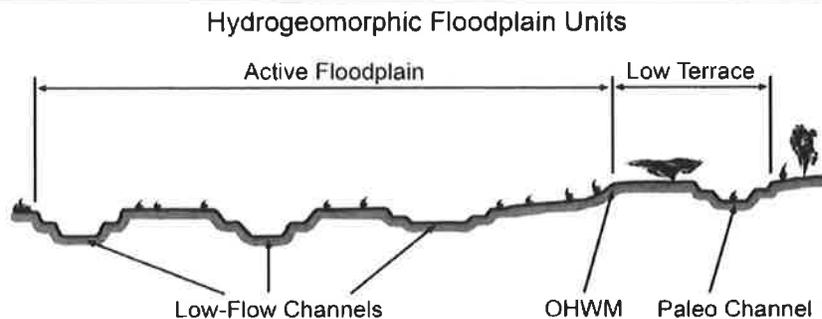
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: _____ Datum: _____ Coordinates: _____
--	---

Potential anthropogenic influences on the channel system:
 Moderate OHV use throughout project site

Brief site description:
 undeveloped landscape of creosote bush scrub and ephemeral wash and tributaries

Checklist of resources (if available):

<input checked="" type="checkbox"/> Aerial photography Dates: _____ <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input checked="" type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: _____ Period of record: _____ <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
---	---



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

- Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
- Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
- Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - Record the floodplain unit and GPS position.
 - Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - Identify any indicators present at the location.
- Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
- Identify the OHWM and record the indicators. Record the OHWM position via:

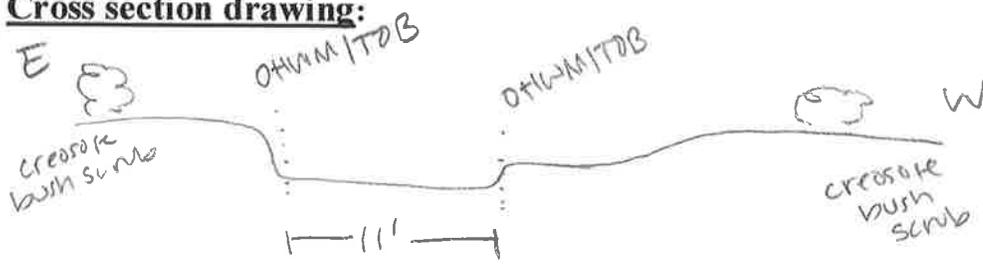
<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input checked="" type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other: _____

Project ID:

Cross section ID: T-07

Date: 8/31/22 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- Change in average sediment texture
- Change in vegetation species
- Change in vegetation cover
- Break in bank slope
- Other: sediment deposition
- Other: drainage patterns
- Saturated soils
- debris wracking

Comments:

Floodplain unit:

- Low-Flow Channel
- Active Floodplain
- Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty sand

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- NA
- Early (herbaceous & seedlings)
- Mid (herbaceous, shrubs, saplings)
- Late (herbaceous, shrubs, mature trees)

Indicators:

- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: _____
- Other: _____
- Other: _____

Comments:

Wide channel with OHWM indicators present within a confined low-flow channel. Recent rainfall shows clear OHWM indicators in subsection of channel.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet T-08

Project: MGA Warehouse Project Number: 14279 Stream: NWW-02 Investigator(s): A. Cassidy; C. Amosaku	Date: 8/31/22 Town: Apple Valley Photo begin file#:	Time: State: CA Photo end file#:
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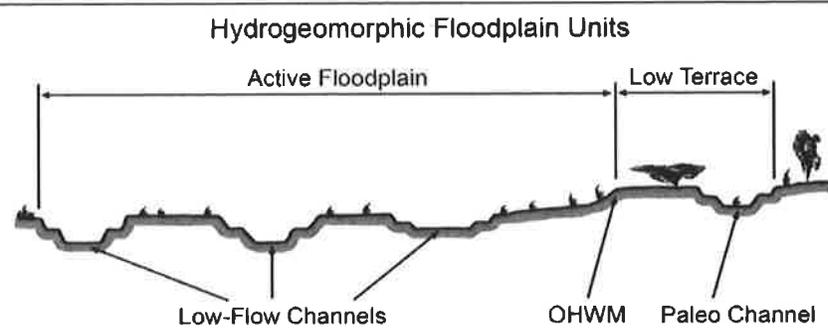
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: _____ Datum: _____ Coordinates: _____
--	---

Potential anthropogenic influences on the channel system:
 Dirt roads and moderate OHV use throughout project site and within drainage feature.

Brief site description:
 Undeveloped landscape of creosote bush scrub and dirt OHV trails.

Checklist of resources (if available):

<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input checked="" type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
--	---



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:

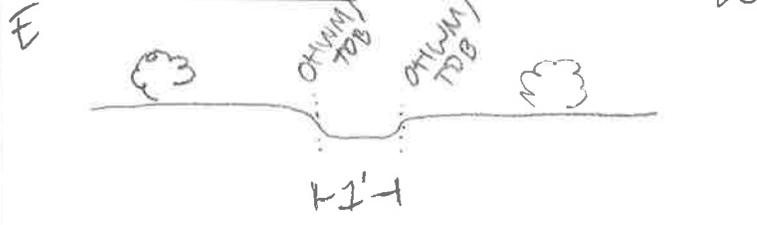
<input checked="" type="checkbox"/> Mapping on aerial photograph	<input type="checkbox"/> GPS
<input checked="" type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

Project ID:

Cross section ID: T-08

Date: 8/31/22 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Change in average sediment texture | <input checked="" type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

Floodplain unit:

- Low-Flow Channel
 Active Floodplain
 Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: sand
 Total veg cover: _____%
 Tree: _____%
 Shrub: _____%
 Herb: _____%

Community successional stage:

- | | |
|---|--|
| <input checked="" type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input checked="" type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input checked="" type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:

Recent rainfall in region did not convey hydrology down this feature.

Arid West Ephemeral and Intermittent Streams OTHM Datasheet

T-09

Project: MGA Warehouse Project Number: 14279 Stream: NWW-03 Investigator(s): A. Cassidy; C. Amundson	Date: 8/31/22 Town: Apple Valley Photo begin file#: Time: State: CA Photo end file#:
---	---

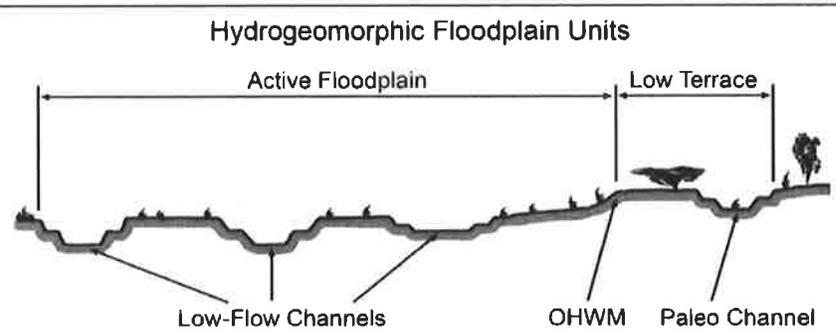
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: Datum: Coordinates:
--	--

Potential anthropogenic influences on the channel system:
 Dirt roads and moderate OTHM use throughout project site and within drainage feature.

Brief site description:
 Undeveloped landscape of creosote bush scrub and dirt OTHM trails.

Checklist of resources (if available):

<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input checked="" type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
---	---



- Procedure for identifying and characterizing the floodplain units to assist in identifying the OTHM:**
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
 5. Identify the OTHM and record the indicators. Record the OTHM position via:

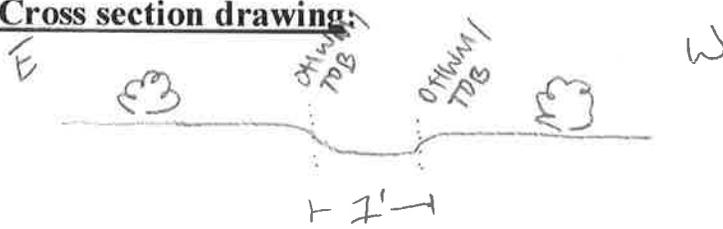
<input checked="" type="checkbox"/> Mapping on aerial photograph	<input type="checkbox"/> GPS
<input checked="" type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

Project ID:

Cross section ID: T-09

Date: 8/31/22 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Change in average sediment texture | <input checked="" type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: sand
Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- | | |
|---|--|
| <input checked="" type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input checked="" type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input checked="" type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:

Recent rainfall in region did not convey hydrology down this feature.

Arid West Ephemeral and Intermittent Streams OTHM Datasheet

T-10

Project: MGA Warehouse	Date: 8/31/22	Time:
Project Number: 14279	Town: Apple Valley	State: CA
Stream: N/A	Photo begin file#:	Photo end file#:
Investigator(s): A. Cassidy; C. Amoaku		

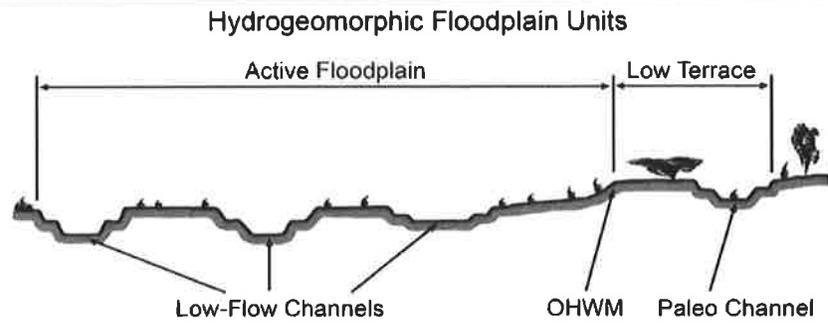
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?	Location Details:
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Projection: Datum:
	Coordinates:

Potential anthropogenic influences on the channel system:
 Dirt roads and moderate OTHM use throughout project site and within drainage feature.

Brief site description:
 Undeveloped landscape of creosote bush scrub and dirt OTHM trails.

Checklist of resources (if available):

<input checked="" type="checkbox"/> Aerial photography Dates:	<input type="checkbox"/> Stream gage data Gage number:
<input type="checkbox"/> Topographic maps	Period of record:
<input type="checkbox"/> Geologic maps	<input type="checkbox"/> History of recent effective discharges
<input checked="" type="checkbox"/> Vegetation maps	<input type="checkbox"/> Results of flood frequency analysis
<input checked="" type="checkbox"/> Soils maps	<input type="checkbox"/> Most recent shift-adjusted rating
<input checked="" type="checkbox"/> Rainfall/precipitation maps	<input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
<input type="checkbox"/> Existing delineation(s) for site	
<input checked="" type="checkbox"/> Global positioning system (GPS)	
<input type="checkbox"/> Other studies	



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:

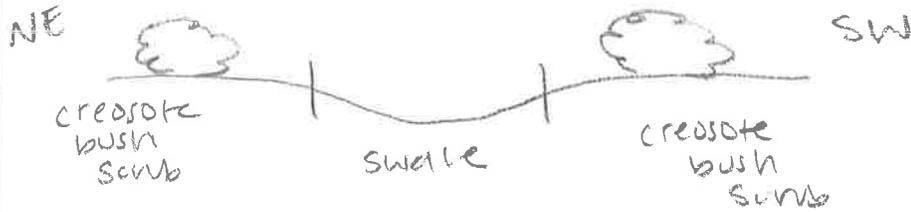
<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

Project ID:

Cross section ID: T-10

Date: 8/31/22 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- Change in average sediment texture
- Change in vegetation species
- Change in vegetation cover
- Break in bank slope
- Other: _____
- Other: _____

Comments:

NO OHWM indicators. Recent rainfall in region did not cause hydrology to flow down feature.

Floodplain unit:

- Low-Flow Channel
- Active Floodplain
- Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: ____% Tree: ____% Shrub: ____% Herb: ____%

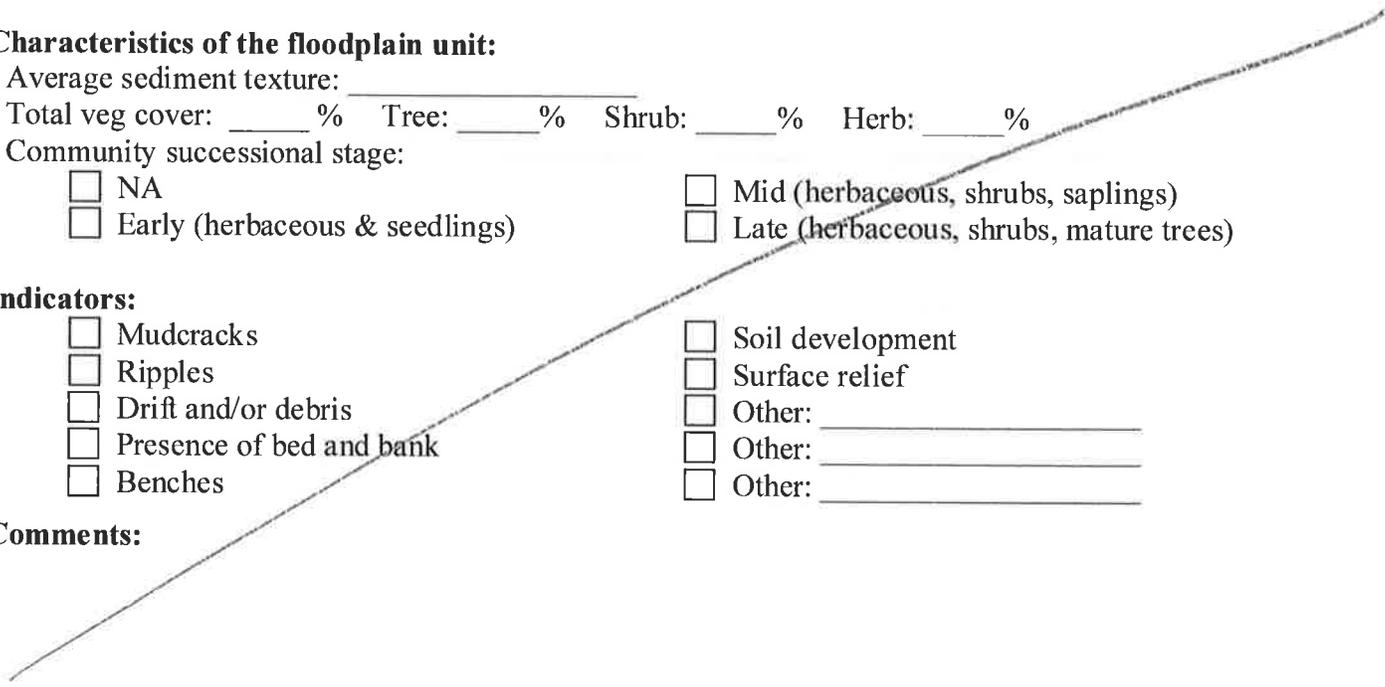
Community successional stage:

- NA
- Early (herbaceous & seedlings)
- Mid (herbaceous, shrubs, saplings)
- Late (herbaceous, shrubs, mature trees)

Indicators:

- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: _____
- Other: _____
- Other: _____

Comments:



Arid West Ephemeral and Intermittent Streams OTHM Datasheet T-11

Project: MGA Warehouse	Date: 8/31/22	Time:
Project Number: 14279	Town: Apple Valley	State: CA
Stream: N/A	Photo begin file#:	Photo end file#:
Investigator(s): A. Carsady; C. Amoaku		

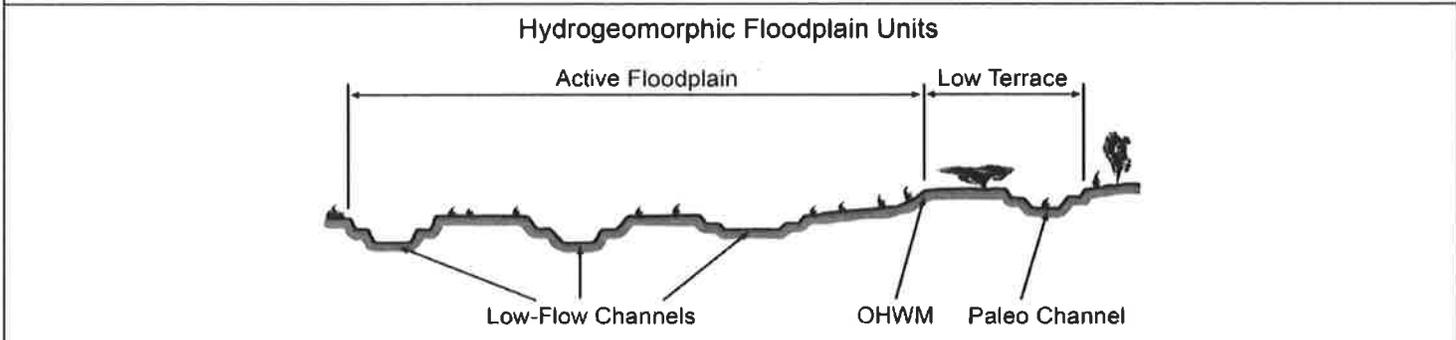
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?	Location Details:	
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Projection:	Datum:
	Coordinates:	

Potential anthropogenic influences on the channel system:
 Dirt roads and moderate OTV use throughout project site

Brief site description:
 undeveloped landscape of creosote bush scrub and dirt OTV trails

Checklist of resources (if available):

<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input checked="" type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
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Procedure for identifying and characterizing the floodplain units to assist in identifying the OTHM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OTHM and record the indicators. Record the OTHM position via:

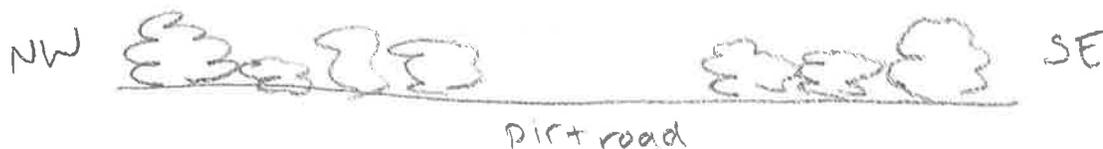
<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

Project ID:

Cross section ID: T-11

Date: 8/31/22 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Change in average sediment texture | <input type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

NO OHWM indicators. Feature is a dirt road. Recent rains resulted in no hydrology within feature.

Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

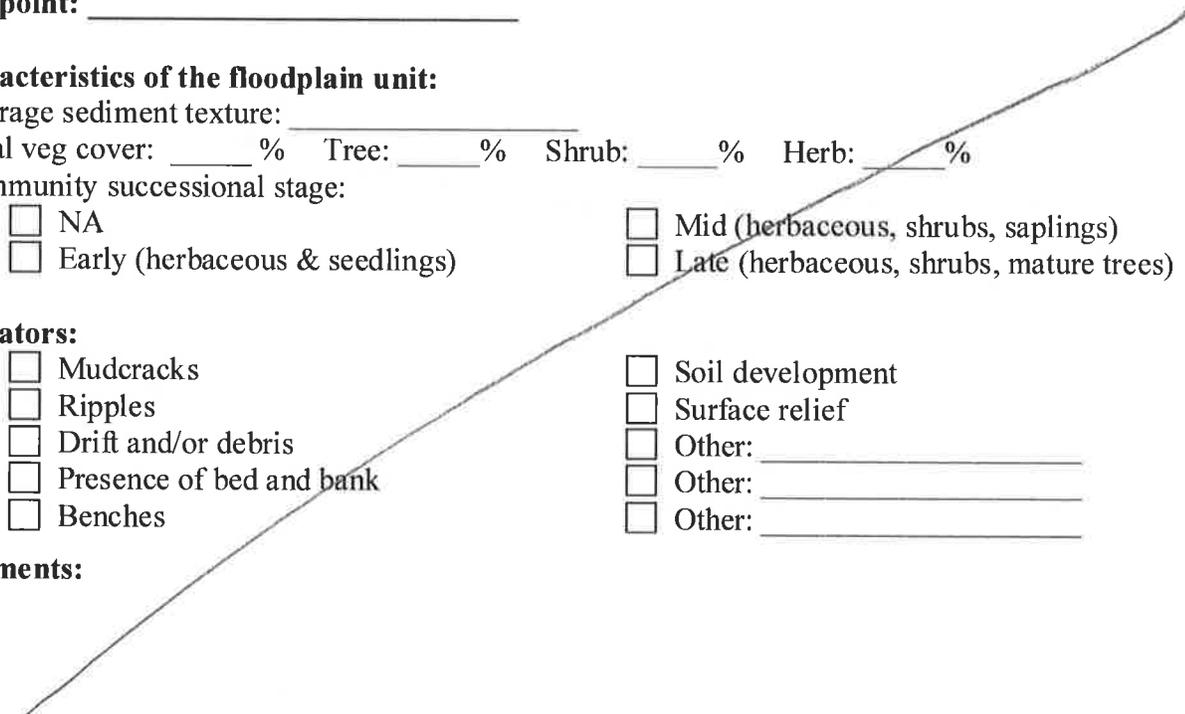
Community successional stage:

- | | |
|---|--|
| <input type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:



Arid West Ephemeral and Intermittent Streams OHWM Datasheet

T-12

Project: IM Warehouse	Date: 8/31/22	Time:
Project Number: 14279	Town: Apple Valley	State: CA
Stream: N/A	Photo begin file#:	Photo end file#:
Investigator(s): A. Cassidy; C. Armoaicu		

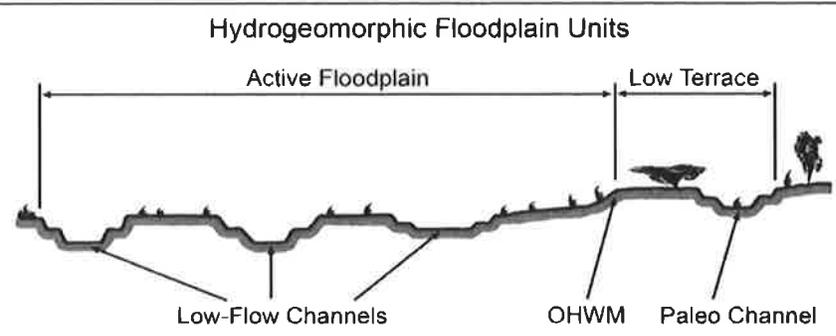
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?	Location Details:	
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Projection:	Datum:
	Coordinates:	

Potential anthropogenic influences on the channel system:
 Moderate OHW use throughout project site

Brief site description:
 creosote bush scrub intersected with dirt trails.

Checklist of resources (if available):

<input checked="" type="checkbox"/> Aerial photography Dates:	<input type="checkbox"/> Stream gage data Gage number:
<input type="checkbox"/> Topographic maps	Period of record:
<input type="checkbox"/> Geologic maps	<input type="checkbox"/> History of recent effective discharges
<input checked="" type="checkbox"/> Vegetation maps	<input type="checkbox"/> Results of flood frequency analysis
<input checked="" type="checkbox"/> Soils maps	<input type="checkbox"/> Most recent shift-adjusted rating
<input type="checkbox"/> Rainfall/precipitation maps	<input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
<input type="checkbox"/> Existing delineation(s) for site	
<input checked="" type="checkbox"/> Global positioning system (GPS)	
<input type="checkbox"/> Other studies	



- Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
 5. Identify the OHWM and record the indicators. Record the OHWM position via:

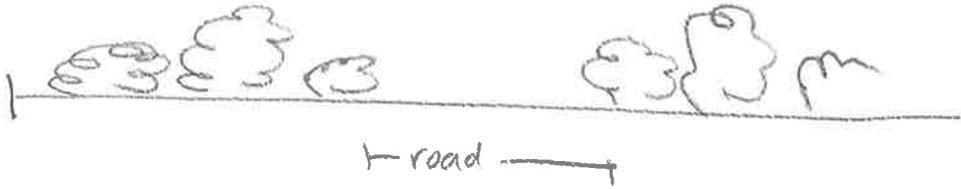
<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

Project ID:

Cross section ID: T-12

Date: 8/31/22 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Change in average sediment texture | <input type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

NO OHWM indicators present. Dirt roadway crosses through review area at this location.

Floodplain unit:

- Low-Flow Channel Active Floodplain Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- | | |
|---|---|
| <input type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input checked="" type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: IM Warehouse Project Number: 14279 Stream: NWW-8 Investigator(s): Britney Schultz, Katie Dayton	Date: 1/17/23 Town: Apple Valley Photo begin file#: PP-14 Photo end file#: PP-15
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Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: South of Johnson Road Projection: Datum: Coordinates: 34.600014°N 117.176159°W
--	---

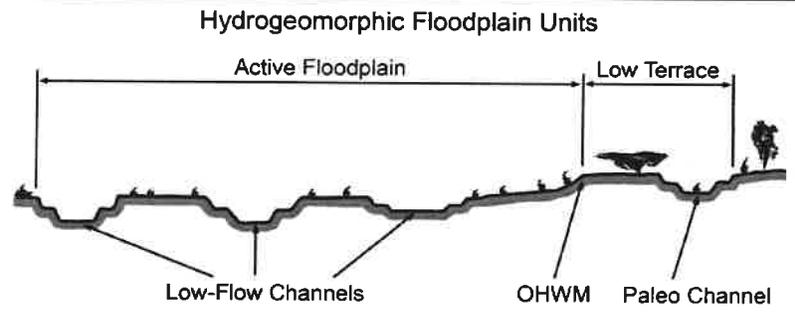
Potential anthropogenic influences on the channel system:
 Dirt road to east, Johnson Road to North
 ATV and bike use in area

Brief site description:
 undeveloped creosote dominated landscape
 unvegetated ephemeral wash

off site areas

Checklist of resources (if available):

<input type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
---	---



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:

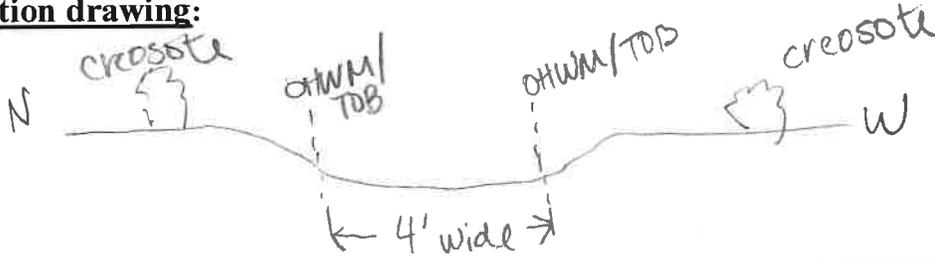
<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

Project ID: 1M

Cross section ID: T-13

Date: 1/17/23 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- Change in average sediment texture
- Change in vegetation species
- Change in vegetation cover

- Break in bank slope
- Other: _____
- Other: _____

Comments:

Floodplain unit:

- Low-Flow Channel
- Active Floodplain
- Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____
 Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- NA
- Early (herbaceous & seedlings)
- Mid (herbaceous, shrubs, saplings)
- Late (herbaceous, shrubs, mature trees)

Indicators:

- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: Flow lineage
- Other: sediment deposition
- Other: minor shelving

Comments:

~4' wide channel w/ hydrology present
 from recent storms.

T-14

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

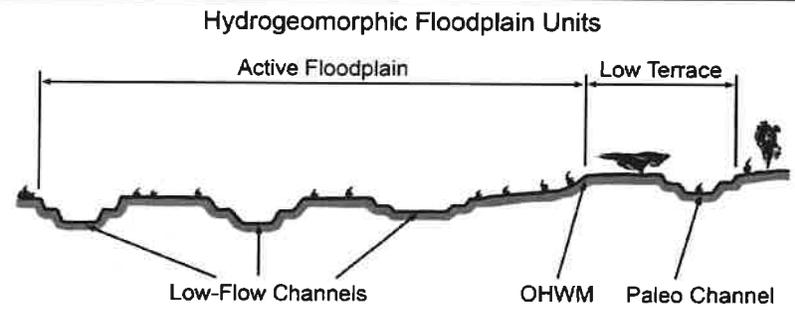
Project: IM Warehouse Date: 01/17/23 Time:
 Project Number: 44279 Town: Apple Valley State: CA
 Stream: NNW-9 Photo begin file#: PP-16 Photo end file#: PP-17
 Investigator(s): Britney Schwitz; Katie Dayton

Y / N Do normal circumstances exist on the site?
 Y / N Is the site significantly disturbed?
 Location Details: SW of Johnson Rd / Central
 Projection: Datum:
 Coordinates: 34.000811°N 117.172050°W

Potential anthropogenic influences on the channel system:
 Johnson Road and Central Road
 ATV / trails use in area

Brief site description:
 Creosote scrub / vacant undeveloped land offsite area
 w/ unvegetated ephemeral wash

- Checklist of resources (if available):
- Aerial photography
 - Topographic maps
 - Geologic maps
 - Vegetation maps
 - Soils maps
 - Rainfall/precipitation maps
 - Existing delineation(s) for site
 - Global positioning system (GPS)
 - Other studies
 - Stream gage data
 - Gage number:
 - Period of record:
 - History of recent effective discharges
 - Results of flood frequency analysis
 - Most recent shift-adjusted rating
 - Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event



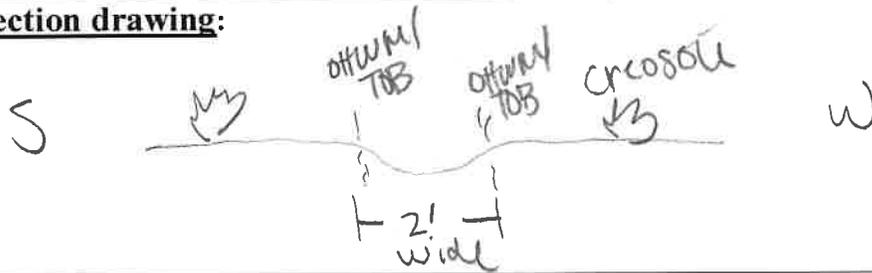
- Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
 5. Identify the OHWM and record the indicators. Record the OHWM position via:
 - Mapping on aerial photograph
 - GPS
 - Digitized on computer
 - Other:

Project ID: 1M

Cross section ID: T-14

Date: 01/17/23 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- Change in average sediment texture
- Change in vegetation species
- Change in vegetation cover
- Break in bank slope
- Other: _____
- Other: _____

Comments:

Drainage becomes more prominent further downstream

Floodplain unit:

- Low-Flow Channel
- Active Floodplain
- Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____
Total veg cover: 0% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- NA
- Early (herbaceous & seedlings)
- Mid (herbaceous, shrubs, saplings)
- Late (herbaceous, shrubs, mature trees)

Indicators:

- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: sed. deposition
- Other: shelving
- Other: _____

Comments:

Signs of recent flow/hydrology from storms, develops into larger channel downstream

T-15

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

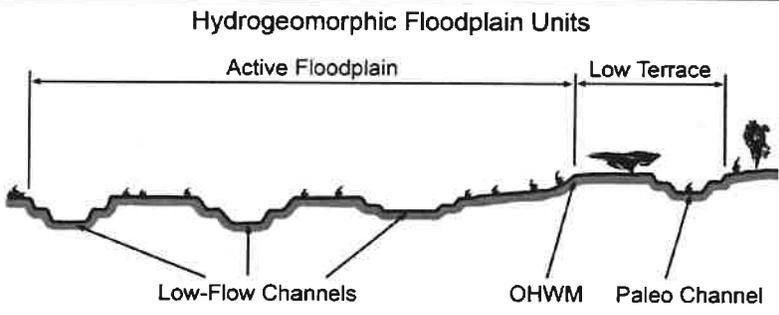
Project: 1M Warehouse	Date: 1/17/23	Time:
Project Number: 14279	Town: Apple Valley	State: CA
Stream: NWW-7	Photo begin file#:	Photo end file#:
Investigator(s): Britney Schultz, Katie Dayton	PP-19	PP-19

Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?	Location Details: N of Lafayette, W of Central Rd
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Projection: Datum:
	Coordinates: 34.593792°N 117.172691°W

Potential anthropogenic influences on the channel system:
 Lafayette Street (dirt road), Central Road
 ATV, bike use in area

Brief site description:
 creosote scrub / vacant lands off site areas
 w/ ephemeral unvegetated wash

- Checklist of resources (if available):**
- | | |
|---|--|
| <input type="checkbox"/> Aerial photography | <input type="checkbox"/> Stream gage data |
| Dates: | Gage number: |
| <input type="checkbox"/> Topographic maps | Period of record: |
| <input type="checkbox"/> Geologic maps | <input type="checkbox"/> History of recent effective discharges |
| <input checked="" type="checkbox"/> Vegetation maps | <input type="checkbox"/> Results of flood frequency analysis |
| <input checked="" type="checkbox"/> Soils maps | <input type="checkbox"/> Most recent shift-adjusted rating |
| <input type="checkbox"/> Rainfall/precipitation maps | <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event |
| <input type="checkbox"/> Existing delineation(s) for site | |
| <input checked="" type="checkbox"/> Global positioning system (GPS) | |
| <input type="checkbox"/> Other studies | |



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHW M and record the indicators. Record the OHW M position via:

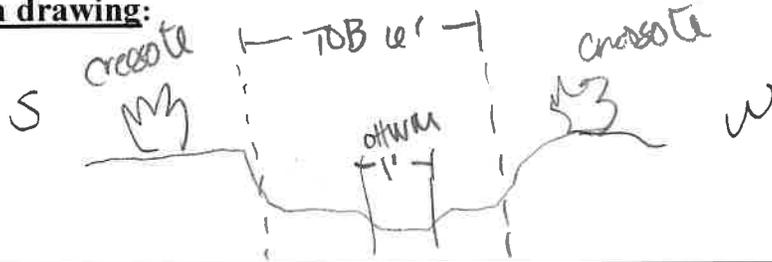
- | | |
|---|---|
| <input type="checkbox"/> Mapping on aerial photograph | <input checked="" type="checkbox"/> GPS |
| <input type="checkbox"/> Digitized on computer | <input type="checkbox"/> Other: |

Project ID: 1M

Cross section ID: T-15

Date: 1/17/23 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- Change in average sediment texture
- Change in vegetation species
- Change in vegetation cover
- Break in bank slope
- Other: _____
- Other: _____

Comments:

Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____
Total veg cover: _____% Tree: _____% Shrub: _____% Herb: 41%

Community successional stage:

- NA
- Early (herbaceous & seedlings)
- Mid (herbaceous, shrubs, saplings)
- Late (herbaceous, shrubs, mature trees)

Indicators:

- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: Shelving
- Other: Sediment sorting
- Other: _____

Comments:

Minor amount of Eroxic and BROTEC in channel
Signs of flows from recent storms.

Arid West Ephemeral and Intermittent Streams OWHM Datasheet

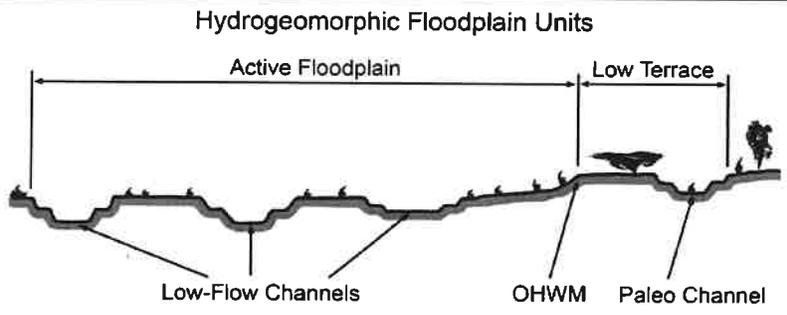
Project: IM warehouse Date: 01/17/23 Time:
 Project Number: 14279 Town: Apple Valley State: CA
 Stream: N/A Photo begin file#: Photo end file#:
 Investigator(s): Britney Schultz, Katie Dayton PP-20

Y / N Do normal circumstances exist on the site?
 Y / N Is the site significantly disturbed?
 Location Details: N. of Fernandez St, Lafayette Rd.
 Projection: Datum:
 Coordinates: 34.593784°N 117.180559°W

Potential anthropogenic influences on the channel system:
 Lafayette St (dirt Rd) and very high ATV and bike trails in area

Brief site description:
 Creosote bush w/in vacant lands. Area north of Lafayette St btwn Concord Rd and Rialto Ave w/ lots of ATV roads -

Checklist of resources (if available):
 Aerial photography
 Dates:
 Topographic maps
 Geologic maps
 Vegetation maps
 Soils maps
 Rainfall/precipitation maps
 Existing delineation(s) for site
 Global positioning system (GPS)
 Other studies
 Stream gage data
 Gage number:
 Period of record:
 History of recent effective discharges
 Results of flood frequency analysis
 Most recent shift-adjusted rating
 Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
 no feature present



Procedure for identifying and characterizing the floodplain units to assist in identifying the OWHM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OWHM and record the indicators. Record the OWHM position via:

Mapping on aerial photograph GPS
 Digitized on computer Other:

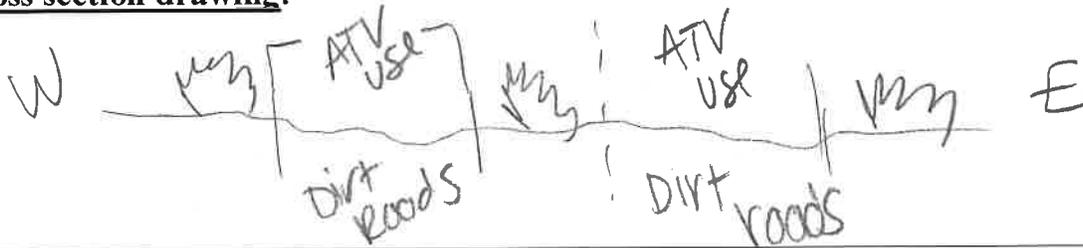
Project ID: 1M

Cross section ID: T-14

Date: 1/17/23

Time:

Cross section drawing:



OHWM

GPS point: N/A

Indicators:

- Change in average sediment texture
- Change in vegetation species
- Change in vegetation cover
- Break in bank slope
- Other: _____
- Other: _____

Comments:

ATV use / bike use in area w/ numerous dirt roads / paths that are being used. NO drainages present

Floodplain unit:

- Low-Flow Channel
- Active Floodplain
- Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____
 Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%
 Community successional stage:

- NA
- Early (herbaceous & seedlings)
- Mid (herbaceous, shrubs, saplings)
- Late (herbaceous, shrubs, mature trees)

Indicators:

- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: _____
- Other: _____
- Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

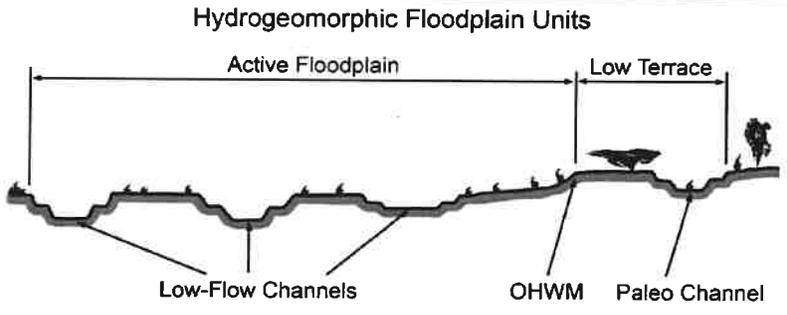
Project: IM Warehouse Date: 01/17/23 Time:
 Project Number: 14279 Town: Apple Valley State: CA
 Stream: NWW-11 Photo begin file#: Photo end file#: PP-21, PP-22
 Investigator(s): Britney Schultz, Katie Dayton

Y / N Do normal circumstances exist on the site?
 Y / N Is the site significantly disturbed?
 Location Details: N. of Fernandez St.
 Projection: Datum:
 Coordinates: 34.593538°N, 117.182356°W

Potential anthropogenic influences on the channel system:
 Lafayette St. (dirt Rd), Fencing of private property
 - High ATV use

Brief site description:
 creosote bush scrub w/in vacant lands.

- Checklist of resources (if available):**
- Aerial photography
 - Dates:
 - Topographic maps
 - Geologic maps
 - Vegetation maps
 - Soils maps
 - Rainfall/precipitation maps
 - Existing delineation(s) for site
 - Global positioning system (GPS)
 - Other studies
 - Stream gage data
 - Gage number:
 - Period of record:
 - History of recent effective discharges
 - Results of flood frequency analysis
 - Most recent shift-adjusted rating
 - Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHW M and record the indicators. Record the OHW M position via:
 - Mapping on aerial photograph
 - GPS
 - Digitized on computer
 - Other:

Project ID: 1M

Cross section ID: T-17

Date: 1/17/23 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- Change in average sediment texture
- Change in vegetation species
- Change in vegetation cover
- Break in bank slope
- Other: _____
- Other: _____

Comments:

Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____
Total veg cover: 0 % Tree: — % Shrub: — % Herb: — %

Community successional stage:

- NA
- Early (herbaceous & seedlings)
- Mid (herbaceous, shrubs, saplings)
- Late (herbaceous, shrubs, mature trees)

Indicators:

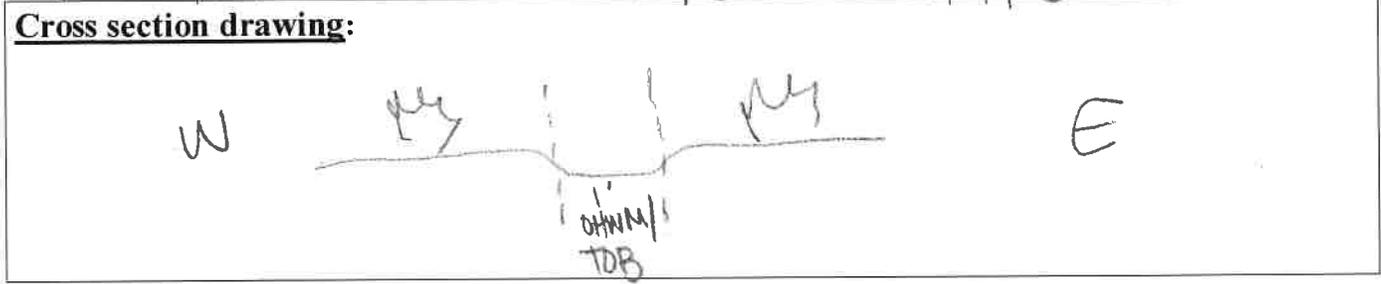
- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: shelving
- Other: sediment sorting
- Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: 1M Warehouse		Date: 01/17/23	Time:				
Project Number: 14279		Town: Apple Valley	State: CA				
Stream: NWN-12		Photo begin file#:	Photo end file#:				
Investigator(s): Brittany Schwitz, Katie Dayton		PP-23					
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?		Location Details: North of Fernandez Rd. OFF site					
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?		Projection: Datum:					
Potential anthropogenic influences on the channel system: Lafayette St. and development to north trails and ATV use		Coordinates: 34.593373°N, 117.180001°W					
Brief site description: creosote bush scrub w/in vacant lands, unvegetated ephemeral channel							
Checklist of resources (if available):							
<input checked="" type="checkbox"/> Aerial photography		<input type="checkbox"/> Stream gage data					
Dates:		Gage number:					
<input type="checkbox"/> Topographic maps		Period of record:					
<input type="checkbox"/> Geologic maps		<input type="checkbox"/> History of recent effective discharges					
<input checked="" type="checkbox"/> Vegetation maps		<input type="checkbox"/> Results of flood frequency analysis					
<input checked="" type="checkbox"/> Soils maps		<input type="checkbox"/> Most recent shift-adjusted rating					
<input type="checkbox"/> Rainfall/precipitation maps		<input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event					
<input type="checkbox"/> Existing delineation(s) for site							
<input checked="" type="checkbox"/> Global positioning system (GPS)							
<input type="checkbox"/> Other studies							
<p style="text-align: center;">Hydrogeomorphic Floodplain Units</p>							
<p>Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:</p> <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHWM and record the indicators. Record the OHWM position via: <table border="0" style="width: 100%;"> <tr> <td><input type="checkbox"/> Mapping on aerial photograph</td> <td><input checked="" type="checkbox"/> GPS</td> </tr> <tr> <td><input type="checkbox"/> Digitized on computer</td> <td><input type="checkbox"/> Other:</td> </tr> </table> 				<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS	<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:
<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS						
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:						

Project ID: 1M Cross section ID: T-18 Date: 1/19/23 Time:



OHWM

GPS point: _____

Indicators:

<input checked="" type="checkbox"/> Change in average sediment texture	<input checked="" type="checkbox"/> Break in bank slope
<input type="checkbox"/> Change in vegetation species	<input type="checkbox"/> Other: _____
<input checked="" type="checkbox"/> Change in vegetation cover	<input type="checkbox"/> Other: _____

Comments:

Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 0 % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

<input type="checkbox"/> NA	<input type="checkbox"/> Mid (herbaceous, shrubs, saplings)
<input type="checkbox"/> Early (herbaceous & seedlings)	<input type="checkbox"/> Late (herbaceous, shrubs, mature trees)

Indicators:

<input type="checkbox"/> Mudcracks	<input checked="" type="checkbox"/> Soil development
<input type="checkbox"/> Ripples	<input checked="" type="checkbox"/> Surface relief
<input type="checkbox"/> Drift and/or debris	<input type="checkbox"/> Other: <u>shelving</u>
<input checked="" type="checkbox"/> Presence of bed and bank	<input type="checkbox"/> Other: <u>sediment dep.</u>
<input type="checkbox"/> Benches	<input type="checkbox"/> Other: _____

Comments:

Appendix D

Review Area Photos



Photo 1. View of Transect 1, facing west.



Photo 2. View of Transect 2, facing north.



Photo 3. View of Transect 3, facing north.



Photo 4. View of Transect 4, facing northeast.



Photo 5. View of Transect 5, facing south.



Photo 6. View of Transect 6, facing northeast.



Photo 7. View of Transect 7, facing south.



Photo 8. View of Transect 8, facing southwest.



Photo 9. View of Transect 9, facing southwest.

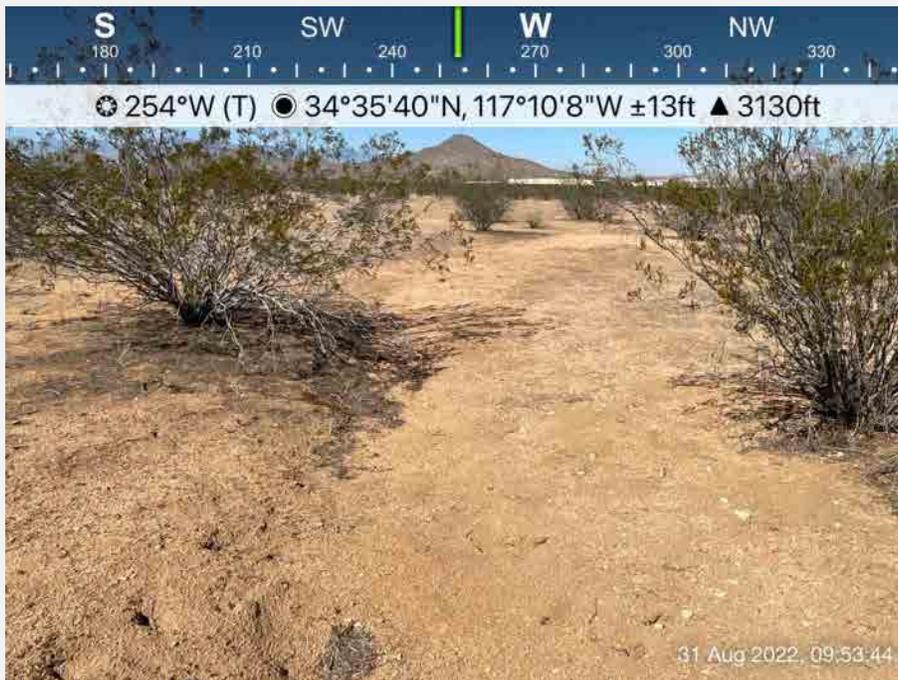


Photo 10. View of Transect 10, facing west.



Photo 11. View of Transect 11, facing northeast.



Photo 12. View of flows heading south along Central Road.



Photo 13. View of Transect 12, facing southwest.

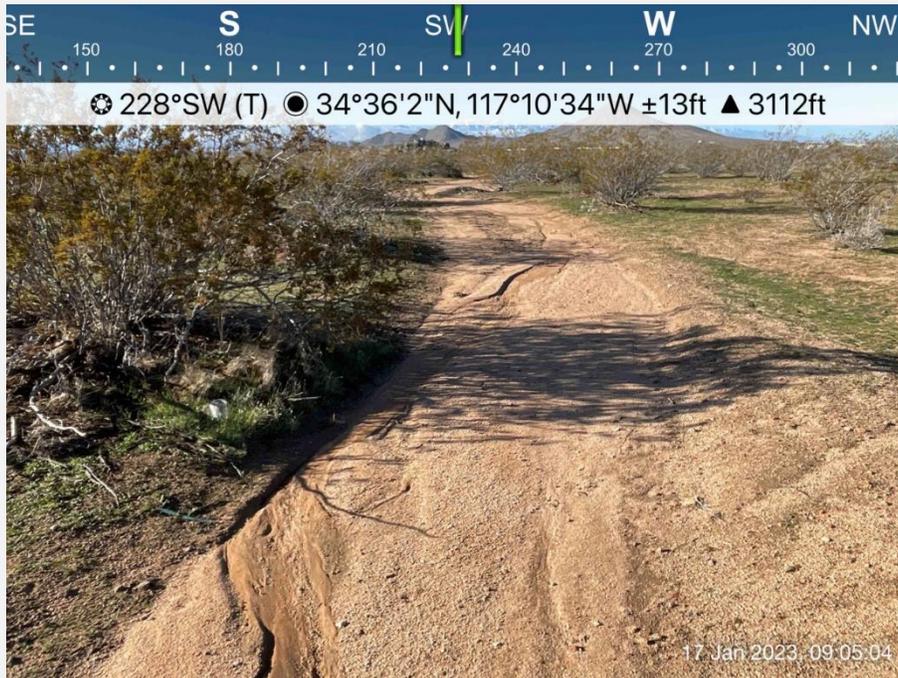


Photo 14. View of flows heading southwest, south of Johnson Road.



Photo 15. View of Transect 13, facing northeast.

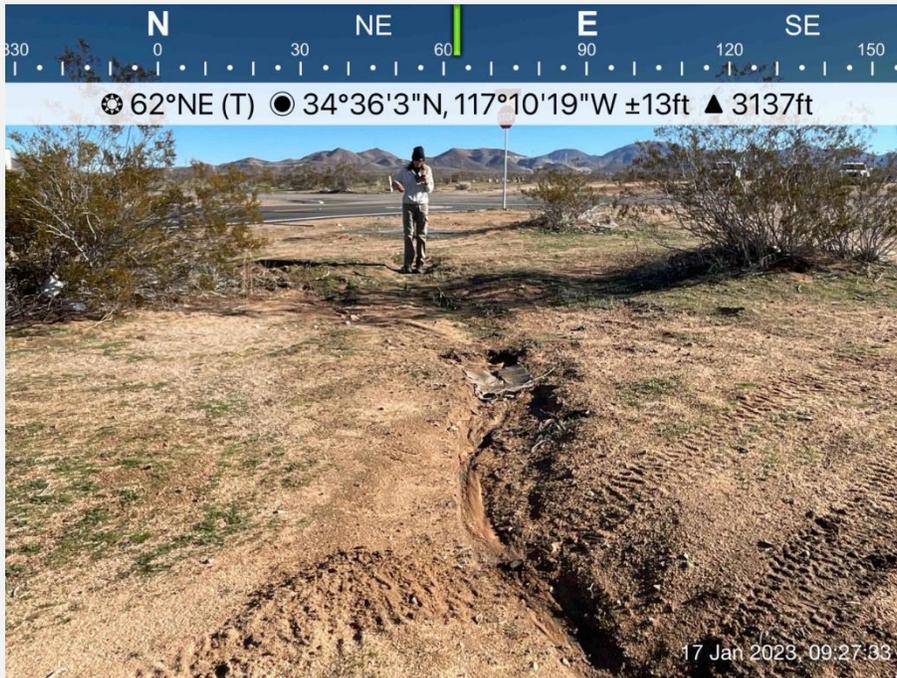


Photo 16. View of flows heading southwest from Johnson Road and Central Road, facing northeast.



Photo 17. View of Transect 14, facing southwest.



Photo 18. View of flows heading west from Central Road, facing east.



Photo 19. View of Transect 15, facing west.



Photo 20. View of Transect 16, facing north.



Photo 21. View of Transect 17, facing south.



Photo 22. View of flows heading south from Lafayette Street, facing south.



Photo 23. View of Transect 18, facing north.

Appendix B

Joshua Tree Preservation, Protection, and Relocation
Plan, and Desert Native Plant Relocation Plan

Joshua Tree Preservation, Protection, and Relocation Plan, and Desert Native Plant Relocation Plan

1M Warehouse Project

SEPTEMBER 2023

Prepared for:

AP INVESTORS GROUP, LLC.

9220 Winnetka Avenue
Los Angeles, California 91311
Contact: Opher Benrimon

Prepared by:

DUDEK

38 North Marengo Avenue
Pasadena, California 91101
Contact: Chris Kallstrand
ISA-Certified Arborist, No. WE-8208A

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- A Joshua Tree Locations
- B Tree Information Matrix
- C Joshua Tree Impacts
- D Conceptual Site Plan

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AMSL	above mean sea level
AVDC	Apple Valley Development Code
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
Commission	California Fish and Game Commission
ISA	International Society of Arboriculture
ITP	Incidental Take Permit
Joshua Tree Plan	Joshua Tree Preservation, Protection, and Relocation Plan
project	1M Warehouse Project
Town	Town of Apple Valley
WJT	Western Joshua Tree

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1 Introduction

The purpose of this Joshua Tree Preservation, Protection, and Relocation Plan (Joshua Tree Plan) for the proposed 1M Warehouse Project (project) is to provide detailed specifications for AP Investors Group, LLC. to meet the requirements of Chapter 9.76 of the Town of Apple Valley's (Town) Development Code (Town of Apple Valley 2010) and the evolving California Department of Fish and Wildlife (CDFW) requirements to protect, preserve, and mitigate impacts to Joshua trees (*Yucca brevifolia*) as a result of the proposed project. On October 21, 2019, the California Fish and Game Commission (Commission) received a petition from the Center for Biological Diversity to list western Joshua tree.¹ On November 1, 2019, the Commission referred the petition to the California Department of Fish and Wildlife (CDFW) for evaluation. CDFW evaluated the scientific information presented in the petition and other relevant information possessed by CDFW at the time of review and prepared a report for submittal to the Commission. The report states that CDFW recommended that the Commission accept the petition for further consideration of western Joshua tree under the California Endangered Species Act (CESA). On September 22, 2020, the Commission approved the petition to accept the candidacy proposal for western Joshua tree, effective October 9, 2020. When a plant or wildlife species is granted candidacy under CESA, the species is given the same protection as a threatened or endangered species while the Commission evaluates whether formal listing as threatened or endangered under the CESA is warranted. For this project, take or removal of western Joshua tree would require a 2081 Incidental Take Permit (ITP) from CDFW.

Furthermore, Chapter 9.76 of the Apple Valley Development Code (AVDC) states that "it is in the public interest to Promote the continued health of this Town's abundant and diverse plant resources by providing regulations and guidelines for the management of the plant resources in the Town of Apple Valley on property or combinations of property under private or public ownership...". Additionally, the Town's Interim Local Policy and Procedures on the Western Joshua Tree states the following for any property within any zoning district in the Town:

- After submittal, Town Staff will complete a pre-site inspection to determine the presence or absence of the Western Joshua Tree (WJT).
 - If the proposed grading/construction is within 40-feet of a WJT, the Applicant may seek a determination from a Desert Native Plant Specialist (DNPS) to attest to and confirm the avoidance of the WJT with a reduced separation distance. The report must contain the findings and avoidance recommendations of the DNPS.
 - If it is determined that the proposed development activity would require a take of the WJT, the project may be redesigned to avoid impact to the tree, or the applicant must obtain an Incidental Take Permit from the CDFW before the project can proceed.

If a development is subject to the California Environmental Quality Act, the Applicant must identify if the WJT will be protected, relocated, or removed.

¹ On October 21, 2019, the Commission received a petition to list the following as threatened under the California ESA: (1) western Joshua tree (*Yucca brevifolia*) throughout its California range, or, in the event the Commission determines that listing of *Yucca brevifolia* throughout its California range is not warranted, then (2) the western Joshua tree population within the northern part of western Joshua tree's California range, or (3) the western Joshua tree population within the southern part of western Joshua tree's California range.

In addition to local regulations, per the CDFW, Dudek evaluated all Joshua trees located within 186 feet of the proposed project. Furthermore, as requested by CDFW, Dudek collected seasonal Joshua tree data that included the number of branching terminal flower panicles, and a description of the phenological development of the tree (e.g., young leaves, leaves, flowers, open flowers, fruits, and recent fruit drop.).

As such, this Joshua Tree Plan addresses the requirements of the Town's Plant Protection and Management policy, requested CDFW Joshua tree information, and the proposed mitigation required by CDFW under the 2081 ITP and provides details regarding the site's Joshua trees, detailed specifications for the protection of trees to be preserved on site, and relocation/salvage requirements for those trees requiring removal and relocation.

1.1 Applicability

The provisions of this Joshua Tree Plan apply toward the protection and removal of Joshua trees located within the Town of Apple Valley, California, as defined in the Town's Plant Protection and Management policy (AVDC 9.76).

1.2 Project Location

The approximately 91.02-acre project site, including the 72.2-acre project site and 18.9-acre off-site improvements, is located in the northern part of the Town, which is within the Victor Valley Region of San Bernardino County (Figure 1, Project Location). The project is located in the northeast quadrant of Central Road and Lafayette Street. The project site is located south of Johnson Road, east of Central Road, north of Lafayette Street, and west of Sycamore Lane. The project site consists of Assessor's Parcel Numbers (APNs) 0463-241-02 and 0463-241-03, and the off-site improvement areas consist of 31 additional APNs. The building would be approximately 1,080,125 square feet. The project would involve associated improvements, including loading docks, truck and vehicle parking, and landscaped areas. Specifically, the project site is located in Section 23, Township 6N, Range 3W, as depicted on the U.S. Geological Survey Apple Valley North, California 7.5-minute topographic quadrangle maps. Regional access to the project site is provided via Interstate 15, located approximately 4.6 miles west of the project site.

1.3 Project Characteristics

The project would involve construction of a single industrial/warehouse building and associated improvements on 72.2 acres of vacant land. The building would be approximately 1,080,125 square feet. The project would involve associated improvements, including loading docks, truck and vehicle parking, bike parking, and landscaped areas. The project would include improvements along Lafayette Street and Johnson Road including frontage landscaping and pedestrian improvements. A variety of trees, shrubs, plants, and land covers would be planted within the project frontage's landscape setback area, as well as within the landscape areas found around the proposed industrial/warehouse building and throughout the project site.

1.4 Site Characteristics

The approximately 2.2-acre project site consists of vacant, undeveloped land. The project site is bordered to the south by the Apple Valley Fire Center and to the east by another parcel that consists primarily of vacant land with a few scattered residential uses. According to the Town's General Plan, the project site falls within the North Apple Valley

Industrial Specific Plan land use designation (Town of Apple Valley 2015, 2021). According to the North Apple Valley Industrial Specific Plan, the land use designation for the site is Specific Plan Industrial (Town of Apple Valley 2012).

The 18.9-acre off-site improvement area extends slightly beyond the project site and includes a portion of Lafayette Street approximately one mile in length and a portion of Johnson Road approximately 1,324 feet in length. Land uses surrounding the project site consist of vacant land and relatively small developments. Specific land uses located in the immediate vicinity of the project site include the following:

- **North:** Johnson Road and vacant land
- **East:** Sycamore Lane and primarily vacant land with a few residential uses
- **South:** Lafayette Street and the Apple Valley Fire Center
- **West:** Central Road and vacant land

In the broader project vicinity, development includes commercial uses, warehouse/industrial buildings, and the Apple Valley Airport.

Climate

The project site and off-site improvement areas is located in the Victor Valley region in western San Bernardino County. The average annual temperature was not available for Apple Valley; however, annual temperatures in Victorville range from 44 ° F to 78 ° F (WRCC 2022a). The average annual precipitation for Apple Valley is 5.17 inches (WRCC 2022b). Periods of extended drought are common throughout the region.

Topography and Soils

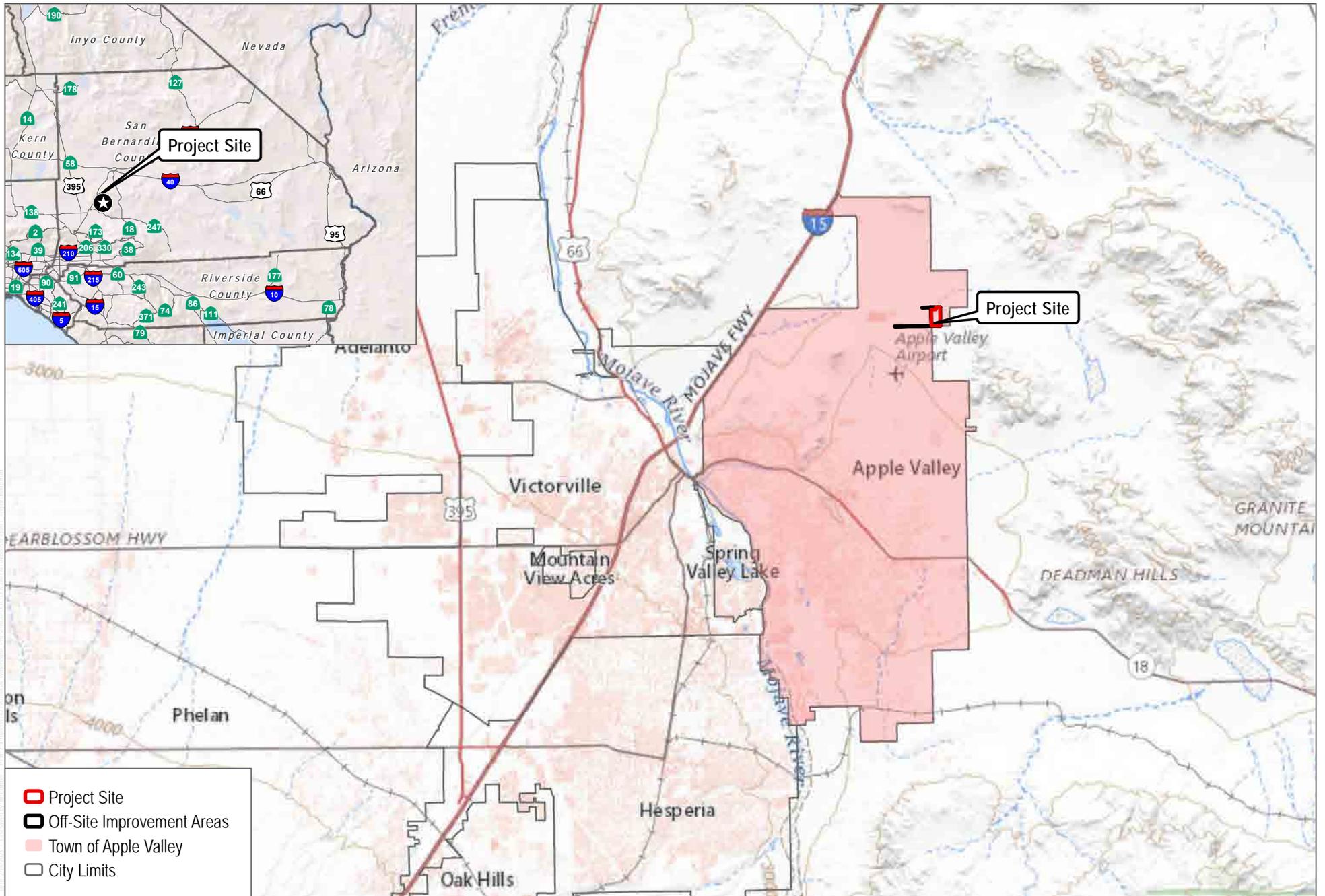
The project site is located within the Mojave Desert. The Town of Apple Valley is located primarily on alluvial slopes of the Mojave River floodplain, at the southern edge of the Mojave Desert. The topography gradually inclines towards the Juniper Flats foothills of the San Bernardino Mountains to the south, as well as to the scattered knolls and mountains to the north and east of the Town. Turtle and Black Mountains are located to the north, Fairview Mountain to the northeast and the Granite Mountains to the southeast.

The project site is composed of undeveloped vacant lands. Topography within the project site is a flat plane, with areas to the southwest containing hills that border the northwest corner of the Town. Elevation ranges from approximately 3,130 feet above mean sea level in the southeastern portion of the study area to 3,170 feet above mean sea level in the northwestern portion of the study area. Adjacent land uses include undeveloped land and a small existing structure to the north, undeveloped land and a small existing residential to the west, Apple Valley Fire Center to the south, and undeveloped land to the east.

According to the USDA Natural Resource Conservation Service's Web Soil Survey (USDA 2022a), the project site and off-site improvement areas consist of two soil complexes: Cajon-Arizo complex (2% to 5% slopes) and Helendale-Bryman loamy sands (2% to 5% slopes).

Vegetation

The project site and off-site improvement areas primarily comprised of creosote bush scrub. Other communities present include Creosote bush-white bursage scrub, unvegetated wash and river bottom, disturbed habitat, and urban/ developed lands. Dominant plants include creosote bush (*Larrea tridentata*), western Joshua tree (*Yucca brevifolia*), allscale (*Atriplex polycarpa*), rubber rabbitbrush (*Ericameria nauseosa*), and Nevada joint fir (*Ephedra nevadensis*). The herbaceous layer is primary dominated by non-native annuals and grasses such as red-stemmed filaree (*Erodium cicutarium*), common Mediterranean grass (*Schismus barbatus*) red-brome (*Bromus madritensis*) and cheat grass (*Bromus tectorum*).

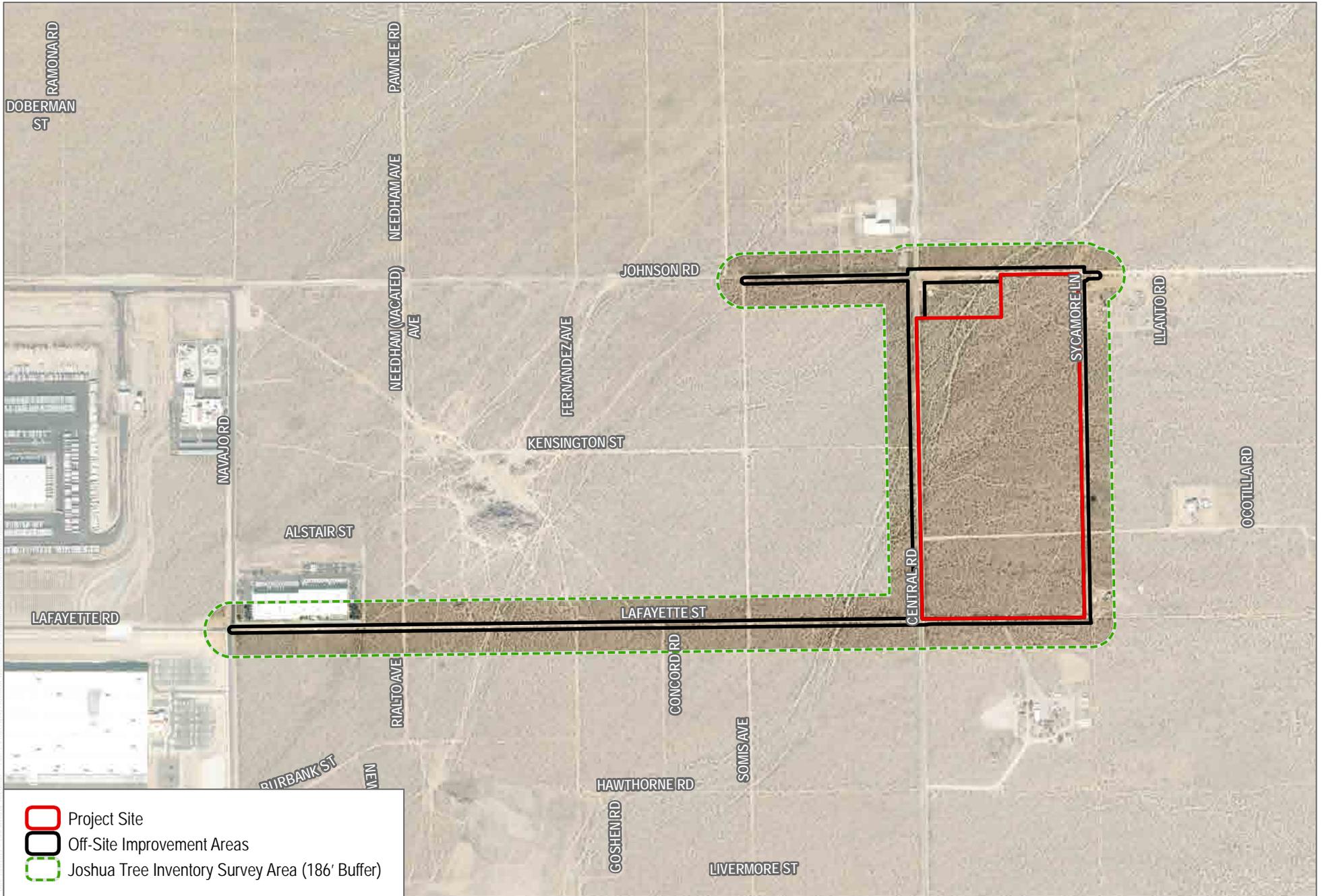


SOURCE: USGS US Topo 2018



FIGURE 1
Regional Map
Joshua Tree Preservation, Protection, and Relocation Plan, and Desert Native Plant Relocation Plan - 1M Warehouse Project

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- Project Site
- Off-Site Improvement Areas
- Joshua Tree Inventory Survey Area (186' Buffer)

SOURCE: Esri World Imagery 2019



FIGURE 2

Vicinity Map

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2 Policy and Permits

2.1 Town of Apple Valley

2.1.1 City Policy

Per Chapter 9.76 of the Town of Apple Valley’s Development Code (Town of Apple Valley 2010) Plant Protection and Management, “It is the stated intent and desire of the Town Council of the Town of Apple Valley to recognize and preserve the contribution that Joshua Trees have made to the desert environment and, more specifically, to the Town’s “Better Way of Life”. In conformance with this recognition, no existing Joshua Tree shall be disturbed, moved (transplanted or otherwise), removed or destroyed unless such disturbance, move, removal or destruction is first reviewed and approved by the Town of Apple Valley. The Town Manager, or designee, shall be responsible for review and approval of any request to disturb, move (transplant or otherwise), remove or destroy any existing Joshua Tree located on any property within any zoning district in the Town of Apple Valley.” (Town of Apple Valley 2010). Chapter 9.76 continues by stating “Further, while it is the intent and desire of the Town to preserve and protect all Joshua Trees, this intent and desire shall be balanced against the community’s need for growth and the development rights of individual property owners. To achieve this preservation and protection, while protecting both the property rights of property owners and the community’s desert environment, anyone applying to disturb, move, remove or destroy an existing Joshua Tree shall use all means necessary to retain and preserve such Tree(s) in its native (present) location in considering and presenting said Tree Disturbance application.”

Furthermore, Chapter 9.76 states the following regarding retention and transplantation:

Retention:

The following shall be the minimum criteria for the preservation of Joshua Trees in place. While Joshua Trees which do not conform to the following criteria must be preserved, they may be transplanted to another location on the same property or may be made available for adoption through the Town’s Joshua Tree Preservation and Adoption Program. A Joshua Tree(s) which conforms to the following shall be preserved in place unless its removal, transplantation or destruction is approved as prescribed within this Section 9.76.040 of the Town of Apple Valley Municipal Code. For any Joshua Tree(s) which conform to the criteria listed below, for which the property owner/applicant has made a request for a Building Permit, application for a discretionary review or application for a subdivision of land within the Town of Apple Valley, said owner/applicant shall submit, as part of the application for approval, documentation of their best efforts to retain and preserve all Joshua Tree(s) within the limits of the development or subdivision in its native (present) location. Such documentation of best effort shall include how alternative lot configurations (including building envelopes on lots with existing Tree(s)), circulation, physical or environmental constraints of the site, allow no alternative subdivision configuration which would retain and preserve the Tree(s) in its native (present) location.

1. A Joshua Tree that is known, by historic record, including pictures or written description, to be at least forty (40) years old.

2. A Joshua Tree which has a width of at least fifteen (15) feet as measured from the furthest point of outstretched branches (measured parallel to the ground).
3. A Joshua Tree which is at least fifteen (15) feet in height as measured from the base of the trunk to the highest point of the Tree.
4. A Joshua Tree which has a trunk measuring at least twelve (12) inches in diameter as measured four (4) feet from the ground.

Transplantation: Transplanting approved by the Town of Apple Valley must be initiated and completed under the supervision of a Desert Native Plant Expert (1). Approval of such transplant must take into consideration the time of year, the plant's original and transplanted physical orientation, prevailing wind direction, soil type of the original and transplanted locations, and other related attributes which may affect the successful transplantation of the Joshua Tree(s) in question as determined by the Town and the retained Botanist. Joshua Trees that are proposed to be removed shall be transplanted or stockpiled for future transplanting wherever possible. In the instance of stockpiling and/or transplanting the permittee has submitted and has had the approval of a Joshua Tree maintenance plan prepared by a Desert Native Plant Expert (1). This plan shall include a schedule for maintenance and a statement by the Desert Native Plant Expert that this maintenance plan and schedule will be implemented under his/her supervision.

The schedule shall include the requirement that a maintenance report is required at the end of the project or at six (6) month intervals, evidence to the satisfaction of the Building Official that the Desert Native Plant Expert has supervised the scheduled maintenance to the extent that all transplanted and stockpiled plants have been maintained in such a manner to insure the highest practicable survival rate. In the event that this report is not satisfactory, a tree and plant replacement plan and implementation schedule prepared by a Desert Native Plant Expert may be required by the Building Official.

2.1.2 City Permits

Per the Town's 2010 Plant Protection and Management Code (Chapter 9.76), a removal permit is required for the removal of any native tree or plant that is subject to the provisions the code. Chapter 9.76.010, Removal Permit, states the following:

1. A removal permit shall be required for the removal of any native tree or plant that is subject to the provisions of this Chapter. Disturbing, moving (transplanting or otherwise), removal or destruction of an existing Joshua Tree(s) shall be subject to the provisions of Section 9.76.040.
2. A land use application, a building permit and all other development permits (e.g., grading, mobile home setdowns, etc.), shall consider and include a review of any proposed application and/or development permit shall be a permit for the removal of native trees or plants, if such land use application or development permit specifically reviews and approves such removals. Such reviews shall consider and require compliance with the provisions of this Chapter.
3. The reviewing authority may require certification from an appropriate tree expert or desert native plant expert that such tree removals are appropriate, supportive of a healthy environment and are in compliance with the provisions of this Chapter.

4. Removals of native trees or plants that are not requested in conjunction with a land use application or development permit may be accomplished only under a permit issued by the Town of Apple Valley Planning Division, subject to the provisions of this Chapter.
5. The Building Official shall require a pre-construction inspection prior to approval of development permits. The duration of a plant or tree removal permit when issued in conjunction with a land use application and/or a development permit shall be coterminous with the duration of the associated application or permit, unless otherwise specified. The Reviewing Authority shall specify the expiration date for all other tree and/or plant.

2.1.3 Findings for Removals

Per the Town's 2010 Plant Protection and Management Code (Chapter 9.76), the Reviewing Authority shall authorize the removal of a native tree or plant subject to provisions of Chapter 9.76 only if the following findings are made:

1. The removal of the native tree or plant does not have a significant adverse impact on any proposed mitigation measures, soil retention, soil erosion and sediment control measures, scenic routes, flood and surface water runoff and wildlife habitats.
2. The removal of the native tree or plant is justified for one of the following reasons:
 - a. The location of the native tree (excluding Joshua Trees) or plant and/or its dripline interferes with the reasonable improvement of the site with an allowed structure, sewage disposal area, paved area or other approved improvement or Town of Apple Valley Development Code 2010 Adopted April 27, 2010, Chapter 9.76 Plant Protection and Management 3 ground disturbing activity. Also, such improvements have been designed in such a manner as to save as many healthy native trees and/or plants as reasonably practicable in conjunction with the proposed improvements.
 - b. The location of the native tree or plant and/or its dripline interferes with the planned improvement of a street or development of an approved access to the subject or adjoining private property.
 - c. The location of the native tree or plant is hazardous to pedestrian or vehicular travel or safety as determined by the Town Engineer.
 - d. The native tree or plant or its presence interferes with or is causing extensive damage to utility services or facilities, roadways, sidewalks, curbs, gutters, pavement, sewer line(s), drainage or flood control improvements, foundations, existing structures, or municipal improvements.
 - e. The condition or location of the native plant or tree is adjacent to and in such close proximity to an existing structure that the native plant or tree has or will sustain significant damage.

2.2 California Department of Fish and Wildlife

2.2.1 CDFW Code Section 2073.3

Pursuant to the provisions of Section 2073.3 of the California Fish and Game Code (CFGC), the Commission received a petition from the Center for Biological Diversity on October 21, 2019, to list western Joshua tree as a threatened species under CESA. Pursuant to Section 2073 of the CFGC, on November 1, 2019, Commission staff transmitted the petition to the CDFW for review pursuant to Section 2073.5 of said code. After reviewing the petition

and other relevant information, CDFW determined that the petition provides sufficient information to indicate that the petitioned action may be warranted for western Joshua tree and CDFW recommended that the Commission accept the petition for further consideration under CESA.

The Commission has the authority to list certain “species” or “subspecies” as threatened or endangered under CESA (CFGF Sections 2062, 2067, and 2070). The listing process is the same for species and subspecies (CFGF Sections 2070–2079.1). CESA sets forth a two-step process for listing a species as threatened or endangered. First, the Commission determines whether to designate a species as a candidate for listing by evaluating whether the petition provides “sufficient information to indicate that the petitioned action may be warranted” (CFGF Section 2074.2[e][2]). If the petition is accepted for consideration, the second step requires CDFW to produce, within 12 months of the Commission’s acceptance of the petition, a peer reviewed report based upon the best scientific information available that indicates whether the petitioned action is warranted (CFGF Section 2074.6). Finally, the Commission, based on that report and other information in the administrative record, determines whether the petitioned action to list the species as threatened or endangered is warranted (CFGF Section 2075.5). A petition to list a species under CESA must include “information regarding the population trend, range, distribution, abundance, and life history of a species, the factors affecting the ability of the population to survive and reproduce, the degree and immediacy of the threat, the impact of existing management efforts, suggestions for future management, and the availability and sources of information. The petition shall also include information regarding the kind of habitat necessary for species survival, a detailed distribution map, and any other factors that the petitioner deems relevant” (CFGF Section 2072.3; see also 14 CCR 670.1[d][1]). The range of a species for CDFW’s petition evaluation and recommendation is the species’ California range (*California Forestry Association v. California Fish and Game Commission* [2007] 156 Cal.App.4th 1535, 1551).

CDFW must evaluate the petition on its face and in relation to other relevant information and submit to the Commission a written evaluation report with one of the following recommendations:

- Based upon the information contained in the petition, there is not sufficient information to indicate that the petitioned action may be warranted, and the petition should be rejected.
- Based upon the information contained in the petition, there is sufficient information to indicate that the petitioned action may be warranted, and the petition should be accepted and considered.

CDFW’s candidacy recommendation to the Commission is based on an evaluation of whether the petition provides sufficient scientific information relevant to the petition components set forth in CFGF Section 2072.3 and the California Code of Regulations, Title 14, Section 670.1(d)(1).

At its June 2020 meeting, after conversations with the petitioner and other stakeholders, the Commission continued to its August 2020 meeting the consideration and potential action on the petition to determine whether listing western Joshua tree under the CESA may be warranted. The item was heard at the August 2020 Commission hearing, but once again continued to the September 2020 hearing. On September 22, 2020, the Commission approved the petition to accept the candidacy proposal for western Joshua tree, effective October 9, 2020. Western Joshua tree was made a candidate under CESA to determine whether the species should become listed. At that point, a second recommendation and vote will confer or deny final protection under the law. When a plant or wildlife species is granted candidacy under the CESA, the species is given the same protection as a threatened or endangered species while the Commission evaluates whether formal listing as threatened or endangered under the CESA is warranted.

3 Joshua Tree Survey

3.1 Joshua Tree Survey Methods

Per CDFW and the Town's Protected Plants policy, Dudek's International Society of Arboriculture (ISA)-certified arborists performed a Joshua tree survey to inventory and evaluate the health and relocation potential for each Joshua tree located on and within 186 feet of the proposed project site and off-site improvement areas (Appendix A, Joshua Tree Locations). The survey encompassed the entire proposed project site, off-site improvement areas, and the associated 186 ft. buffer (Joshua Tree Inventory Survey Area). The inventory was conducted by ISA-certified arborists Katrina Burritt and Aida Castro on July 7, 2022. The inventory was further conducted by ISA-certified arborists Aida Castro and Sarah Tian on October 20, 2022, from 8 a.m. to 4 p.m., and on December 7, 2022. During the inventory, the GPS position of each Joshua tree found on site was recorded. Furthermore, the following attributes of each tree were collected:

- Species
- Diameter at standard height (4.5 feet above ground level)
- Height (feet)
- Spread (feet)
- Health (excellent, good, fair, poor, critical, and dead)²
- Number of branches
- Clonal status (clone or single trunk)

In addition to the general Joshua tree attributes that were collected, per the CDFW, Dudek collected the following phenological data for each Joshua tree found on site:

- Number of Panicles
- New Growth
- Leaves
- Flowers
- Open flowers
- Presence of fruit

² **Health Rating Descriptions:**

Excellent. Tree has excellent health and strong vigor. No damage. Flowering and fruiting expected. Typically, only given to large, high-quality specimens (taller than 15 feet in height). Transplanting generally not recommended due to size.

Good. Tree has good health and vigor. All branches are alive and healthy. Damage is very localized and minimal. Flowering and fruiting likely, if tree are large enough. Tree is transplantable.

Fair. Tree health is average. Some stressors or damage possible, but any damage is minimal to moderate (e.g., rodent grazing, insect damage). No dead/broken branches. Tree is transplantable.

Poor. Tree is under stress, and overall health is in decline, or tree has taken significant damage. Mortality likely unless stressors relieved and/or conditions change. Broken/dead limbs likely present. Tree is generally not transplantable.

Critical. Tree is in extreme decline. One or more branches dead. One or more branches dying. Physical damage likely present. Damage is significant and extensive. Mortality expected within 2 to 4 years. Tree is not transplantable.

Dead. Tree is dead.

All inventoried and assessed protected trees were tagged with an aluminum tag bearing a unique identification number, which was placed on the main trunk on the north side of each Joshua tree. Tagging on the north side allows for proper orientation during relocation (each relocated Joshua tree will need to be oriented in the same direction as it was in its original location).

3.2 Joshua Tree Survey Findings

Dudek's arborists recorded eight Joshua trees within and adjacent (within 186 feet) to the limits of the proposed project site plan and off-site improvement areas, as presented in Appendix B, Tree Information Matrix. Of the eight trees found within the Joshua Tree Inventory Survey Area, only one was located within the project site and the remaining seven Joshua trees were located within the 186-foot buffer. Trees in the tree survey area vary in size and stature according to age and location. In total, four single/multitrunk Joshua trees and four clonal (multiple trunks or those trees within 6 feet of an individual) were mapped throughout the proposed project site. Stem diameter for single and clonal trees range from 3 to 13 inches. Tree heights vary from 1 to 10 feet for mature Joshua trees. Tree crown extents range from 1 foot to nearly 6 feet at their widest location for single stemmed trees. The total number of branches on the Joshua trees range from 0 (single trunk) to 12 for mature trees. The health of the Joshua trees varies across the site, and ranges from fair to good. In total, five trees (62.50%) exhibit good health, and three trees (37.5%) exhibited fair health.

In addition to the general tree and health characteristics, Dudek collected baseline phenological data for each tree. In total, 0 trees were observed to have panicles, and new growth was observed on seven trees, whereas no new growth was observed 0 trees. Leaves were observed on all of the trees. Flowers were not observed on any of the trees. Fruit was not observed on any of the trees; however, fruit drop was observed below four of the trees. Individual attributes of each tree are presented in Appendix B.

3.3 Project Impacts – Joshua Trees

There is wide variation in tolerance to construction impacts among tree species, and the response of an individual tree to impacts also varies with age and condition. Impacts assessed for the proposed project include those trees with protected zones within 186 feet of proposed improvements and identified disturbance areas (as defined in the proposed project site plan). The impact discussion in this section identifies all impacts to protected Joshua trees that are anticipated to occur based on an evaluation of tree locations compared with the proposed project site plan. Trees identified for retention and removal are graphically presented in Appendix C, Tree Impacts, and the proposed project site plan is presented in Appendix D, Conceptual Site Plan,

Based on grading and development plans for the proposed project, it is estimated that one tree will require removal to accommodate the proposed project. The proposed project would preserve all seven of the remaining Joshua trees found within 186 feet of the project site. Table 1 summarizes impact determinations for Joshua trees within the tree survey area that are subject to regulation under the Town code.

Table 1. Summary of Protected Tree Impact Determinations

Health	Impact Determination		Total (number)
	Removal (number)	No Impact (number)	
Good	1	4	5
Fair	0	3	3
Poor	0	0	0
Very poor	0	0	0
Critical	0	0	0
Dead	0	0	0
Total	1	7	8

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4 Town of Apple Valley Requirements

4.1 Plot Plan Requirements

Section F of Chapter 9.76.01(o) of the Town of Apple Valley Plant Protection and Management Code states the following:

Prior to the issuance of a native tree or plant removal permit in conjunction with a development permit and/or approval of a land use application which authorizes such removal, a plot plan shall be approved by the appropriate Town Review Authority (County Certified Plant Expert, Planning Commission or Town Council) for each site indicating exactly which trees or plants are authorized to be removed. The required information can be added to any other required plot plan. Prior to issuance of development permits in areas with native trees or plants that are subject to the provisions of this Chapter, a pre-construction inspection shall be conducted by the appropriate authority. Such pre-construction inspections may be combined with any other required inspection.

As such, Appendix C details the post-construction status of each mapped and evaluated Joshua tree found on the proposed project site.

4.2 Relocation and Protection Trees

Each tree was evaluated for its relocation potential. Due to the low success rate of mature Joshua tree relocation, only single-stemmed trees in good health and less than 15 feet in height were selected. Based on project-related impacts, one Joshua trees would be directly impacted by the proposed project. The single impacted Joshua Trees does not meet the defined criteria for improved likelihood of post-transplant success.

Furthermore, based on the impact analysis, the remaining Joshua trees on site or those within 186 feet would be preserved. As such, it is recommended that they be protected in place in accordance with the tree protection measures identified in this Joshua Tree Plan.

4.3 Relocation Specifications

As stated only one tree is impacted by the project. The single impacted tree does not meet the minimum criteria for successful relocation. As such, relocation is not recommended. However, should it be determined that relocation is required by the Town, the following sections identify the designated storage and relocation locations for the proposed transplanted/salvaged trees. Details and specifications for the Joshua tree relocation, storage, and care in the post development landscape are also provided in this section.

4.3.1 Salvage

Joshua trees have fragile, shallow root systems that are easily damaged during the salvaging and relocation process. During the excavation of the rootball, it is important that as much of the existing root structure as possible

be captured, so that an intact rootball is maintained during the salvaging and relocation process. The following sections include recommendations to help increase the chances of successful salvage/relocation.

4.3.2 Contractor

Joshua tree salvage and relocation shall be completed by an experienced Joshua tree relocation specialist.

4.3.3 Pre-Salvage Meeting

Prior to initiating Joshua tree salvage, all contractors involved in the salvage project shall attend a site meeting with the project arborist. The project arborist shall provide the contractor(s) with a copy of the Joshua Tree Plan and shall review all relevant components of the Joshua Tree Plan.

4.3.4 Salvage Timing

To increase the chances of a successful relocation, it is recommended that the trees be relocated from October through February. To increase Joshua tree survivability, the trees should not be dug out and/or salvaged in warmer months (April through September). However, should project limitations and timing require an earlier start date than the recommended October through February salvage period, it is recommended that the salvaged trees be stored in a temporary, on-site, location per the recommendations in Section 4.4, Storage.

4.3.5 Pre-Irrigation

Prior to Joshua tree digging, each identified Joshua tree relocation candidate shall be pre-watered. Specifically, each tree shall be pre-watered 24 hours prior to relocation. Pre-watering shall thoroughly soak the rootball of each tree.

4.3.6 Equipment Sanitization

Equipment shall be sterilized prior to digging up and transplanting each tree. Equipment sterilization will reduce the likelihood of pathogens being passed from tree to tree.

4.3.7 Joshua Tree Digging

Tree relocation is best completed through the use of machinery. A front-end loader or hydraulic tree spade is recommended. The hydraulic tree spade may be best used in instances where the soil type is sandy or silty. However, hand-digging of smaller Joshua trees (1 to 2 feet in height) is acceptable. The goal of relocation is to maintain a high root-to-shoot ratio. Joshua tree excavation shall capture as much of the rootball as possible; however, due to the trees' shallow root systems, holes do not need to be deep. In general, the digging holes may range from 12 to 18 inches in depth for smaller trees (1 to 2 feet tall) to 24 to 36 inches deep for larger trees. The entire rootball shall be removed intact, if possible.

4.3.8 Root Maintenance

All attempts shall be made to minimize exposure of the rootball to air; exposed roots shall be kept wet at all times during the relocation process. Damaged and exposed roots shall be cleaned and dusted with sulfur or a fungicide to decrease the likelihood of root pathogens.

4.4 Storage

Temporary storage locations should be based on the development schedule. The storage locations should be determined at a later date, once the final schedule is confirmed. Trees requiring storage or stockpiling in the short term (i.e., 1 to 4 weeks), will adhere to the storage recommendation provided in the following section.

4.4.1 Storage

Trees stockpiled for longer than 2 weeks shall be temporarily stored in shallow ditches, backfilled with native soils, and tamped down. The shallow ditches shall be dug prior to tree relocation, and the final depth shall be comparable to the depth at which each Joshua tree is dug. Temporary storage trench depths shall be approximately 12 to 24 inches deep, depending on the size of the trees' rootballs. The trench widths shall be 1 foot larger than the rootball of the trees and long enough to accommodate the trees, with enough room for equipment between each tree. Multiple trenches may be required to accommodate all salvaged trees.

4.4.2 Storage Direction

During storage all trees shall be oriented in the same direction that they were prior to removal. Each Joshua tree is tagged on its northern side and shall be reoriented with the tagged side facing north. Prior to tree relocation, each tag shall be inspected to ensure that it securely attached to the tree.

4.4.3 Stabilization

Larger plants, over 5 feet tall, may require stabilization until the roots have had the opportunity to become reestablished. To support larger trees, guy-wire staking may be necessary. Guywires shall be connected to the ground (i.e., preferably via a "dead-man" anchor below grade) and attached to the trunk or limbs with an expandable, non-abrasive connector. Multiple guywires may be required (i.e., recommended three equally spaced around the rootball for stability). Trees requiring stabilization are identified in Appendix B.

4.4.4 Irrigation

Stored trees shall be watered one to two times per week during the storage period to ensure tree health and increase relocation success. During the storage period, the trees shall be watered by hand or by temporary irrigation. Should temporary irrigation be installed, the use of drip emitters is recommended. Irrigation emitters shall be spaced according to the watering zone specified for each tree. The watering zone for each tree is identified in Appendix B. The total amount of water required for each tree will be dependent on the season and tree size. Irrigation needs may range from 2 to 20 gallons per watering cycle and will be dependent on ambient daytime temperatures and rainfall totals. Additionally, persistent wet soil will cause mildew and root rot. As such, soil

moisture levels should be routinely checked at the time of watering and allowed to dry out between watering cycles. The irrigation schedule should be adjusted to meet the conditions described above.

4.4.5 Duration

Trees shall not be stockpiled or stored for longer than 45 days.

4.4.6 Summer Salvage: Temporary Shade Structure

Per Section 4.3.4, Salvage Timing, should project limitations and timing require an earlier start date than the recommended October through February salvage period, it is recommended that the salvaged trees be stored as described in Section 4.3.1, Salvage. Furthermore, to reduce tree stress, and reduce the risk of post-transplant mortality it is recommended that the salvaged trees be stored underneath a temporary shade structure. The temporary shade structure should be sufficient in size to cover the salvaged trees and provide protection from the direct heat of the summer sun. The shade structure shall utilize a minimum 30% shade cloth to shade the trees during the warmer months. The shade structure should be attached to galvanized, steel, structural poles (or similar) to ensure the shade structure is structurally stable. It is recommended that the shade structures be installed per the manufacturer's recommendations. Due to the potential for high winds, it is recommended that the shade be attached to the ground using diagonal dead man cable supports as well as the concrete post footings. The shade structure shall be of adequate height to cover the trees. For trees that are greater than 10 feet in height, individual shade structures may be established for each tree. Any remaining trees, under 10 feet in height may be stored under a contiguous structure.

4.5 Transplant Planting

The following sections detail transplanting guidelines for the salvaged Joshua trees, should salvage occur.

4.5.1 Site Preparation

Prior to transplantation each receiver location shall be dug. Prior to digging, the sites shall be flagged for identification by the project arborist or registered botanist. In general, the digging hole may range from 12 to 18 inches in depth for smaller trees (1 to 2 feet tall) to 24 to 36 inches deep for larger trees. The width of the hole shall be approximately 1 foot larger than the rootball of the transplanted tree. Holes may require additional digging prior to Joshua tree installation.

4.5.2 Pre-Watering

A water and root hormone mixture shall be prepared prior to transplanting the trees. The mixture shall be composed of vitamin B1, which is commonly sold by nurseries. The mixture shall be mixed per the manufacturer's directions, which is typically 1:250 (B1-to-water ratio). The receiving hole shall be filled with the diluted mixture of rooting hormone and water and allowed to drain prior to placing the tree in the hole.

4.5.3 Planting Direction

Proper orientation of the relocated trees is important to the success of the salvaged trees. Improper planting can result in sunburn and growth distortion. As such, the north side of each tree shall be clearly marked/tagged prior to digging, and each tree shall be replanted (and stored) in the same orientation as it was in prior to removal.

4.5.4 Planting

Prior to final installation, the hole size shall be inspected by the project arborist to ensure that the planting hole is at minimum 1 foot wider than the rootball and is neither too deep nor too shallow. The hole may require minor adjustments prior to installation. The depth of the hole must be less than the height of the root ball. If the hole was inadvertently dug too deep, soil shall be added and compacted by hand or foot. Breaking up compacted soil in a large area around the tree (outside the drip line of the tree) provides the newly emerging roots room to expand into loose soil. This will hasten root growth, translating into quicker establishment. Once the size of the hole is finalized, the tree shall be lowered into the hole in the proper orientation, backfilled with native soil, and watered again. Following backfilling and placement, the rootball shall be tamped down into the hole to eliminate water pockets.

Following planting, a water basin shall be installed approximately 1 foot outside of the predetermined watering zone. The watering basin shall be approximately 3 to 4 inches in height and shall surround the tree. The basin shall be left intact throughout the establishment period.

4.5.5 Post-Transplant Stabilization

Larger plants, over 5 feet tall, may require stabilization until the roots have had the opportunity to become reestablished. To support larger trees, guy-wire staking may be necessary. Guywires shall be connected to the ground (i.e., preferably via a “dead-man” anchor below grade) and attached to the trunk or limbs with an expandable, non-abrasive connector. Multiple guywires may be required (i.e., recommended three equally spaced around the rootball for stability). Guywires shall be removed once the tree is determined to be established by the project arborist.

4.6 Post-Relocation Care

4.6.1 Irrigation

Trees that have been relocated to their final planting location shall be watered one to two times per week for an initial 2 to 3 months, depending on the season, rainfall totals, tree size, and watering zone size. Irrigation shall be adjusted seasonally, with a goal of removing the transplanted trees from supplemental irrigation after 2 years have passed and growth has resumed. The total amount of water required for each tree will be dependent on the season and tree size. Persistent wet soil will cause mildew and root rot. As such, soil moisture levels shall be routinely checked at the time of watering, and the soil shall be allowed to drain and dry out between watering cycles. Watering shall be accomplished by hand or by a temporary irrigation system. During irrigation, the tree basin shall be filled and allowed to fully drain. Irrigation needs may range from 2 to 20 gallons per watering. The watering cycle shall be adjusted based on tree health and season. The watering zone for each tree (distance from the trunk) is defined for each tree in Appendix B.

4.6.2 Stabilization

Trees that have been stabilized shall be routinely inspected by the project arborist to ensure that the guywires and straps are not damaging the trees. The expandable, non-abrasive connectors shall be adjusted, as needed, to minimize damage to the trees. The guywires can be removed once the project arborist has determined that the trees have become established. In general, little to no movement should be observed on the rootball when the tree is gently pushed. Once the roots are well established, it is important to remove the tree stakes. This will encourage a natural strengthening of the tree trunk so it can support the weight of the branches as they begin grow and spread.

4.6.3 Fertilization

Post-transplantation fertilization is not required.

4.7 Monitoring and Reporting

Tree relocation, stockpiling, maintenance, and watering will be monitored by a certified arborist or registered botanist.

4.7.1 Monitoring

The Town does not define a minimum post-transplantation monitoring period. However, an annual inspection and report for 4 years is recommended. As such, for the initial 3 months following transplantation, weekly monitoring by a certified arborist or registered botanist shall occur to ensure that the watering needs of each relocated tree are being met. Following the initial 3-month monitoring period, the relocated trees shall be monitored on a monthly basis for 9 months. Following the first year of monitoring, the trees shall be monitored quarterly (every 3 months) for 3 years to ensure tree establishment. Monitoring may be adjusted based on tree health and observations by the project arborist. The monitoring period will begin once a tree has been installed.

4.7.2 Reporting

Annual reports shall be prepared at the end of each calendar year to document the status of the transplantation program and the health/survivability of the relocated trees. Reports of all monitoring shall be submitted to the Town. Monitoring will track the location, health, and status of each transplanted Joshua tree. The monitoring arborist or registered botanist shall include recommendations for maintenance and irrigation, should they be needed.

4.8 Transplantation Success Criteria

The Town does not define a minimum success ratio for transplanted Joshua trees. Due to the low relocation success rate of Joshua trees, the transplantation program would be considered successful if after four growing seasons (4 years)—including two growing seasons with supplemental irrigation and two without—the transplanted trees maintain a minimum of 70% survivability.

5 California Department of Fish and Wildlife Mitigation

The following section details the proposed mitigation program described within the ITP Application for the 1M Warehouse Project.

5.1 Proposed Measures to Minimize and Fully Mitigate the Impacts of the Proposed Taking

Conservation efforts for western Joshua tree should focus on the conservation of large, interconnected Joshua tree woodlands on lands where edge effects are limited versus lands in urban settings that are subject to habitat fragmentation and edge effects, such as the project site.

Mitigation efforts should contribute to the conservation of large, interconnected Joshua tree woodlands. Larger preserves have several advantages over multiple smaller preserves, even if the total area preserved is the same. Larger preserves have a greater chance of preserving habitat diversity at all scales, supporting larger local populations, helping maintain functioning metapopulations (partially isolated subpopulations of the same species that support immigration and emigration and provide for recolonization following local extirpations), and supporting greater species genetic diversity, and are more likely to maintain intact watershed functions. Larger preserves also have less habitat fragmentation and provide greater protection from edge effects due to a larger area-to-perimeter ratio compared to smaller preserves. Additionally, large preserves usually facilitate more cost-effective land management.

Natural land covers preserved as habitat linkages connect larger habitat tracts that would otherwise be isolated to movement of wildlife and movement of plant species pollinators between preserves (i.e., movement corridors). Movement corridors should be as wide, continuous, natural, and vegetatively diverse as possible to accommodate as many species as possible and protect against adverse edge effects. Some smaller, less-mobile species may actually reside within a linkage, and larger and/or more mobile species may only use each linkage as a movement corridor.

Species populations with larger numbers of individuals are known to be more stable in the long term, less vulnerable to adverse demographic effects caused by environmental stochasticity (probabilistic events such as floods, fires, and disease), and less vulnerable to extirpation (extermination) compared to smaller populations. Larger populations tend to possess higher genetic diversity, which can reduce the chance of genetic bottlenecks, genetic drift, and inbreeding depression. Larger populations better cope with and/or adapt to changing environmental conditions and local stochastic effects due to their greater number of individuals and likely greater genetic heterogeneity.

Mitigation for Direct Impacts

Mitigation for direct impacts to western Joshua trees will be fulfilled through a payment of the elected fees as described in Section 1927.3 of the Western Joshua Tree Conservation Act. In conformance with the fee schedule, mitigation will consist of payment of \$1,000 for each western Joshua tree 5 meters or greater in height and \$500

for each western Joshua tree less than 5 meters in height. Alternatively, mitigation will occur through off-site conservation or through a CDFW approved mitigation bank, or as required by an Incidental Take Permit, if received.

Additional details related to CDFW requirements can be found within the proposed mitigation program described within the ITP Application for the project.

6 Tree Protection

For Joshua trees that do not require relocation, the following measures are recommended to protect the remaining Joshua trees so that they have protected zones (crown/canopy width plus 6 feet) around each tree within and immediately adjacent to (within 25 feet of) all active construction areas. For protected trees on site that remain within undisturbed areas, similar tree protection measures are recommended to ensure against potential inadvertent disturbance.

6.1 Tree Protection Measures prior to Construction

Fencing: Orange polyethylene construction fencing, no less than 4 feet in height, with tree protection signs, shall be erected around all undisturbed trees (or tree groups). The protective fencing shall be installed at the protected zone boundary of each tree (or tree group), which is defined as 6 feet beyond the tree crown/canopy dripline. The intent of protective fencing is to prevent root damage and/or compaction of the soil by grading equipment. An ISA-certified arborist may be required on site if grading activities occur within a tree's protected zone. Fencing shall be secured to 6-foot-tall, heavy-gauge T-bar posts pounded into the ground a minimum of 18 inches and spaced a minimum of 8 feet on center. Fencing shall be attached to the T-bar posts, with minimum 14-gauge wire fastened to the top, middle, and bottom of each post. Tree protection signs shall be attached to every fourth post. The contractor shall maintain the fence to keep it upright, taut, and aligned at all times. Fencing shall be removed only after all construction activities in the vicinity of the protected tree(s) are complete.

Preconstruction Meeting: A preconstruction meeting shall be held between all contractors (including grading, tree removal/pruning, and builders) and an ISA-certified arborist or registered botanist. The meeting shall focus on instructing the contractors on tree protection practices and on answering any questions. All equipment operators and spotters, assistants, and those directing operators from the ground shall provide written acknowledgment of having received tree protection training. This training shall include information on the location and marking of protected trees, the necessity of preventing damage, and the discussion of work practices that will accomplish these tasks.

6.2 Protection and Maintenance during Construction

Once construction activities have begun, the following protection measures shall be followed:

Equipment Operation and Storage: Contractors shall avoid heavy equipment operation around protected trees. Operating heavy machinery around the root zones of trees will increase soil compaction, which decreases soil aeration and consequently reduces water penetration into the soil. All heavy equipment and vehicles shall, at minimum, stay out of the fenced protected tree zone except where specifically approved in writing and under the supervision of a certified arborist or registered botanist.

Materials Storage and Disposal: Contractors shall not store or discard any supplies or materials, including paint, lumber, and concrete overflow, within the protected zone, and shall remove all foreign debris within the protected zone. However, the contractors shall leave the duff, mulch, chips, and other organic material around the retained trees for water retention and nutrient supply. In addition, the contractors shall avoid draining or leakage of equipment fluids near retained trees. Fluids such as gasoline, diesel, oils, hydraulic, brake, and transmission fluids,

paint, paint thinners, and glycol (anti-freeze) shall be disposed of properly. Contractors shall ensure that equipment is parked at outside of the protected zone to avoid the possibility of leakage of equipment fluids into the soil. The effect of toxic equipment fluids on the trees could result in tree decline and mortality.

Grade Changes: Contractors shall ensure that grade changes, including adding fill, are not permitted within the protected zone without special written authorization and under supervision by an ISA-certified arborist or registered botanist. Lowering the grade within the protected zone would necessitate cutting main support and feeder roots, jeopardizing the health and structural integrity of the trees. Adding soil, even temporarily, on top of the existing grade would compact the soil further and decrease water and air availability to the tree roots. Contractors shall ensure that grade changes made outside of the protected tree zone will not create conditions that allow water to pond at the base of the tree. Water trapped at the base of a tree could lead to root rot and other detrimental tree impacts.

Moving Construction Materials: Contractors shall ensure that care is exercised when moving construction equipment and supplies near undisturbed Joshua trees, especially overhead. Contractors shall ensure that damage to the trees is avoided when transporting or moving construction materials and working around trees (even outside of the fenced protected zone). Contractors shall flag aboveground tree parts that could be damaged (e.g., low limbs, scaffold branches, and trunks) with high-visibility flagging, such as fluorescent red or orange flagging.

Trenching: Except where specifically approved in writing beforehand, all trenching shall be outside the fenced protected zone. Where trenching is necessary in areas that contain roots from retained trees, contractors shall use trenching techniques that include the use of either a root pruner (Dosko root pruner or equivalent) or an Air-Spade to limit root impacts. An ISA-certified arborist or registered botanist shall ensure that all pruning cuts are clean and sharp to minimize ripping, tearing, and fracturing of the root system. Root damage caused by backhoes, earthmovers, dozers, or graders is severe and may result in tree mortality. Use of root-pruning and Air-Spade equipment shall be accompanied only by hand removal of soil from trench locations. The trench shall be made no deeper than necessary to accommodate the intended materials.

Irrigation/Hand Watering: Irrigation/hand watering of retained Joshua trees on site shall seek to mimic natural rainfall patterns in Southern California. As such, irrigation/hand watering is not required unless recommended by the monitoring ISA-certified arborist or registered botanist.

Inspection/Reporting: An ISA-certified arborist or registered botanist shall inspect the preserved trees adjacent to grading and construction activity on a monthly basis for the duration of the proposed project's construction period. A site observation report summarizing site conditions, observations, tree health, and recommendations for minimizing tree damage shall be submitted by the ISA-certified arborist or registered botanist following each inspection. Annual monitoring reports to document year-end conditions shall also be submitted.

6.3 Maintenance after Construction

Following completion of the construction activity within 20 feet of the protected zones of undisturbed Joshua trees, the tree protection fencing may be removed, and the following measures may be performed to sustain and enhance the vigor of the trees:

Pruning: Regular pruning of the trees is not required.

Watering: The retained trees should not require regular irrigation/hand watering, other than during the 12 months following substantial root pruning, if applicable. Supplemental irrigation/hand watering for the retained trees that sustained root pruning and any newly planted trees may be necessary, especially in years with low winter rainfall.

Watering Adjacent Plant Material: All watering near retained Joshua trees and adjacent vegetation should mimic natural rainfall patterns. Supplemental irrigation of adjacent plant material should not be required.

Monitoring: For the initial 3 months, weekly monitoring by an ISA-certified arborist or registered botanist is recommended to ensure that the watering needs of each tree is being met. Following the initial 3-month monitoring period, it is recommended that the trees be monitored on a monthly basis for 9 months. Following the first year of monitoring, it is recommended that the trees be monitored quarterly (every 3 months) for 3 years. Following each monitoring visit, a site observation report summarizing site conditions, observations, tree health, and recommendations for promoting tree health should be submitted. Any tree mortality will be noted, and any tree dying during the monitoring period will be replaced with the same species as specified per Town replacement standards.

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7 Fees

Per Chapter 9.76 of the AVDC, where permits or reviews are required and they are not incorporated into other review or permit procedures, fees will be paid in accordance with the Town's fee schedule.

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8 Desert Native Plants

In addition to western Joshua trees, the site contains other desert native plants that are protected by the Town of Apple Valley Plant Protection and Management Policy (Chapter 9.76), the County of San Bernardino's Desert Native Plant Protection, and the state Desert Native Plants Act (i.e., Food and Agricultural Code 80001 et seq.). Based on the results of the surveys conducted by Dudek on June 3, August 31, 2022, and January 17 and August 25, 2023, six Wiggins' cholla (*Cylindropuntia echinocarpa*) and 12 branched pencil cholla (*Cylindropuntia ramosissima*) were identified within the project footprint along with western Joshua trees.

In accordance with the California Desert Native Plants Act and Town of Apple Valley Chapter 9.76 (Plant Protection and Management Policy), a native plant removal permit must be obtained from the Town of Apple Valley prior to the removal of Wiggins' cholla, branched pencil cholla, western Joshua tree. No further mitigation is required; however, permit conditions may require salvage or that the species be incorporated into the landscape plan of the project. Any approved land use application and/or development permit will be the permit for the removal of Wiggins' cholla and branched pencil cholla once the Town of Apple Valley approves it.

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9 References

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WRCC (Western Regional Climate Center). 2022b. "Apple Valley, California: Period of Record Monthly Climate Summary." Accessed July 2022. <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0244>.

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Appendix A

Joshua Tree Locations



- Project Site
- Off-Site Improvement Areas
- Joshua Tree Inventory Survey Area (186' Buffer)
- Joshua Tree (*Yucca brevifolia*)

SOURCE: ESRI World Imagery; San Bernadino County 2021



APPENDIX B

Joshua Tree Locations

Joshua Tree Preservation, Protection, and Relocation Plan, and Desert Native Plant Relocation Plan - 1M Warehouse Project

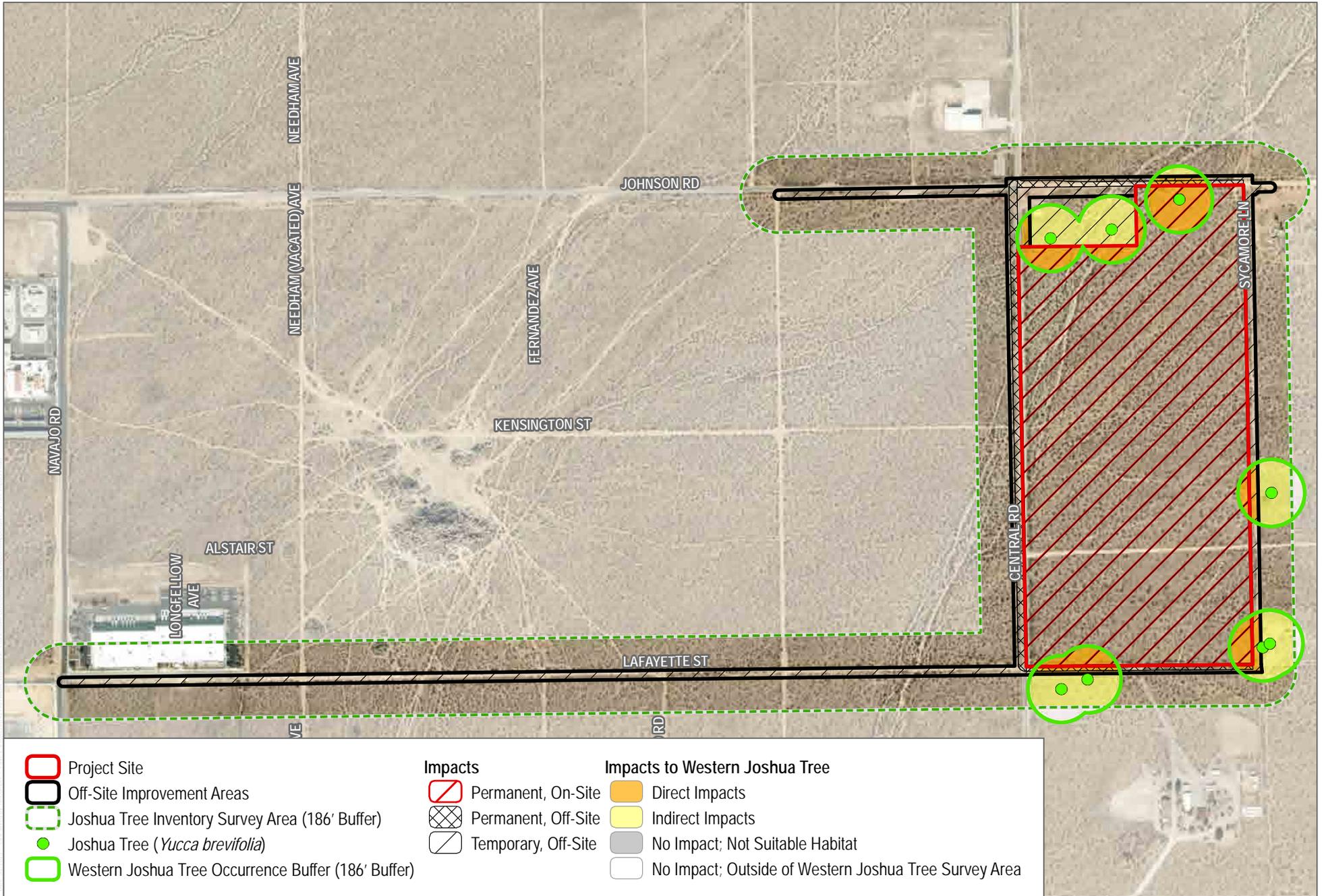
Appendix B

Tree Information Matrix

Tree No.	Botanical Name	Common Name	Number of Stems	Individual Stem Diameter (in.)			Diameter (in.)	Height (ft.)	Crown Width (ft.)	Health	Structure	Number of Branches	Clonal	Number of Panicles	New Growth	Leaves	Flowers	Open Flowers	Fruit	Fruit Drop	Burn Severity	Notes	Disposition	Relocation	X_Long	Y_Lat
				D1	D2	D3																				
1	<i>Yucca brevifolia</i>	Joshua Tree	1	9	0	0	9	10	4	80	80	3	Yes	0	Yes	Yes	No	No	No	Yes	None	3 clones	Removal	No	-117.171	34.6002
2	<i>Yucca brevifolia</i>	Joshua Tree	1	8	0	0	8	10	3	60	40	2	No	0	Yes	Yes	No	No	No	Yes	None		Preservation	N/A	-117.171	34.5933
3	<i>Yucca brevifolia</i>	Joshua Tree	1	6	0	0	6	4	2	80	80	0	No	0	Yes	Yes	No	No	No	No	None		Preservation	N/A	-117.17	34.5935
4	<i>Yucca brevifolia</i>	Joshua Tree	2	9	9	0	13	10	4	80	80	4	No	0	Yes	Yes	No	No	No	Yes	None		Preservation	N/A	-117.17	34.6003
5	<i>Yucca brevifolia</i>	Joshua Tree	2	9	9	0	13	8	6	60	60	12	Yes	0	Yes	Yes	No	No	No	Yes	None	2 stems, 2 clones	Preservation	N/A	-117.167	34.5963
6	<i>Yucca brevifolia</i>	Joshua Tree	1	6	0	0	6	6	5	80	80	0	Yes	0	Yes	Yes	No	No	No	No	None	3 clones	Preservation	N/A	-117.167	34.5939
7	<i>Yucca brevifolia</i>	Joshua Tree	1	3	0	0	3	1	1	60	60	0	No	0	Yes	Yes	No	No	No	No	None		Preservation	N/A	-117.169	34.6008
8	<i>Yucca brevifolia</i>	Joshua Tree	1	2	0	0	2	1	1	60	60	0	Yes	0	Yes	Yes	No	No	No	No	None	2 clones	Preservation	N/A	-117.101	34.3538

Appendix C

Joshua Tree Impacts



SOURCE: ESRI World Imagery; San Bernadino County 2021



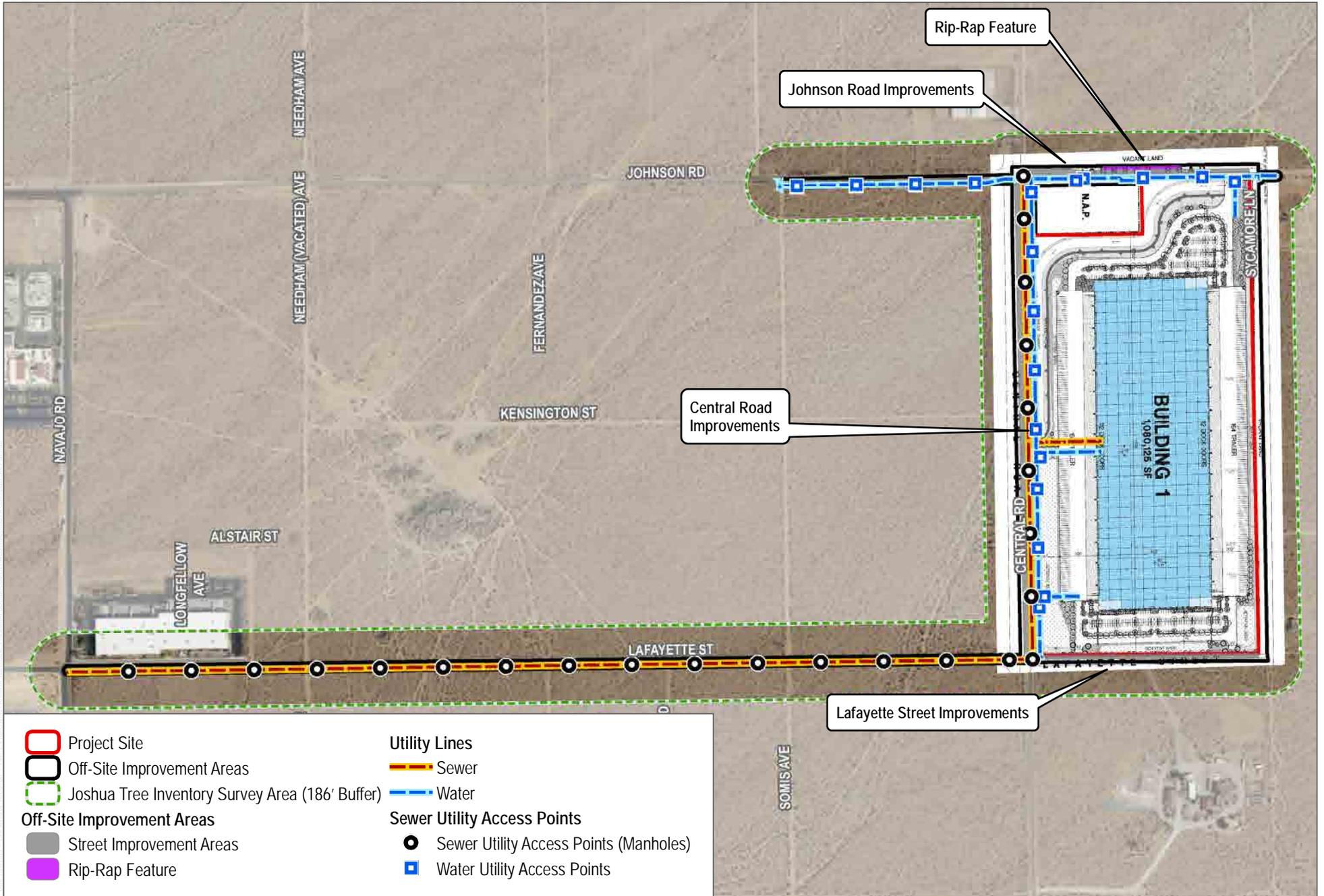
APPENDIX D

Joshua Tree Impacts

Joshua Tree Preservation, Protection, and Relocation Plan, and Desert Native Plant Relocation Plan - 1M Warehouse Project

Appendix D

Conceptual Site Plan



SOURCE: DigitalGlobe 2017; San Bernadino County 2021



Appendix C

Mojave Desert Tortoise Data Sheet

Date of survey: 01/17/2023 Survey biologist(s): Eilleen Salas and Shana Carey
(day, month, year) (name, email, and phone number)Site description: Creosote bush
(project name and size; general location)County: San Bernardino County Quad: Apple Valley Location: 34.601195, -117.171919
(UTM coordinates, lat-long, and/or TRS; map datum)Circle one: 100% coverage or Sampling Area size to be surveyed: 50 acres Transect #: Transect length: GPS Start-point: 34.601244, -117.172102 Start time: 8:45 am/pm
(easting, northing, elevation in meters)GPS End-point: 34.593322, -117.189639 End time: 1:15pm am/pm
(easting, northing, elevation in meters)Start Temp: 39 °C End Temp: 48 °C**Live Tortoises**

Detection number	GPS location		Time	Tortoise location (in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present
	Easting	Northing				
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location		Type of sign (burrows, scats, carcass, etc)	Description and comments
	Easting	Northing		
1				
2				
3				
4				
5				
6				
7				
8				

No live tortoise or tortoise sign were observed during the survey.

The survey area included the 1M Warehouse offsite survey areas. Biologists were not able to access an area on the southern portion of the site. However, area was surveyed with binoculars. The entire offsite area was surveyed on foot using 10m transects.

Date of survey: 4 October 2022 Survey biologist(s): Sarah Greely, Shana Carey, Olivia Koziel
(day, month, year) (name, email, and phone number)

Site description: Flat, creosote scrub and disturbed habitat, mostly located southeast of the intersection of Johnson Rd and Central Rd
(project name and size; general location)

County: San Bernardino County Quad: Apple Valley Location: 34.597430 N, 117.169341 W
(UTM coordinates, lat-long, and/or TRS; map datum)

Circle one 100% coverage or Sampling Area size to be surveyed: 106.1 acre Transect #: 47 Transect length: 2,965 ft

GPS Start-point: 34.601326 N, 117.172051 W; 3,158 ft Start time: 8:00 am am/pm
(easting, northing, elevation in meters)

GPS End-point: 34.601305 N, 117.167038 W; 3,179 ft End time: 1:51 pm am/pm
(easting, northing, elevation in meters)

Start Temp: 15.6 °C End Temp: 32.2 °C

Live Tortoises

Detection number	GPS location		Time	Tortoise location <small>(in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)</small>	Approx MCL ≥180 mm? <small>(Yes, No or Unknown)</small>	Existing tag # and color, if present
	Easting	Northing				
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location		Type of sign <small>(burrows, scats, carcass, etc)</small>	Description and comments
	Easting	Northing		
1				
2				
3				
4				
5				
6				
7				
8				

No live tortoises or tortoise sign were observed during the survey.

The survey area included the MGA Warehouse Phase 1 proposed project boundary plus a 100ft survey buffer. Biologists were unable to access a portion of the southern buffer area, but surveyed the inaccessible area by sight from the accessible area. The entire proposed project area was surveyed on foot using 10m transects.

Appendix D

Mohave Ground Squirrel Protocol Survey Report

July 27, 2022

Patrick Cruz
DUDEK
27372 Calle Arroyo
San Juan Capistrano, CA 92675
Via email: pcruz@dudek.com

Subject: Results of Mohave Ground Squirrel Protocol Surveys for the 160-acre Apple Valley Project, Town of Apple Valley, San Bernardino County, California

Dear Mr. Cruz:

The purpose of this report is to document the results of a California Department of Fish and Wildlife (CDFW) protocol survey for Mohave ground squirrel (*Xerospermophilus mohavensis*; MGS) conducted by Dipodomys Ecological Consulting LLC (DEC) for the 160-acre Apple Valley Project (project). Presented in this report are a description of the project, project location, biological setting of the site, MGS natural history, survey methodology, results of trapping efforts for MGS, and conclusions.

Project Description and Location

Uncommon Developers proposes to develop speculative industrial distribution warehouses on two parcels, located along Central Road in the Town of Apple Valley, in San Bernardino County. The northern parcel measures approximately 150 acres and the southern parcel measures 77.1 acres. The northern parcel is bordered by Quarry Road on the north and Central Road on the west. No named roads are located to the south or east of the northern parcel. The southern parcel is bordered by Johnson Road on the north, La Fayette Street on the south, Central Road on the west and Sycamore Lane on the east. Both parcels are surrounded mostly by undeveloped desert scrub. Sparse residential, industrial, and recreational developments are located near the parcels. These include the Apple Valley Speedway and Cemex quarry to the north of the northern parcel, and a wildland fire station to the south of the southern parcel. Two warehouse distribution centers are located to the west of the project parcels (**Figures 1 and 2**). Besides the above-mentioned development, both parcels are surrounded by undeveloped land, consisting of disturbed creosote bush scrub. The primary source of disturbance is past and present off highway vehicle (OHV) activity. The project sites can be found on the U.S. Geological Survey (USGS) 7.5-minute Apple Valley North topographic quadrangle map within Section 14, Township 6 North and Range 3 West, as shown in **Figure 1**, Project Location.

Biological Setting

Vegetation communities within the project site include creosote bush scrub (CDFW CA Code 33.010.00) and creosote bush-white bursage scrub (33.140.00). Dominant plants present include creosote bush

(*Larrea tridentata*), white bursage (*Ambrosia dumosa*), Anderson's thornbush (*Lycium andersonii*), Cooper's boxthorn (*Lycium cooperi*), cheesebush (*Ambrosia salsola*), Nevada joint-fir (*Ephedra nevadensis*), Mexican bladder sage (*Scutellaria mexicana*), turpentine broom (*Thamnosia montana*), cottonthorn (*Tetradymia stenolepis*), California buckwheat (*Eriogonum fasciculatum*) Mojave yucca (*Yucca schidigera*), Joshua tree (*Yucca brevifolia*), pencil cactus (*Cylindropuntia ramosissima*), and silver cholla (*Cylindropuntia echinocarpa*), four-winged saltbush (*Atriplex canescens*), and Thurber's sandpaper plant (*Petalonyx thurberi*). Herbaceous plants present on site include desert mallow (*Sphaeralcea ambigua*), red-stemmed filaree (*Erodium cicutarium*), rattlesnake sandmat (*Euphorbia albomarginata*), fiddleneck (*Amsinckia tessellata*), turkey mullein (*Croton setiger*), desert trumpet (*Eriogonum inflatum*), and wishbone bush (*Mirabilis californica*).

Soils on the north parcel consist of Nebona-Cuddeback complex, Cuddeback and Mohave variant. Soils on the south parcel consist primarily of Helendale-Bryman loamy sands and Cajon-Arizo complex gravelly sand (WebSoil 2022). The project site is located at an elevation of approximately 3,000 feet above mean sea level (amsl).

Mohave Ground Squirrel Natural History

Mohave ground squirrels are medium-sized (210-230mm, 85-130g), diurnal squirrels. Their dorsal pelage is light gray to cinnamon-brown, while their ventral side is creamy. Unlike round-tailed ground squirrels, which occur sympatrically in the southeast portion of their range, MGS have a short, flat tail that is light-colored on its underside, and have brown cheeks instead of white.

MGS inhabit a small geographic area in the western Mojave Desert. This species ranges from Palmdale in the southwest, the Lucerne Valley in the southeast, Olancho in the northwest, and the Avawatz Mountains in the northeast (Gustafson 1993). Although occurrences in the southern portion of their range are rare, occurrences have been documented on the California Natural Diversity Database (CNDDDB) as recently as 2011 (Figure 3). Vegetation communities (as classified by the California Native Plant Society) typically associated with MGS include Mojave Creosote Scrub, Shadscale Scrub, Desert Saltbush Scrub, Desert Sink Scrub, and Joshua Tree Woodland. MGS feed primarily on the leaves and seeds of forbs and shrubs. In the northern portion of their range, MGS have been found to feed on spiny hopsage (*Grayia spinosa*), winterfat (*Krascheninnikovia lanata*) and saltbush (*Atriplex* sp.), especially in early spring when forbs are unavailable, during summer when forbs have dried out, and during drought conditions (Leitner and Leitner 1998). Recent studies have also indicated that MGS feed on the following forbs and shrubs: freckled milkvetch (*Astragalus lentiginosus*), Mojave lupine (*Lupinus odoratus*), buckwheat (*Eriogonum* sp.), white mallow (*Eremalche exilis*), fiddleneck, Russian thistle (*Salsola tragus*), desert pincushion (*Chaenactis* sp.), Cryptantha (*Cryptantha pterocarya*), Coreopsis (*Leptosyne bigelovii*), Valley lessingia (*Lessingia glandulifera*), desert dandelion (*Malacothrix glabrata*), Phacelia (*Phacelia* sp.), wire lettuce (*Stephanomeria* sp.) Anderson's thornbush, spiny horsebrush (*Tetradimya spinosa*), and Joshua tree (Leitner and Leitner 2017).

MGS have adapted to live in hot desert environments by limiting their activity aboveground through estivation and hibernation. The timing of emergence from hibernation varies by location: in the northern portion of their range male MGS emerge mid-March (Leitner and Leitner 1998); however, in the southern portion of their range, MGS may emerge as early as mid-January (Recht 1977). Throughout their active

period, MGS store fat in preparation for estivation, which typically occurs between July and September, but may occur as early as April or May during drought conditions (Leitner et al. 1995). MGS reproduction is dependent on fall and winter rains and individuals may forgo breeding entirely if low rainfall (<80mm) results in reduced herbaceous plants (Leitner and Leitner 2017).

Throughout the range of MGS, they may co-occur with antelope ground squirrels, round-tailed ground squirrels, and California ground squirrels. MGS may be misidentified with round-tailed ground squirrels, but this is unlikely to occur with antelope ground squirrels, because the latter species has white dorsal stripes that makes them resemble a chipmunk more than an MGS. California ground squirrels are also notably larger and are not typically confused with MGS.

MGS are classified as threatened and are protected under the California Endangered Species Act. Primary threats to MGS include limited distribution, low abundance, and habitat loss from by converting suitable habitat to urban, suburban, agricultural, and military land uses (Gustafson 1993, Leitner and Leitner 2017).

Methods

Mohave ground squirrel (MGS) Protocol surveys for the 160-Acre Apple Valley Project were conducted in accordance with the 2010 CDFW MGS Survey Guidelines and consisted of an initial visual survey followed by live trapping and camera trapping efforts. Special authorization from CDFW Region 6 was requested and received to extend the first survey window to May 1, 2022. Details for each survey type are described below.

Visual Survey

An initial review of the California Natural Diversity Database (CNDDDB) was conducted prior to the visual assessment to determine the historical recorded occurrences of MGS near the project site (**Figure 3**). The visual survey was conducted by Principal Investigator Karla Flores (MOU and Scientific Collection Permit SC-10572) and Independent Researcher Karl Fairchild (SCP S-182820007-18333-001) on April 26, 2022. The visual survey consisted of driving and walking throughout the project site to identify suitable habitat for MGS. This included identifying plants known to provide forage material for MGS such as spiny hopsage, winterfat, Cooper's boxthorn, Anderson's desert thorn, and Joshua tree (Leitner 2022). Areas supporting suitable habitat for MGS where these plants are concentrated were recorded on an aerial map. Suitable soil types for burrowing and burrow densities were also noted.

Live Trapping

Live trapping surveys were conducted by Karla Flores and Karl Fairchild and consisted of setting up two 100-trap 10x10 survey grids (315x315) within the northern and southern project parcels. Coordinate locations for the northern and southern grids are listed in **Table 1**. Traps in each grid were spaced 35 meters apart and utilized XLK Sherman live-traps (3x3.75x12") with accompanying A-frame cardboard shade covers staked to the ground with metal tent stakes. All traps were baited with 4-way livestock feed and peanut butter powder and were opened within one hour of sunrise and were checked no more than every four hours. All traps were closed within hour of sunset. Trapping was conducted when temperatures

were between 50 degrees Fahrenheit and 90 degrees Fahrenheit, and inclement conditions (rain, thunderstorms) were not present. All animals captured were released at their capture location, and the following information recorded for each capture: species, weight, age, sex, and reproductive condition. Live-trapping surveys were conducted for a period of five days in each of the three survey windows established by the MGS survey guidelines (1st: March 15-April 3; 2nd: May 1-31; 3rd: June 15-July 15). Details for each survey period are presented in **Table 2**. MGS Survey and Trapping Forms, including weather details, are presented in **Attachment A** and **Attachment B**.

TABLE 1
UTM COORDINATES FOR CORNERS OF NORTH AND SOUTH LIVE TRAPPING GRIDS

Grid	Corner	Zone	Easting	Northing
North	SW	11	484625	3829680
North	NW	11	484625	3829995
North	SE	11	484940	3829680
North	NE	11	484940	3829995
South	SW	11	484310	3828410
South	NW	11	484310	3828725
South	SE	11	484625	3828410
South	NE	11	484625	3828725

*Datum: WGS 1984

TABLE 2
MOHAVE GROUND SQUIRREL SURVEY DATE AND TYPE

Session	Date	Survey Type	Surveyor (s)
1	April 27-May 1, 2022	LT/CT	Karla Flores, Karl Fairchild
2	May 21-25, 2022	LT/CT	Karla Flores, Karl Fairchild
3	June 28-July 2, 2022	LT/CT	Karla Flores, Karl Fairchild

LT: Live Trapping CT: Camera Trapping

Camera Trapping

Camera trapping surveys were used to supplement live-trapping efforts and consisted of setting up ten camera trapping stations throughout the project site (**Figure 2**). Each camera trap station consisted of a Bushnell Core Low Glow Trail Camera (Model 1199932CB) secured to a 36-inch U-post facing a bait station. The bait station consisted of a feeding tube filled with 4-way livestock feed staked to the ground with a 12-inch railroad spike. Cameras operated 24 hours a day, concurrent with live-trapping surveys, and followed the programming specifications described in Delaney et al. (2017). Coordinate locations for each camera trap station are listed below in **Table 3**.

Photos from the camera trap stations were downloaded and reviewed by the Principal Investigator after every five-day trapping session. A list of species detected at the camera trap stations is included in **Table 5**.

TABLE 3
COORDINATE LOCATIONS FOR CAMERA TRAP STATIONS

Grid	Camera	Zone	Easting	Northing
North	1	11	484417	3829828
North	2	11	484483	3830186
North	3	11	484772	3830198
North	4	11	484875	3829980
North	5	11	484792	3829657
South	1	11	484552	3828676
South	2	11	484380	3828692
South	3	11	484475	3828465
South	4	11	484556	3828112
South	5	11	484372	3828066

*Datum: WGS 1984

Results

Visual Survey

Based on the habitat data collected during the visual survey there is some low to moderately suitable MGS habitat present onsite. Although no winterfat or spiny hopsage were found onsite, other plants known to be associated with MGS habitat were present on site, including four-winged salt bush, creosote bush, Anderson’s thornbush, Cooper’s boxthorn, Joshua tree, fiddleneck, and red-stemmed filaree. These plants were recently included in a list of primary food items consumed by MGS, based on microhistology and metabarcoding studies (Leitner 2022), and suggest some MGS habitat may be present on site. Visual observations of burrows and burrow complexes showed that soil onsite is suitable for burrowing.

Live Trapping

No Mohave ground squirrels were captured during the three live-trapping survey periods. Live-trapping captures consisted entirely of non-target species including white-tailed antelope ground squirrel (*Ammospermophilus leucurus*), California ground squirrel (*Otospermophilus beecheyi*), Great Basin whiptail (*Aspidoscelis tigris*), and black-throated sparrow (*Amphispiza bilineata*) (**Table 4; Figure 4**).

TABLE 4
RESULTS OF MOHAVE GROUND SQUIRREL PROTOCOL SURVEYS

Common name	Scientific name	North Grid			South Grid		
		S1	S2	S3	S1	S2	S3
White-tailed antelope ground squirrel	<i>Ammospermophilus leucurus</i>	151	46	33	45	64	34
California ground squirrel	<i>Otospermophilus beecheyi</i>	0	0	0	0	3	0
Great Basin whiptail	<i>Aspidoscelis tigris</i>	2	1	1	1	0	1
Black-throated sparrow	<i>Amphispiza bilineata</i>	0	0	0	1	0	0
Total		153	47	34	47	69	35

Camera Trapping

No Mohave ground squirrels were detected in the images collected during the camera trapping surveys. Mammal species observed utilizing the camera trap stations included white-tailed antelope ground squirrel, kangaroo rat (*Dipodomys* sp.), little pocket mouse (*Perognathus longimembris*), desert kit fox (*Vulpes macrotis*), and coyote (*Canis latrans*). Other species observed visiting the camera trap stations included common raven (*Corvus corax*), mourning dove (*Zenaida macroura*), Great Basin whiptail, and side-blotched lizard (*Uta stansburiana*).

**TABLE 5
RESULTS OF MOHAVE GROUND SQUIRREL CAMERA TRAPPING**

Common Name	Scientific Name
Common raven	<i>Corvus corax</i>
Coyote	<i>Canis latrans</i>
Desert kit fox	<i>Vulpes macrotis</i>
Great Basin whiptail	<i>Aspidoscelis tigris</i>
Kangaroo rat	<i>Dipodomys</i> sp.
Little pocket mouse	<i>Perognathus longimembris</i>
Mourning dove	<i>Zenaida macroura</i>
Side-blotched lizard	<i>Uta stansburiana</i>
White-tailed antelope ground squirrel	<i>Ammospermophilus leucurus</i>

Conclusions

The 160-acre Apple Valley Project is located approximately 3.5 miles outside of the southeastern extent of the mapped MGS range. MGS occurrences in the southeastern portion of its range have historically been rare and population densities low. A query of the California Natural Diversity Database (CNDDDB) for the Apple Valley North quadrangle and the surrounding eight quadrangles showed that the closest MGS occurrence to the site was recorded in 1977, approximately 6.9 miles southwest of the site, and on the west side of Interstate 15 (I-15). The most recent occurrence of an MGS was recorded in 2007 approximately 11.3 miles west of the site, and on the west side of I-15. No MGS occurrences have been recorded in CNDDDB in the southeastern extent of the range to the east of I-15 since the establishment of I-15 in its current alignment (**Figure 3**). Additionally, both the northern and southern parcels are located outside of known MGS core population areas, peripheral population areas and/or linkage areas, making colonization from adjacent populations unlikely.

While none of the primary MGS food plants (spiny hopsage and winterfat) were detected within the project site, other plants known to be consumed by MGS and associated with MGS habitat were found on site, suggesting that there is some moderately suitable habitat within the project site. However, no MGS were captured during live trapping, nor detected in camera trapping surveys. Based on the results of this survey, the CDFW survey guidelines indicate that the department will stipulate that no MGS occur on the project site. This stipulation will expire one year from the last day of trapping, July 2, 2022.

I hereby certify that the information in this report is true, and that it conforms to accepted biological standards. Please feel free to contact Karla Flores by phone at (619) 972-4319 or by email at kflores@dipodomysecological.com or Karl Fairchild by phone at (541) 609-1038 or by email at kfairchild@dipodomysecological.com, with any questions regarding this report.

Sincerely,



Karla L. Flores
Principal Investigator



Karl Fairchild
Independent Researcher

Figures and Attachments

Figure 1-Project Location

Figure 2-Survey Area

Figure 3- Historical MGS Occurrences

Figure 4- Results

Attachment A-CDFW Mohave Ground Squirrel Survey and Trapping Form(s)

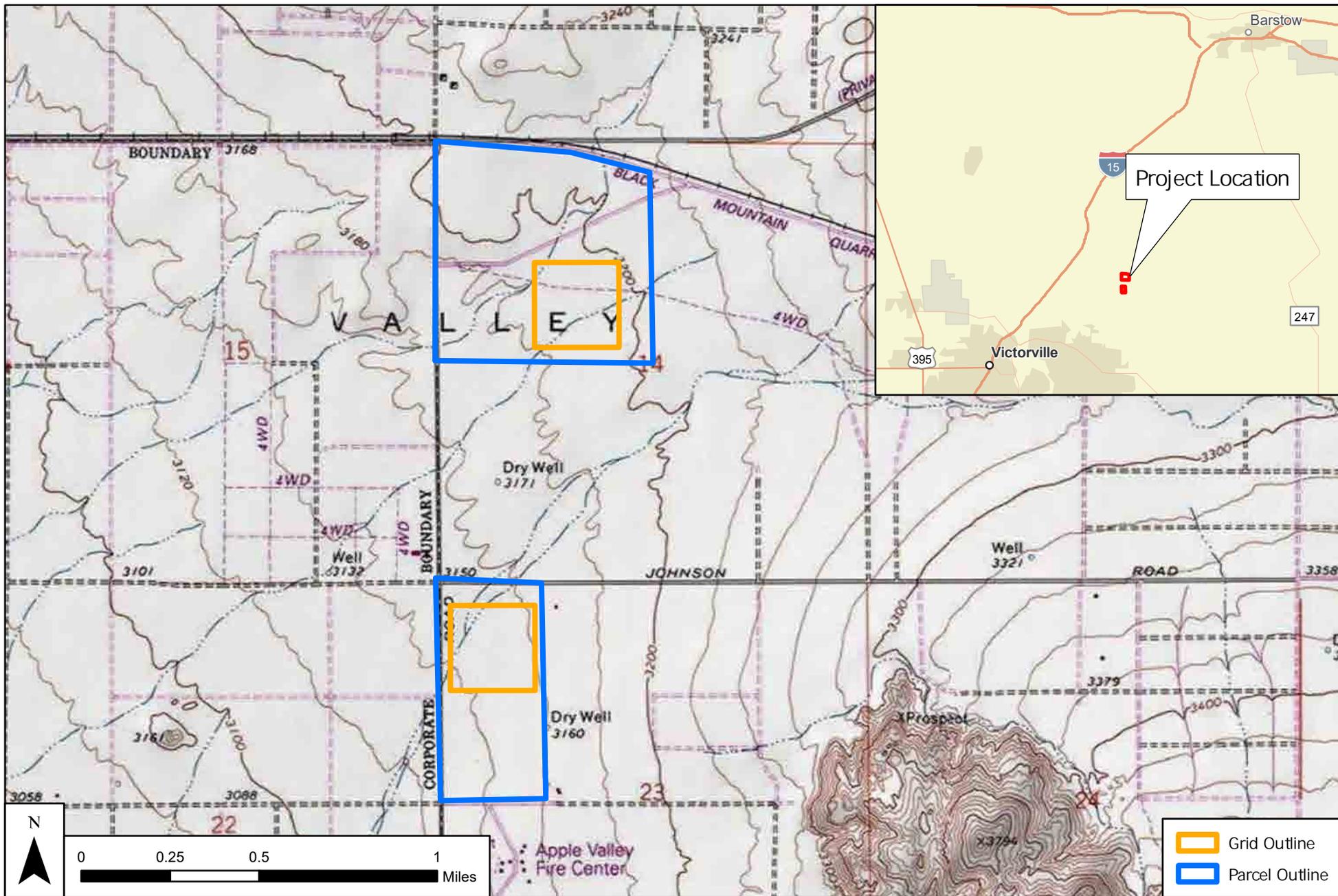
Attachment B-Weather Details

Attachment C-Species Compendium

Attachment D-Representative Photographs

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- California Department of Fish and Game. Mohave Ground Squirrel Survey Guidelines. July 2010.
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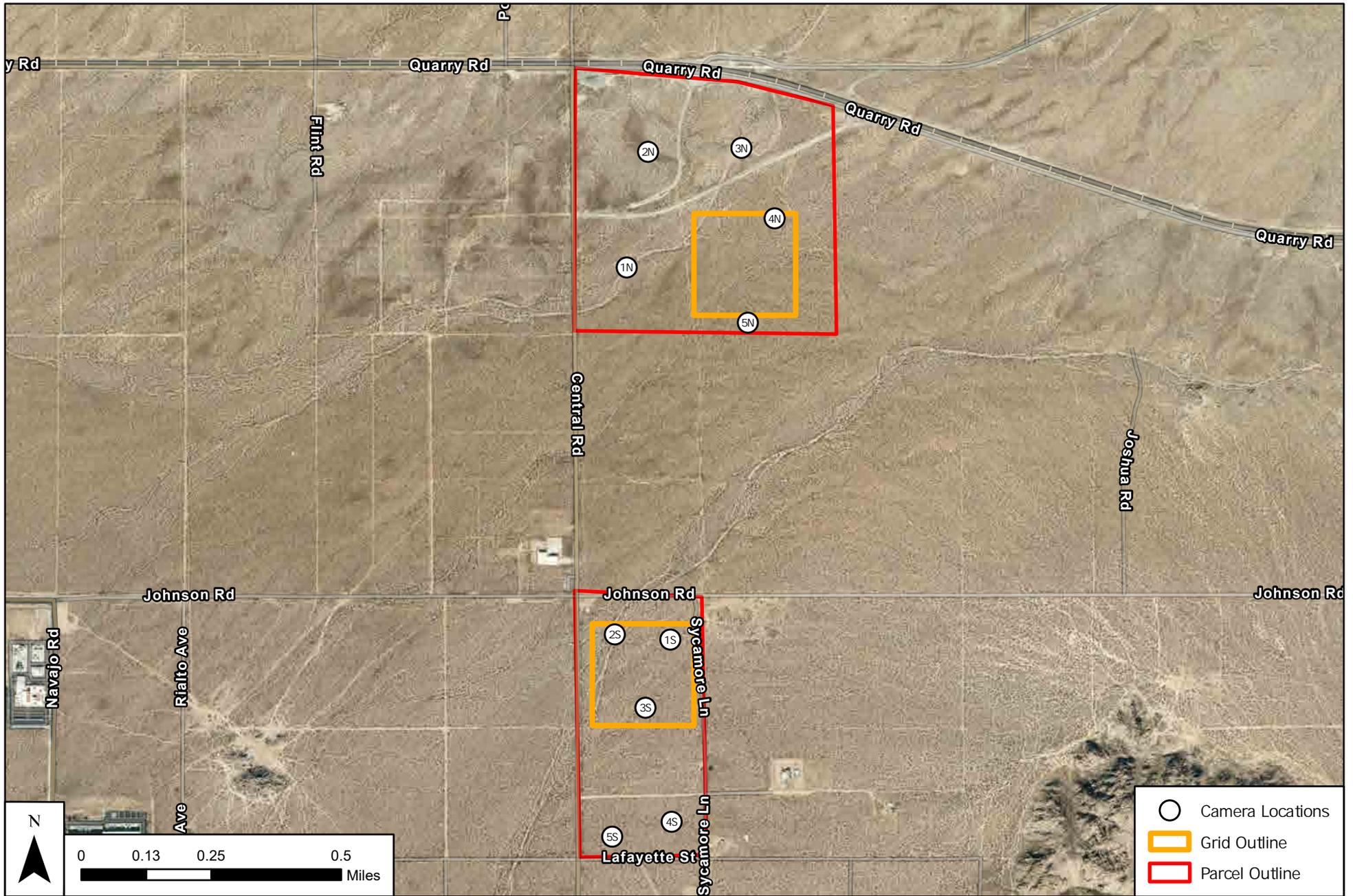


SOURCE: ESRI

Apple Valley 160 Project

Figure 1

Project Location

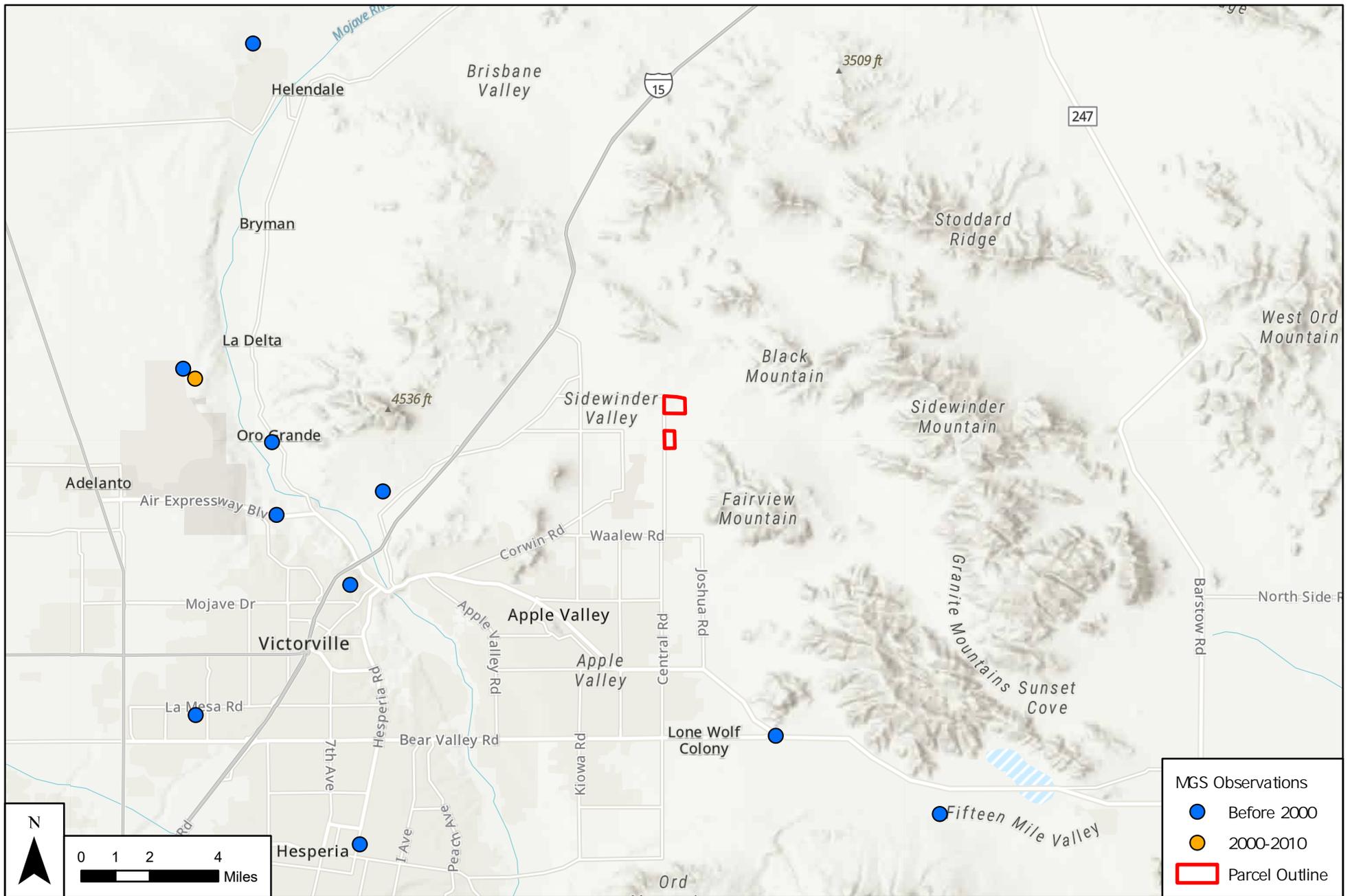


SOURCE: ESRI

Apple Valley 160 Project

Figure 2

Survey Area

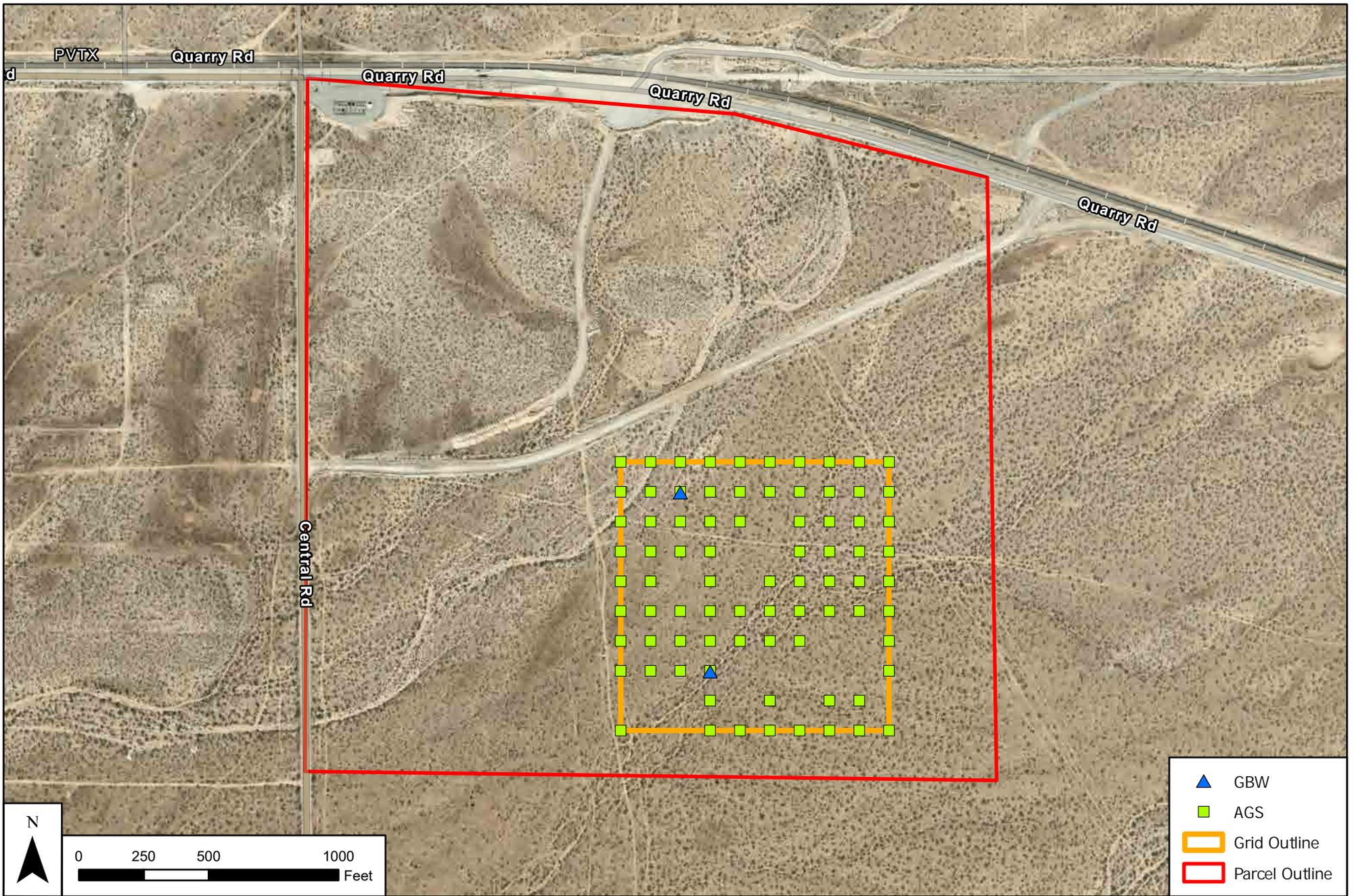


SOURCE: ESRI

Apple Valley 160 Project

Figure 3

Historical MGS Occurrences

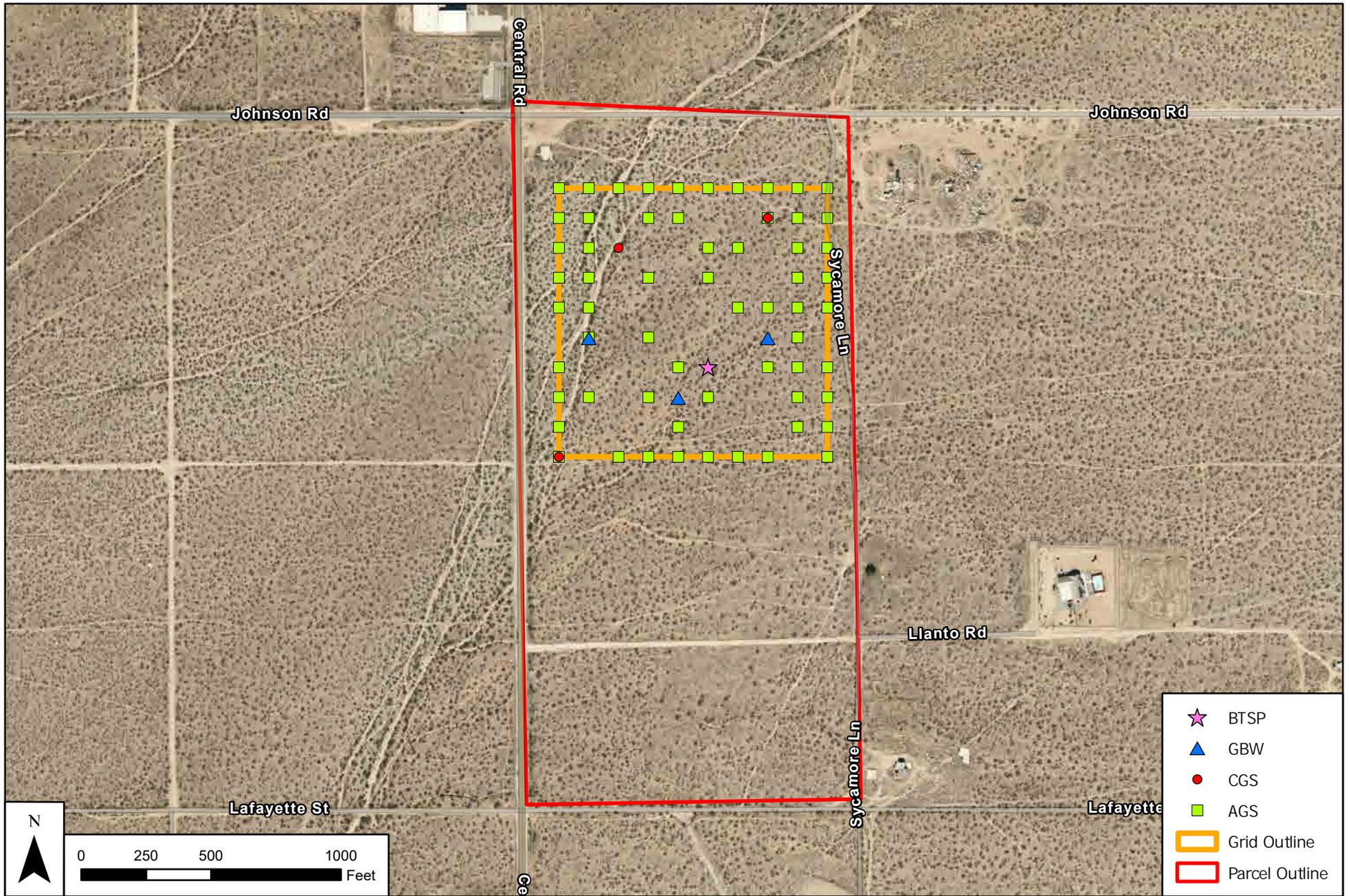


SOURCE: ESRI

Apple Valley 160 Project

Figure 4a

North Grid Trapping Results



SOURCE: ESRI

Apple Valley 160 Project

Figure 4b

South Grid Trapping Results

Attachment A

Mohave Ground Squirrel (MGS) Survey and Trapping Form (photocopy as needed)

PART I - PROJECT INFORMATION (use a separate form for each sampling grid)

Project name: 160-Acre Apple Valley Project-North Grid Property owner: Uncommon Developers

Location: Township 06N; Range 03W; Section 14; ¼ Section _____

Quad map/series: Apple Valley North UTM coordinates: SW: 484625 3829680 NW: 484625 3829995
SE: 484940 3829680 NE: 484940 3829995
GPS coordinates of trapping-grid corners

Acreage of Project Site: 160 Acres Acreage of potential MGS habitat on site: 160 Acres

Total acreage visually surveyed on project site: 160-Acres Date(s): April 26, 2022
visual surveys

Visual surveys conducted by: Karla Flores and Karl Fairchild
names of all persons by date (use back of form, if needed)

Total acres trapped: 160 Acres Number of sampling grids: 2

Trapping conducted by: Karla Flores and Karl Fairchild
names of all persons by sampling term and sampling grid (use back of form, if needed)

Dates of sampling term(s): FIRST April 27-May 1, 2022 SECOND May 21-25, 2022 THIRD June 28-July 2, 2022
if required if required

PART II - GENERAL HABITAT DESCRIPTION (use back of form, if needed)

Vegetation: dominant perennials: Larrea tridentata, Ambrosia salsola, Yucca brevifolia

other perennials: Atriplex canescens, Ephedra nevadensis, Yucca schidigera, Cooper's boxthorn, Thamnosia montana, Ambrosia dumosa,

dominant annuals: Erodium cicutarium, Euphorbia albomarginata

other annuals: Croton setiger, Sphaeralcea ambigua, Eriogonum inflatum

Land forms (mesa, bajada, wash): desert plain; wash

Soils description: Nebona-Cuddeback Complex (60%); Cuddeback (20%); Unnamed (20%)

Elevation: 3,080 feet Slope: 2-9%

PART III - WEATHER (report measurements in the following categories for each day of visual survey and each day of trapping; using 24-hour clock, indicate time of day that each measurement was made; use a separate blank sheet for each day)

Temperature: AIR minimum and maximum; SOIL minimum and maximum; Cloud Cover: % in AM and % in PM; Wind Speed: in AM and in PM

Mohave Ground Squirrel (MGS) Survey and Trapping Form (photocopy as needed)

PART I - PROJECT INFORMATION (use a separate form for each sampling grid)

Project name: 160-Acre Apple Valley Project-South Grid Property owner: Uncommon Developers

Location: Township 06N; Range 03W; Section 14; 1/4 Section _____

Quad map/series: Apple Valley North UTM coordinates: SW: 484310 3828410 NW:484310 3828725
SE:484625 3828410 NE:484625 3828725
GPS coordinates of trapping-grid corners

Acreage of Project Site: 160 acres Acreage of potential MGS habitat on site: 160 acres

Total acreage visually surveyed on project site: 160 acres Date(s): April 26, 2022
visual surveys

Visual surveys conducted by: Karla Flores, Karl Fairchild
names of all persons by date (use back of form, if needed)

Total acres trapped: 160 acres Number of sampling grids: 2

Trapping conducted by: Karla Flores and Karl Fairchild
names of all persons by sampling term and sampling grid (use back of form, if needed)

Dates of sampling term(s): FIRST April 27-May 1, 2022 SECOND May 21-28, 2022 THIRD June 28-July 2, 2022
if required if required

PART II - GENERAL HABITAT DESCRIPTION (use back of form, if needed)

Vegetation: dominant perennials: Larrea tridentata, Yucca brevifolia, Lycium cooperi

other perennials: Atriplex canescens, Ambrosia salsola, Thamnosia montana, Lycium andersonii, Tetradymia stenolepis, Eriogonum fasciculatum

dominant annuals: Amsinckia tessellata, Erodium cicutarium, Schismus barbatus, Lasthenia californica

other annuals: _____

Land forms (mesa, bajada, wash): desert plain; wash

Soils description: Helendale (50%); Bryman (35%); Cajon (5%); Mohave variant (5%); Unnamed (5%)

Elevation: 3,021 feet Slope: 2-5%

PART III - WEATHER (report measurements in the following categories for each day of visual survey and each day of trapping; using 24-hour clock, indicate time of day that each measurement was made; use a separate blank sheet for each day)

Temperature: AIR minimum and maximum; SOIL minimum and maximum; Cloud Cover: % in AM and % in PM; Wind Speed: in AM and in PM

Attachment B

Attachment B: Weather details for California Department of Fish and Wildlife (CDFW) Mohave ground squirrel (*Xerospermophilus mohavensis*) protocol surveys. Details include date, survey (1-3), air temperature (min-max ° Fahrenheit), soil temperature (min-max ° Fahrenheit), wind speed (mph) and percent cloud cover (%).

Date		Air Temperature (°F)		Soil temperature (°F)		Wind (mph)		Cloud Cover (%)	
		Min	Max	Min	Max	Start	End	Start	End
4/27/2022	1	65.4	81.6	57.8	67.4	5.9	7.4	0	0
4/28/2022	1	58.9	77.7	62.8	76.5	8.6	19.6	5	0
4/29/2022	1	60.6	79.6	58.9	85.1	2	4.3	0	0
4/30/2022	1	65.1	88.7	61.3	73.7	1.8	2.1	10	0
5/1/2022	1	65.8	82.3	64.4	82.8	8.7	18.8	0	0
5/21/2022	2	70.8	88	66	79.2	1.2	5.4	0	0
5/22/2022	2	75.5	87.7	65.5	79.3	2.1	4.2	0	10
5/23/2022	2	71.2	88.8	68.5	81	1.9	2.4	1	5
5/24/2022	2	68.6	90	69.6	82.6	1.6	5.8	0	0
5/25/2022	2	74.6	88.5	73.2	75	1	4.6	0	1
6/28/2022	3	82.4	90	81.3	84.9	1.6	4	0	5
6/29/2022	3	77.1	89.4	80.1	83.4	2.1	5.8	0	0
6/30/2022	3	78.4	90	80.4	81.4	4.7	6.6	5	1
7/1/2022	3	73.5	90	78.3	84.6	1.6	8.8	5	1
7/2/2022	3	75.2	90	78	83	2.7	6.7	0	1

Attachment C

Common name	Scientific name	SSC*
Plants		
Anderson's thornbush	<i>Lycium andersonii</i>	
California buckwheat	<i>Eriogonum fasciculatum</i>	
cheesebush	<i>Ambrosia salsola</i>	
Cooper's boxthorn	<i>Lycium cooperi</i>	
cottonthorn	<i>Tetradymia stenolepis</i>	
creosote bush	<i>Larrea tridentata</i>	
desert mallow	<i>Sphaeralcea ambigua</i>	
desert trumpet	<i>Eriogonum inflatum</i>	
doveweed	<i>Croton setiger</i>	
goldfields	<i>Lasthenia californica</i>	
Joshua tree	<i>Yucca brevifolia</i>	
Mediterranean grass	<i>Schismus barbatus</i>	
Mexican bladdersage	<i>Scutellaria mexicana</i>	
Mojave yucca	<i>Yuca schidigera</i>	
Nevada joint-fir	<i>Ephedra nevadensis</i>	
pencil cholla	<i>Cylindropuntia ramosissima</i>	
rattlesnake weed	<i>Euphorbia albomarginata</i>	
red-stemmed filaree	<i>Erodium cicutarium</i>	
rubber rabbitbrush	<i>Ericameria nauseosa</i>	
silver cholla	<i>Cylindropuntia echinocarpa</i>	
turpentine broom	<i>Thamnosia montana</i>	
white bursage	<i>Ambrosia dumosa</i>	
wishbone bush	<i>Mirabilis californica</i>	
Birds		
ash-throated flycatcher	<i>Myiarchus cinerascens</i>	
barn swallow	<i>Hirundo rustica</i>	
black-tailed gnatcatcher	<i>Polioptila melanura</i>	
black-throated sparrow	<i>Amphispiza bilineata</i>	
Common raven	<i>Corvus corax</i>	
European starling	<i>Sturnus vulgaris</i>	
Horned lark	<i>Eremophila alpestris</i>	
house finch	<i>Haemorhous mexicanus</i>	
house sparrow	<i>Passer domesticus</i>	
LeConte's thrasher	<i>Toxostoma lecontei</i>	Y
mourning dove	<i>Zenaida macroura</i>	
red-tailed hawk	<i>Buteo jamaicensis</i>	
verdin	<i>Auriparus flaviceps</i>	
Mammals		
black-tailed jackrabbit	<i>Lepus californica</i>	

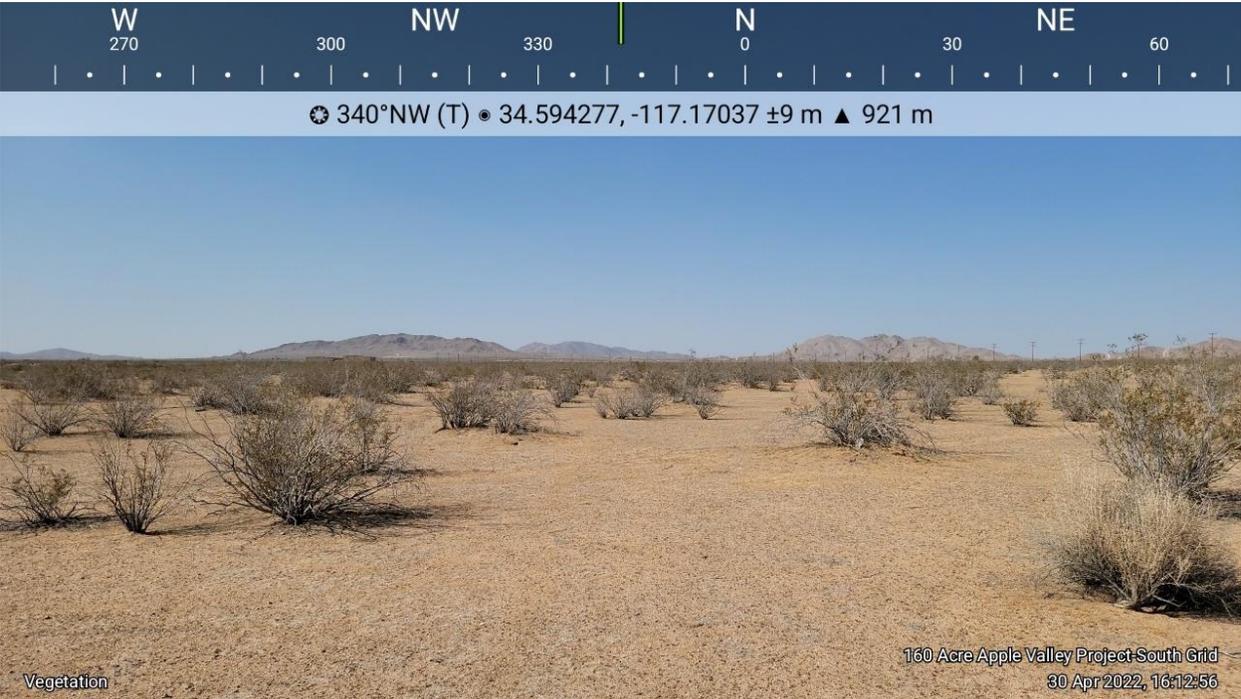
Common name	Scientific name	SSC*
coyote	<i>Canis latrans</i>	
desert kit fox	<i>Vulpes macrotis</i>	
kangaroo rat	<i>Dipodomys sp.</i>	
white-tailed antelope ground squirrel	<i>Ammospermophilus leucurus</i>	
Reptiles		
Great Basin whiptail	<i>Aspidoscelis tigris</i>	
long-nosed leopard lizard	<i>Gambelia wislizenii</i>	
northern Mohave rattlesnake	<i>Crotalus scutulatus</i>	
southern desert horned lizard	<i>Phrynosoma platyrhinos</i>	

*SSC: Species of Special Concern

Attachment D



Photograph 1: Representative vegetation on the north parcel of the 160-acre Apple Valley Project, facing south.



Photograph 2: Representative vegetation on the south parcel of the 160-acre Apple Valley Project, facing north.



Photograph 3: Representative camera trap station. Camera stations consisted of a Bushnell camera secured to a 36-inch u-post facing a bait tube.



Photograph 4: Representative trap station. Station consisted of an XLK Sherman trap with a cardboard A-frame for artificial shade.



Photograph 5: White-tailed antelope ground squirrel (*Ammospermophilus leucurus*) captured.



Photograph 6: Black-throated sparrow (*Amphispiza bilineata*) captured.



Photograph 7: Southern desert horned lizard (*Phrynosoma platyrhinos*), found on project site.



Photograph 8: Desert kit (*Vulpes macrotis*) captured at camera station 2 on south grid.

February 6, 2023

Anna Cassidy
Dudek
605 Third Street
Encinitas, CA 92024
Via email: acassady@dudek.com

Subject: Results of a Mohave Ground Squirrel Habitat Assessment for the 1.8-mile Utility Tie-In Alignment for the 1M Warehouse Project, San Bernardino County, California

Dear Anna:

The purpose of this report is to document the results of a Mohave ground squirrel (*Xerospermophilus mohavensis*; MGS) Habitat Assessment conducted by Dipodomys Ecological Consulting, LLC (DEC) for the utility tie-in alignment associated with the 1M Warehouse Project (project). Presented in this report are a description of the project, project location, MGS natural history, survey methodology, results of the MGS Habitat Assessment, and conclusions/recommendations.

Project Description and Location

Uncommon Developers proposes to develop a speculative industrial distribution warehouse which will include approximately 1.8 miles of utility tie-in alignments for water (0.75 miles) and sewer (1.05 miles), totaling 45.3 acres of potential impacts. This MGS habitat assessment was conducted to determine the potential for MGS to occur within the utility alignment as well as a 100-foot buffer area.

The 1.8-mile alignment is located within the Town of Apple Valley in San Bernardino County, California. The water alignment extends 0.25 miles east along Johnson Road towards Central Road and south 0.5 miles along Central Road towards Lafayette Street. The sewer alignment extends 1.05 miles east from the intersection of Layette Street and Navajo Road towards Central Road and 0.5 miles north along Central Road between Lafayette Street and Johnson Road (**Figures 1-2**). The survey area consists primarily of disturbed creosote bush scrub, as well as some disturbed/developed areas (**Figure 4**). The primary source of disturbance is past and current off highway vehicle (OHV) activity as well as roadside debris. The project site is located on the U.S. Geological Survey (USGS) 7.5-minute Apple Valley North topographic quadrangle map within Section 22, Township 6 North and Range 3 West.

Mohave Ground Squirrel Natural History

Mohave ground squirrels (*Xerospermophilus mohavensis*) are medium-sized (210-230mm, 85-130g), diurnal squirrels. Their dorsal pelage is light gray to cinnamon-brown, while their ventral side is creamy. Unlike round-tailed ground squirrels, which occur sympatrically in the southeast portion of their range, MGS have a short, flat tail that is light-colored on its underside, and have brown cheeks instead of white.

MGS inhabit a small geographic area in the western Mojave Desert. This species ranges from Palmdale in the southwest, the Lucerne Valley in the southeast, Olancho in the northwest, and the Avawatz Mountains in the northeast (Gustafson 1993). Although occurrences in the southern portion of their range are rare, occurrences have been documented on the California Natural Diversity Database (CNDDDB) as recently as 2011 (Figure 3). Vegetation communities (as classified by the California Native Plant Society) typically associated with MGS include Mojave Creosote Scrub, Shadscale Scrub, Desert Saltbush Scrub, Desert Sink Scrub, and Joshua Tree Woodland. MGS feed primarily on the leaves and seeds of forbs and shrubs. In the northern portion of their range, MGS have been found to feed on spiny hopsage (*Grayia spinosa*), winterfat (*Krascheninnikovia lanata*) and saltbush (*Atriplex* sp.), especially in early spring when forbs are unavailable, during summer when forbs have dried out, and during drought conditions (Leitner and Leitner 1998). Recent studies have also indicated that MGS feed on the following forbs and shrubs: freckled milkvetch (*Astragalus lentiginosus*), Mojave lupine (*Lupinus odoratus*), buckwheat (*Eriogonum* sp.), white mallow (*Eremalche exilis*), fiddleneck (*Amsinckia tessellata*), Russian thistle (*Salsola tragus*), desert pincushion (*Chaenactis* sp.), Cryptantha (*Cryptantha pterocarya*), Coreopsis (*Leptosyne bigelovii*), Valley lessingia (*Lessingia glandulifera*), desert dandelion (*Malacothrix glabrata*), Phacelia (*Phacelia* sp.), wire lettuce (*Stephanomeria* sp.) Anderson's boxthorn (*Lycium andersonii*), spiny horsebrush (*Tetradimya spinosa*), and Joshua tree (*Yucca brevifolia*) (Leitner and Leitner 2017).

MGS have adapted to live in hot desert environments by limiting their activity aboveground through estivation and hibernation. The timing of emergence from hibernation varies by location: in the northern portion of their range male MGS emerge mid-March (Leitner and Leitner 1998); however, in the southern portion of their range, MGS may emerge as early as mid-January (Recht 1977). Throughout their active period, MGS store fat in preparation for estivation, which typically occurs between July and September, but may occur as early as April or May during drought conditions (Leitner et al. 1995). MGS reproduction is dependent on fall and winter rains and individuals may forgo breeding entirely if low rainfall (<80mm) results in reduced herbaceous plants (Leitner and Leitner 2017).

Throughout the range of MGS, they may co-occur with antelope ground squirrels, round-tailed ground squirrels, and California ground squirrels. MGS may be misidentified with round-tailed ground squirrels, but this is unlikely to occur with antelope ground squirrels, because the latter species has white dorsal stripes that makes them resemble a chipmunk more than an MGS. California ground squirrels are notably larger and are not typically confused with MGS.

MGS are classified as threatened and are protected under the California Endangered Species Act. Primary threats to MGS include limited distribution, low abundance, and habitat loss from by converting suitable habitat to urban, suburban, agricultural, and military land uses (Gustafson 1993, Leitner and Leitner 2017).

Methods

Prior to carrying out the habitat assessment in the field, a nine-quad query of the California Natural Diversity Database (CNDDDB) was conducted to determine the locations of historical occurrences of MGS near the project site (**Figure 3**).

The MGS habitat assessment was conducted on January 29, 2023, by permitted biologists Karla Flores (MOU Principal Investigator, Scientific Collection Permit SC-10572) and Karl Fairchild (Independent

Researcher, SCP S-182820007-18333-001). The habitat assessment consisted of walking meandering transects throughout the project footprint while recording vegetation communities and individual plants present highlighting those that provide forage for MGS. Not all annuals/forbs associated with MGS were recorded because the habitat assessment took place outside the flowering season for some of these plants. The presence of burrows within the survey area was noted as an indication that the soil is friable and suitable for burrowing rodents.

Results

The results of the nine-quad CNDDDB query yielded 11 MGS occurrences recorded within the vicinity of the project. The most recent of these occurrences was recorded in 2007, approximately 10.44 miles northwest of the project across Interstate 15 (I-15). The closest MGS occurrence was documented in 1977, approximately 5.87 miles southwest of the survey area across I-15. The closest MGS to the site east of I-15 was recorded in 1955, approximately 8.77 miles southeast of the project (**Figure 3**).

The survey area consists of creosote bush scrub and disturbed/developed areas (**Figure 4**). In addition, the survey area is traversed by several ephemeral drainage channels extending across the alignment at various points. Shrubs present onsite primarily consist of creosote bush (*Larrea tridentata*). Other shrubs present in lower densities include white bursage (*Ambrosia dumosa*), Cooper's boxthorn (*Lycium cooperi*), Anderson's boxthorn (*Lycium andersonii*), bladdersage (*Scutellaria mexicana*), rubber rabbitbrush (*Ericameria nauseosa*), cheesebush (*Ambrosia salsola*), turpentine broom (*Thamnosia montana*), four-wing saltbush (*Atriplex canescens*), Cooper's goldenbush (*Ericameria cooperi*), Thurber's sandpaper plant (*Petalonyx thurberi*), California buckwheat (*Eriogonum fasciculatum*), Russian thistle, oleander (*Nerium oleander*), cottonthorn (*Tetradymia stenolepis*), and pencil cholla (*Cylindropuntia ramosissima*). Annuals present included short-podded mustard (*Hirschfeldia incana*), desert mallow (*Sphaeralcea ambigua*), fiddleneck (*Amsinckia tessellata*), annual bursage (*Ambrosia acanthicarpa*), red-stemmed filaree (*Erodium cicutarium*), cheatgrass (*Bromus tectorum*), and common Mediterranean grass (*Schismus barbatus*). Soils consist of Helendale-Bryman loamy sands and Cajon-Arizo Complex. Elevation onsite is approximately 2,959 feet above mean sea level.

Weather conditions during the habitat assessment were generally sunny, with temperatures between 51°F and 52.3°F, wind speeds between 15 and 18 mph, and 15% cloud cover. Wildlife observed during the survey included: horned lark (*Eremophila alpestris*), common raven (*Corvus corax*), Say's phoebe (*Sayornis saya*), California ground squirrel (*Otospermophilus beecheyi*) and feral dog (*Canis familiaris*).

Conclusions and Recommendations

The 1.8-mile utility tie-in alignment for the 1M Warehouse consists primarily of creosote bush scrub, a vegetation community known to support MGS (CDFW 2019). While none of the preferred MGS food plants, such as spiny hopsage or winterfat, are present onsite, other plants known to provide forage for MGS do occur onsite. These plants consist of creosote bush, Cooper's boxthorn, fiddleneck and red-stemmed filaree (Leitner 2022). The presence of these plants along with friable soils for burrowing indicate that there is some MGS habitat present onsite, albeit low quality due to high levels of disturbance.

In addition, the results of the CNDDDB query showed that the most recent MGS occurrence was documented in 2007, approximately 10.44 miles northwest of the survey area. The closest MGS occurrence to the project was recorded in 1977 approximately 5.87 miles southwest of the project. Other MGS occurrences in the vicinity of the project were published in the 2021 status report for MGS which showed that one MGS was recorded visiting a camera trap station in the Victor Valley, west of the Mojave River and north of the Southern California Logistics Airport (Leitner 2021). Collectively, these occurrences suggest that despite the low densities of MGS present in the southern portion of the MGS range, a relict population may persist. Moreover, the closest MGS core population area (the Harper Lake core population) to the survey site is located over 20 miles to the north, and it is separated from the survey site by Highway 58 and Interstate 15, which may inhibit dispersing individuals.

Even though some MGS habitat is present within the survey area, it is unlikely that there is MGS occupancy along the utility alignment. Specifically, the high levels of disturbance along the road as well as the lack of connectivity between the site and known population areas make MGS presence highly unlikely. However, it should be noted that an MGS Habitat Assessment does not prove or disprove presence of MGS. Presence of MGS is evaluated using established survey protocols.

I hereby certify that the information in this report is true, and that it conforms to accepted biological standards. Please feel free to contact Karla Flores by phone at (619) 972-4319 or by email at kflores@dipodomys ecological.com with any questions regarding this report.

Sincerely,



Karla L. Flores
Principal Biologist, CEO

Figures and Attachments

Figure 1-Project Location

Figure 2-Survey Area

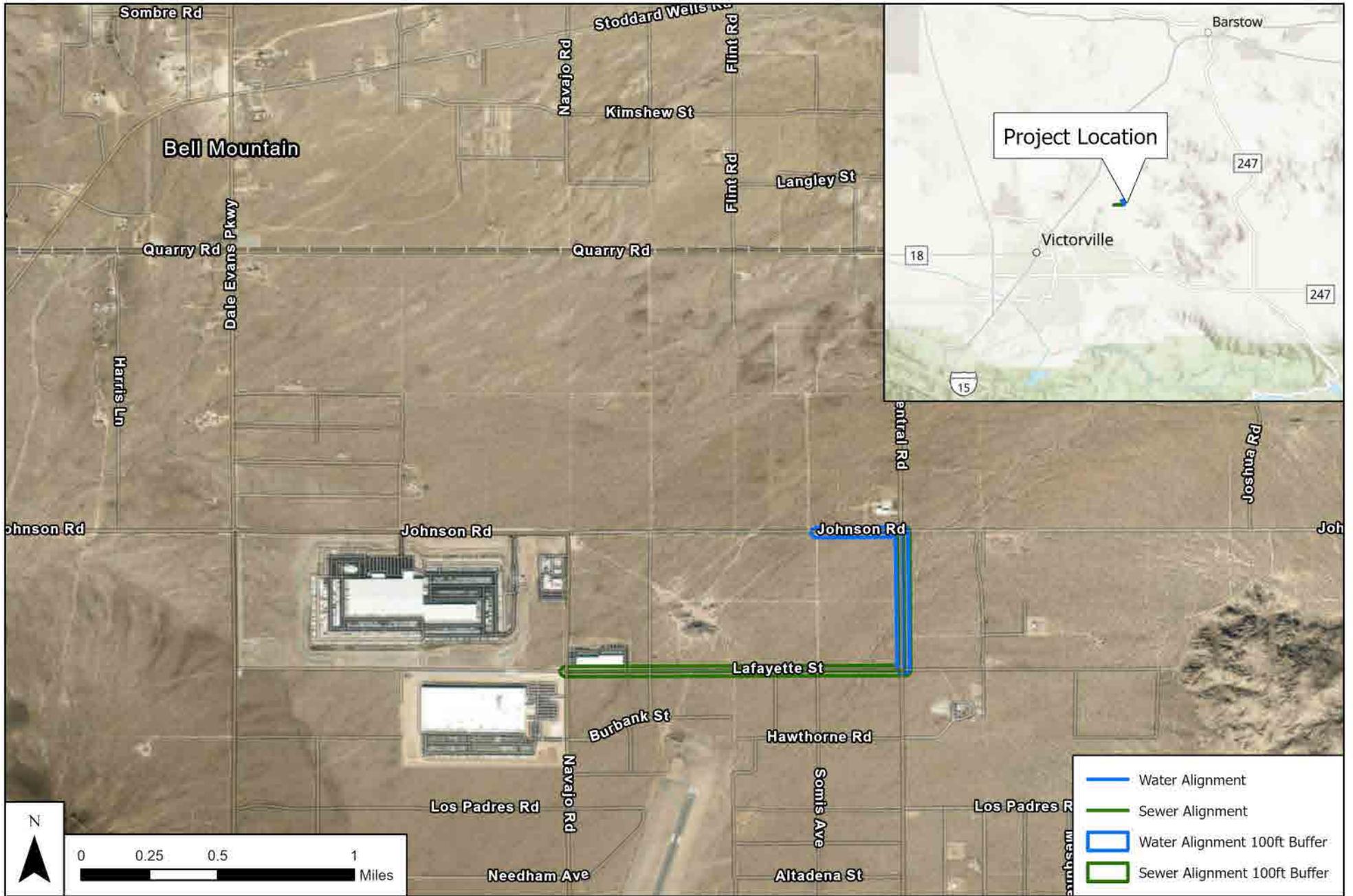
Figure 3- Historical MGS Occurrences

Figure 4- Vegetation Communities

Attachment A- Representative Photographs

References

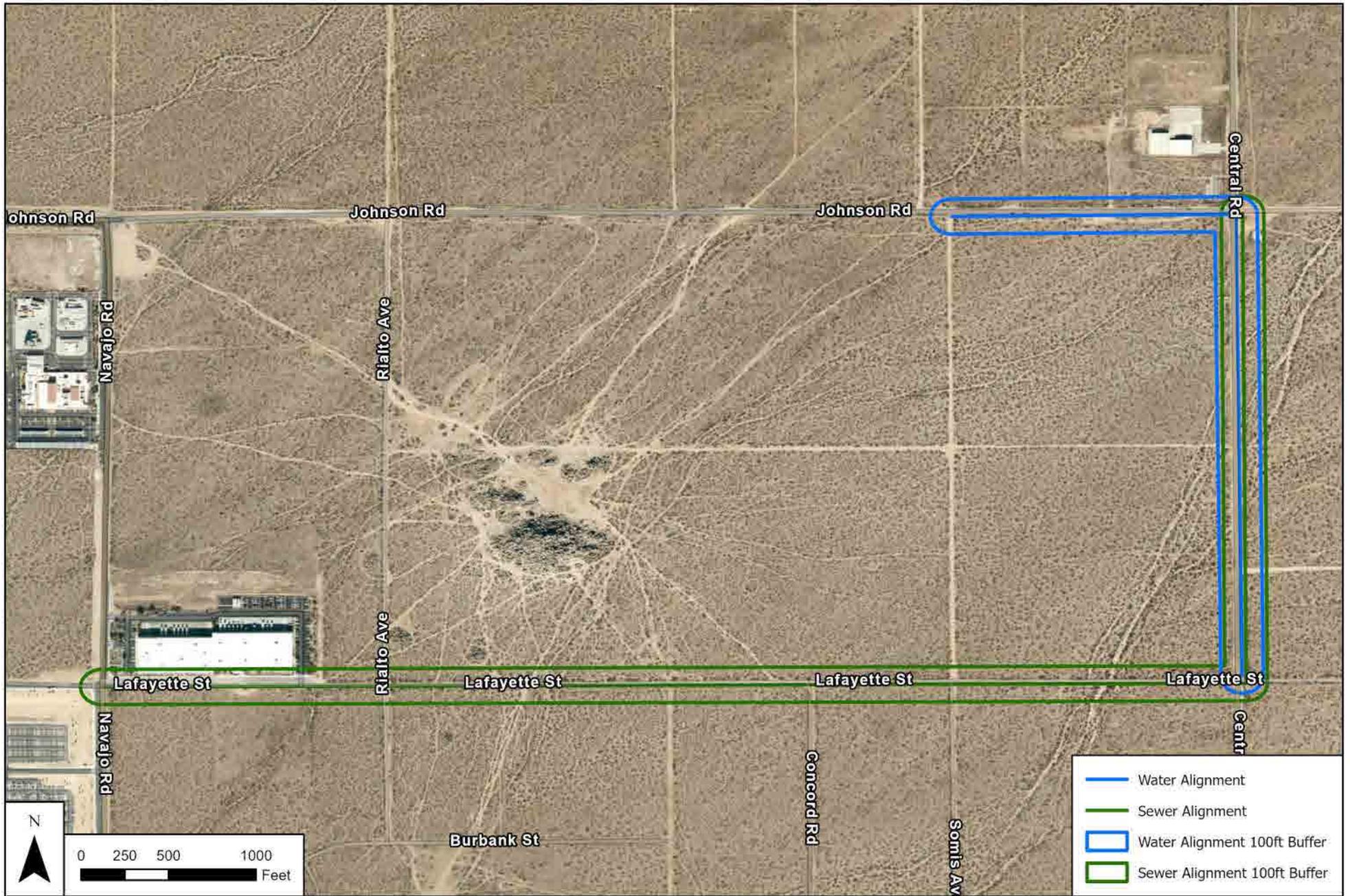
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- Recht, M.A. 1977. The biology of the Mohave ground squirrel, *Spermophilus mohavensis*. Ph.D. Dissertation, University of California, Los Angeles. 117 pp.
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SOURCE: ESRI

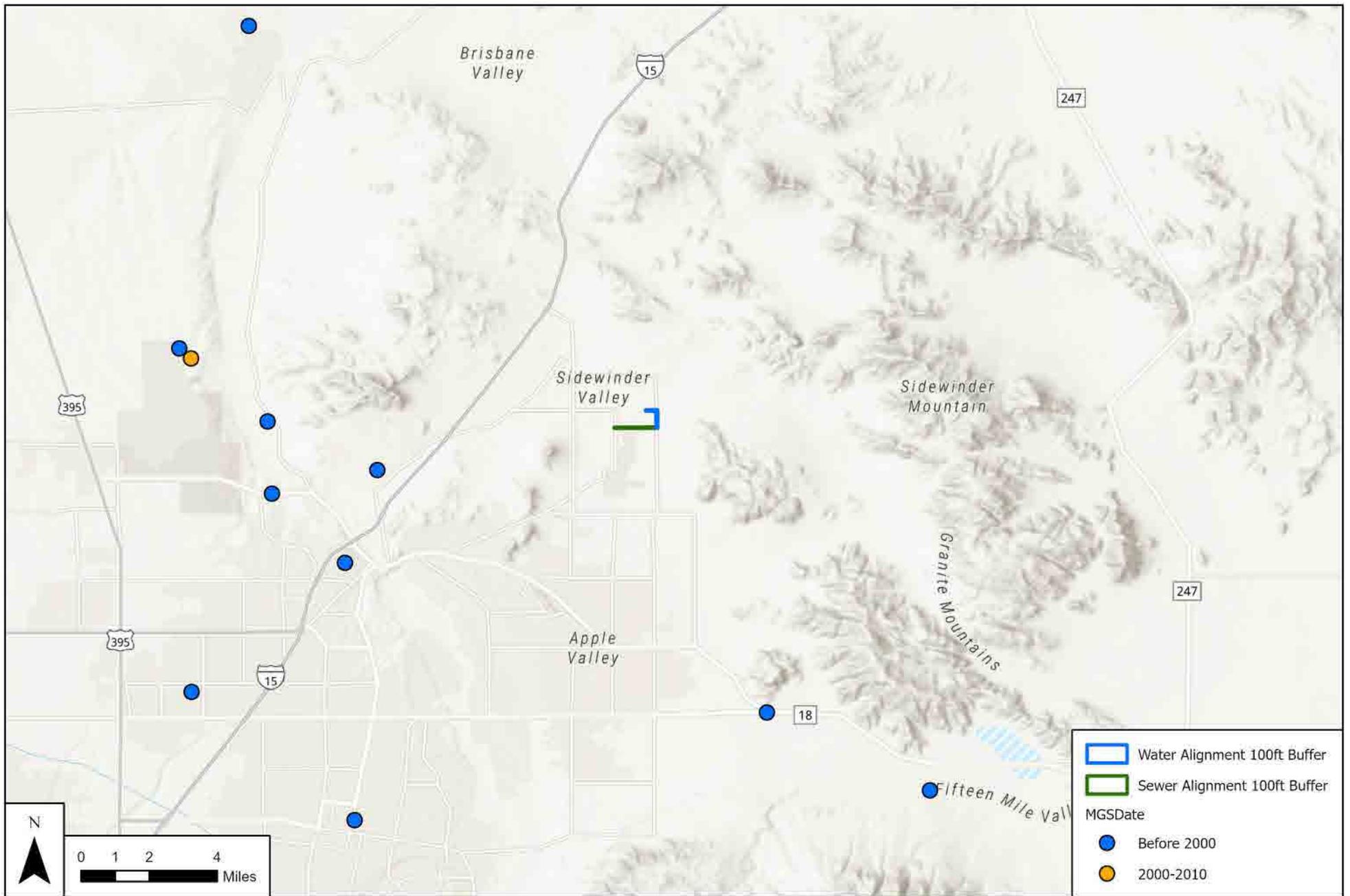
1M Warehouse Project

Figure 1
Project Location



SOURCE: ESRI

1M Warehouse Project



SOURCE: ESRI

1M Warehouse Project

Figure 3

Historical MGS Occurrences

Attachment A: Representative Photographs



Photo 1: Survey area along the west end of the water alignment on Johnson Road.



Photo 2: Survey area along water and sewer alignment on Central Road.



Photo 3: Survey area along the east end of the sewer alignment along LaFayette Street.

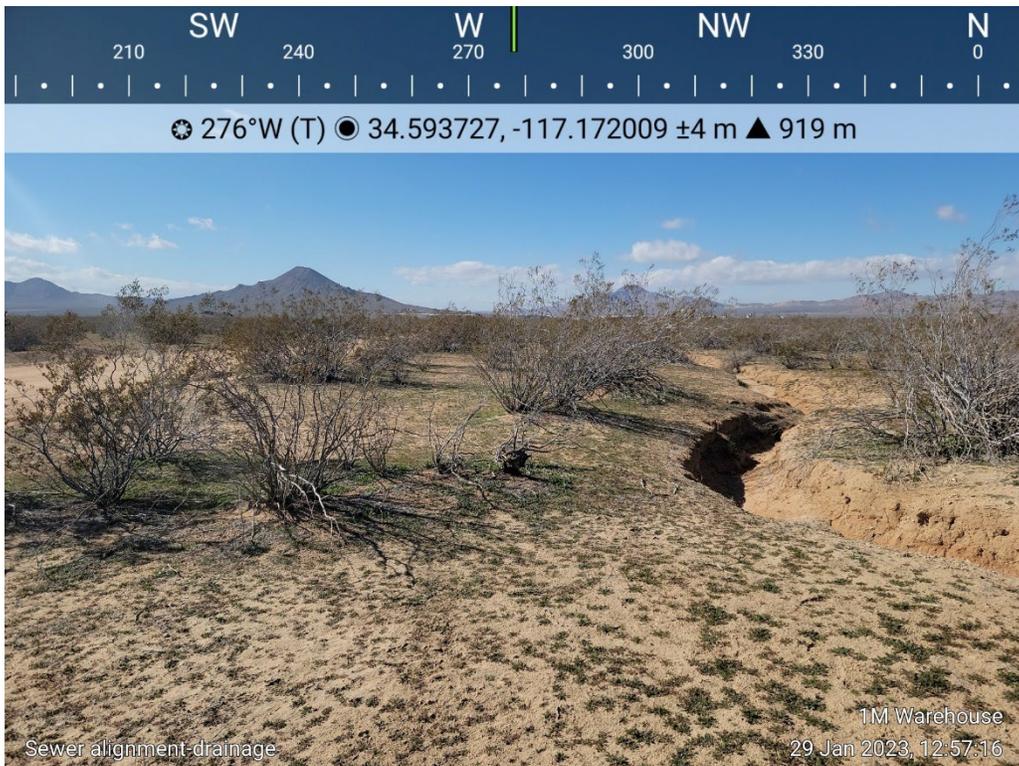


Photo 4: Ephemeral drainage along La Fayette Street.



Photo 5: Survey area along west end of the sewer alignment on Lafayette Street.



Photo 6: Survey area along west end of sewer alignment on Lafayette Street.

August 31, 2023

Britney Schultz
Dudek
605 Third Street
Encinitas, CA 92024
Via email: bschultz@dudek.com

Subject: Results of a Mohave Ground Squirrel Habitat Assessment for the new offsite extension for the 1M Warehouse Project, San Bernardino County, California

Dear Britney:

The purpose of this report is to document the results of a Mohave ground squirrel (*Xerospermophilus mohavensis*; MGS) Habitat Assessment conducted by Dipodomys Ecological Consulting, LLC (DEC) for an offsite expansion associated with the 1M Warehouse Project (project). Presented in this report are a description of the project, project location, MGS natural history, survey methodology, results of the MGS Habitat Assessment, and conclusions/recommendations.

Project Description and Location

Uncommon Developers proposes to develop a speculative industrial distribution warehouse, which will include approximately 1.8 miles of utility tie-in alignments for water (0.75 miles) and sewer (1.05 miles), totaling 45.3 acres of potential impacts. An MGS habitat assessment for this portion of the project was conducted on January 29, 2023. This MGS habitat assessment was conducted to determine the potential for MGS to occur within an additional parcel adjacent to Central Road, which is proposed to be paved with asphalt concrete.

The 315-meter area surveyed is located within the Town of Apple Valley in San Bernardino County, California. The new offsite area extends approximately 315 meters along Central Road south of La Fayette Street (**Figures 1-2**). The survey area consists primarily of disturbed creosote bush scrub. (**Figure 4**). The primary source of disturbance is past and current off-highway vehicle (OHV) activity as well as roadside debris. The project site is located on the U.S. Geological Survey (USGS) 7.5-minute Apple Valley North topographic quadrangle map within Section 22, Township 6 North and Range 3 West.

Mohave Ground Squirrel Natural History

Mohave ground squirrels (*Xerospermophilus mohavensis*) are medium-sized (210-230mm, 85-130g), diurnal squirrels. Their dorsal pelage is light gray to cinnamon-brown, while their ventral side is creamy. Unlike round-tailed ground squirrels, which occur sympatrically in the southeast portion of their range, MGS have a short, flat tail that is light-colored on its underside, and have brown cheeks instead of white.

MGS inhabit a small geographic area in the western Mojave Desert. This species ranges from Palmdale in the southwest, the Lucerne Valley in the southeast, Olancho in the northwest, and the Avawatz Mountains in the northeast (Gustafson 1993). Although occurrences in the southern portion of their range are rare,

occurrences have been documented on the California Natural Diversity Database (CNDDDB) as recently as 2011 (Figure 3). Vegetation communities (as classified by the California Native Plant Society) typically associated with MGS include Mojave Creosote Scrub, Shadscale Scrub, Desert Saltbush Scrub, Desert Sink Scrub, and Joshua Tree Woodland. MGS feed primarily on the leaves and seeds of forbs and shrubs. In the northern portion of their range, MGS have been found to feed on spiny hopsage (*Grayia spinosa*), winterfat (*Krascheninnikovia lanata*) and saltbush (*Atriplex* sp.), especially in early spring when forbs are unavailable, during summer when forbs have dried out, and during drought conditions (Leitner and Leitner 1998). Recent studies have also indicated that MGS feed on the following forbs and shrubs: freckled milkvetch (*Astragalus lentiginosus*), Mojave lupine (*Lupinus odoratus*), buckwheat (*Eriogonum* sp.), white mallow (*Eremalche exilis*), fiddleneck (*Amsinckia tessellata*), Russian thistle (*Salsola tragus*), desert pincushion (*Chaenactis* sp.), Cryptantha (*Cryptantha pterocarya*), Coreopsis (*Leptosyne bigelovii*), Valley lessingia (*Lessingia glandulifera*), desert dandelion (*Malacothrix glabrata*), Phacelia (*Phacelia* sp.), wire lettuce (*Stephanomeria* sp.) Anderson's boxthorn (*Lycium andersonii*), spiny horsebrush (*Tetradimya spinosa*), and Joshua tree (*Yucca brevifolia*) (Leitner and Leitner 2017).

MGS have adapted to live in hot desert environments by limiting their activity aboveground through estivation and hibernation. The timing of emergence from hibernation varies by location: in the northern portion of their range male MGS emerge mid-March (Leitner and Leitner 1998); however, in the southern portion of their range, MGS may emerge as early as mid-January (Recht 1977). Throughout their active period, MGS store fat in preparation for estivation, which typically occurs between July and September, but may occur as early as April or May during drought conditions (Leitner et al. 1995). MGS reproduction is dependent on fall and winter rains and individuals may forgo breeding entirely if low rainfall (<80mm) results in reduced herbaceous plants (Leitner and Leitner 2017).

Throughout the range of MGS, they may co-occur with antelope ground squirrels, round-tailed ground squirrels, and California ground squirrels. MGS may be misidentified with round-tailed ground squirrels, but this is unlikely to occur with antelope ground squirrels, because the latter species has white dorsal stripes that makes them resemble a chipmunk more than an MGS. California ground squirrels are notably larger and are not typically confused with MGS.

MGS are classified as threatened and are protected under the California Endangered Species Act. Primary threats to MGS include limited distribution, low abundance, and habitat loss from by converting suitable habitat to urban, suburban, agricultural, and military land uses (Gustafson 1993, Leitner and Leitner 2017).

Methods

Prior to carrying out the habitat assessment in the field, a nine-quad query of the California Natural Diversity Database (CNDDDB) was conducted to determine the locations of historical occurrences of MGS near the project site (**Figure 3**).

The MGS habitat assessment was conducted on August 25, 2023, by permitted biologists Karla Flores (MOU Principal Investigator, Scientific Collection Permit SC-10572) and Karl Fairchild (Principal Investigator, SCP S-182820007-18333-001). The habitat assessment consisted of walking meandering transects throughout the project footprint and a 100-foot buffer while recording vegetation communities and individual plants present highlighting those that provide forage for MGS. Not all annuals/forbs associated with MGS were recorded because the habitat assessment took place outside the flowering

season for some of these plants. The presence of burrows within the survey area was noted as an indication that the soil is friable and suitable for burrowing rodents.

Results

The results of the nine-quad CNDDDB query yielded 11 MGS occurrences recorded within the vicinity of the project. The most recent of these occurrences was recorded in 2007, approximately 13.91 miles northwest of the project across Interstate 15 (I-15). The closest MGS occurrence was documented in 1977, approximately 8.32 miles southwest of the survey area across I-15 (**Figure 3**).

The survey area consists of low to moderate MGS habitat consisting primarily of disturbed creosote bush scrub (**Figure 4**). In addition, the survey area is traversed by an ephemeral drainage channel extending east west across the survey area. Shrubs present onsite primarily consist of creosote bush (*Larrea tridentata*) and rubber rabbitbrush (*Ericameria nauseosa*). Annuals present included short-podded mustard (*Hirschfeldia incana*), fiddleneck (*Amsinckia tessellata*), red-stemmed filaree (*Erodium cicutarium*), cheatgrass (*Bromus tectorum*), foxtail brome (*Bromus madritensis*) and common Mediterranean grass (*Schismus barbatus*). Soils consist of Helendale-Bryman loamy sands and Cajon-Arizo Complex. Elevation onsite is approximately 3,018 feet above mean sea level.

Weather conditions during the habitat assessment were sunny, with temperatures between 90°F and 93°F, wind speeds between 1 and 3 mph, and 0% cloud cover. Wildlife observed during the survey included common raven (*Corvus corax*).

Conclusions and Recommendations

The new 315-meter offsite expansion for the 1M Warehouse consists primarily of disturbed creosote bush scrub, a vegetation community known to support MGS (CDFW 2019). While none of the preferred MGS food plants, such as spiny hopsage or winterfat, are present onsite, other plants known to provide forage for MGS do occur onsite. These plants consist of creosote bush, fiddleneck and red-stemmed filaree (Leitner 2022). The presence of these plants along with friable soils for burrowing indicate that there is some MGS habitat present onsite, albeit low-quality due to high levels of roadside disturbance.

In addition, the results of the CNDDDB query showed that the most recent MGS occurrence was documented in 2007, approximately 13.91 miles northwest of the survey area. The closest MGS occurrence to the project was recorded in 1977 approximately 8.32 miles southwest of the project. Both occurrences are across the I-15 Freeway, which likely presents a significant barrier to dispersal. No MGS occurrences have been recorded in CNDDDB south and east of this freeway since its construction, and MGS are potentially extirpated in the Apple and Sidewinder Valleys, where the proposed project will occur. Furthermore, Dipodomys Ecological Consulting conducted MGS protocol trapping in the vicinity of the project in 2022 (two grids) and 2023 (two grids) with negative results. The closest MGS core population area (the Harper Lake core population) to the survey site is located over 20 miles to the north, and it is separated from the survey site by Highway 58 and Interstate 15, which may inhibit dispersing individuals.

Even though some low-quality MGS habitat is present within the survey area, it is unlikely that there is MGS occupancy, due to high levels of disturbance along the road as well as the lack of connectivity between the site and known population areas. It should be noted, however, that an MGS Habitat

Assessment alone is not sufficient to demonstrate MGS absence to CDFW. Only MGS live trapping protocol surveys demonstrate absence to CDFW.

I hereby certify that the information in this report is true, and that it conforms to accepted biological standards. Please feel free to contact Karla Flores by phone at (619) 972-4319 or by email at kflores@dipodomysecological.com with any questions regarding this report.

Sincerely,



Karla L. Flores
Principal Biologist

Figures and Attachments

Figure 1-Project Location

Figure 2-Survey Area

Figure 3- Historical MGS Occurrences

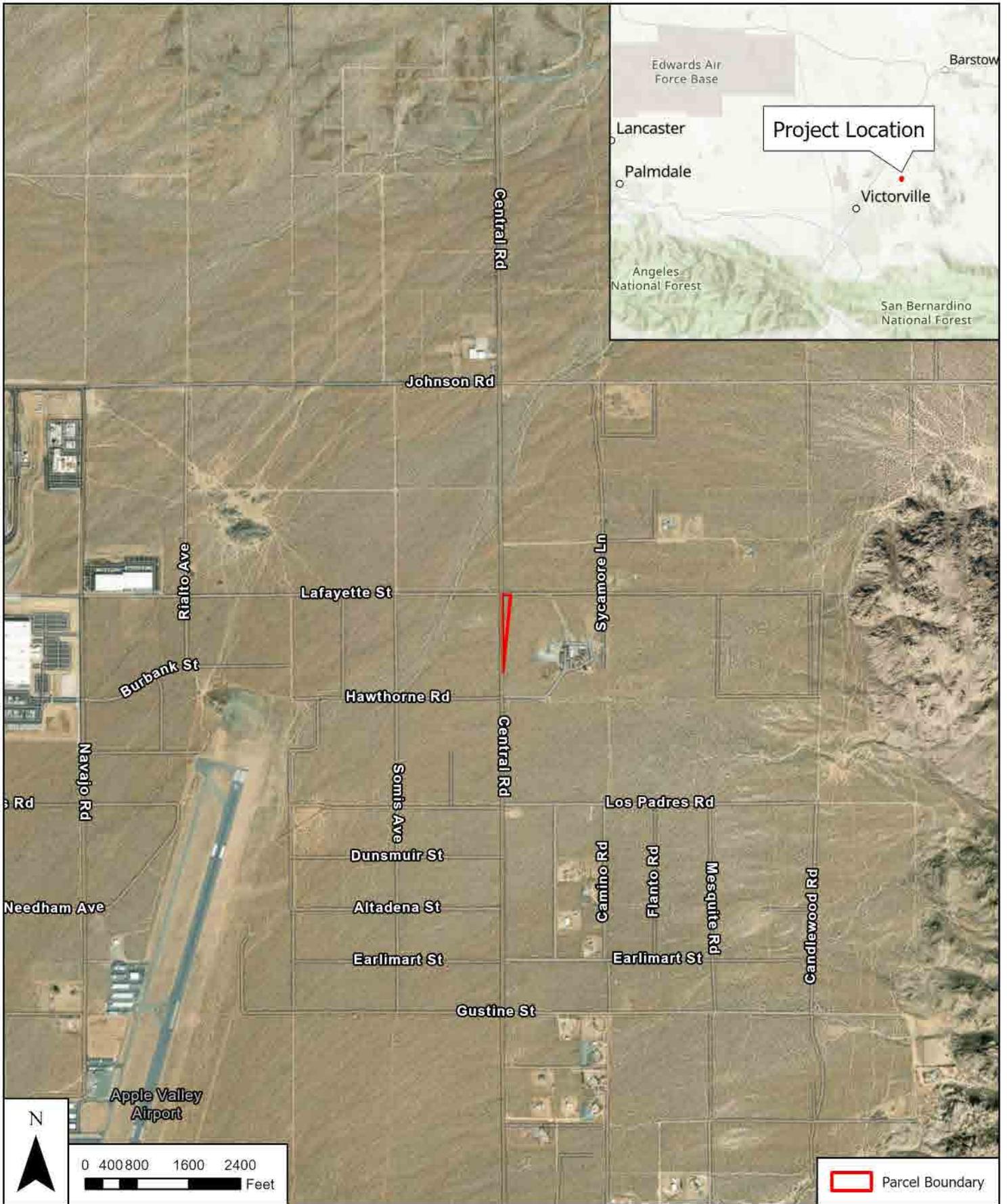
Figure 4- Vegetation Communities

Attachment A- Representative Photographs

References

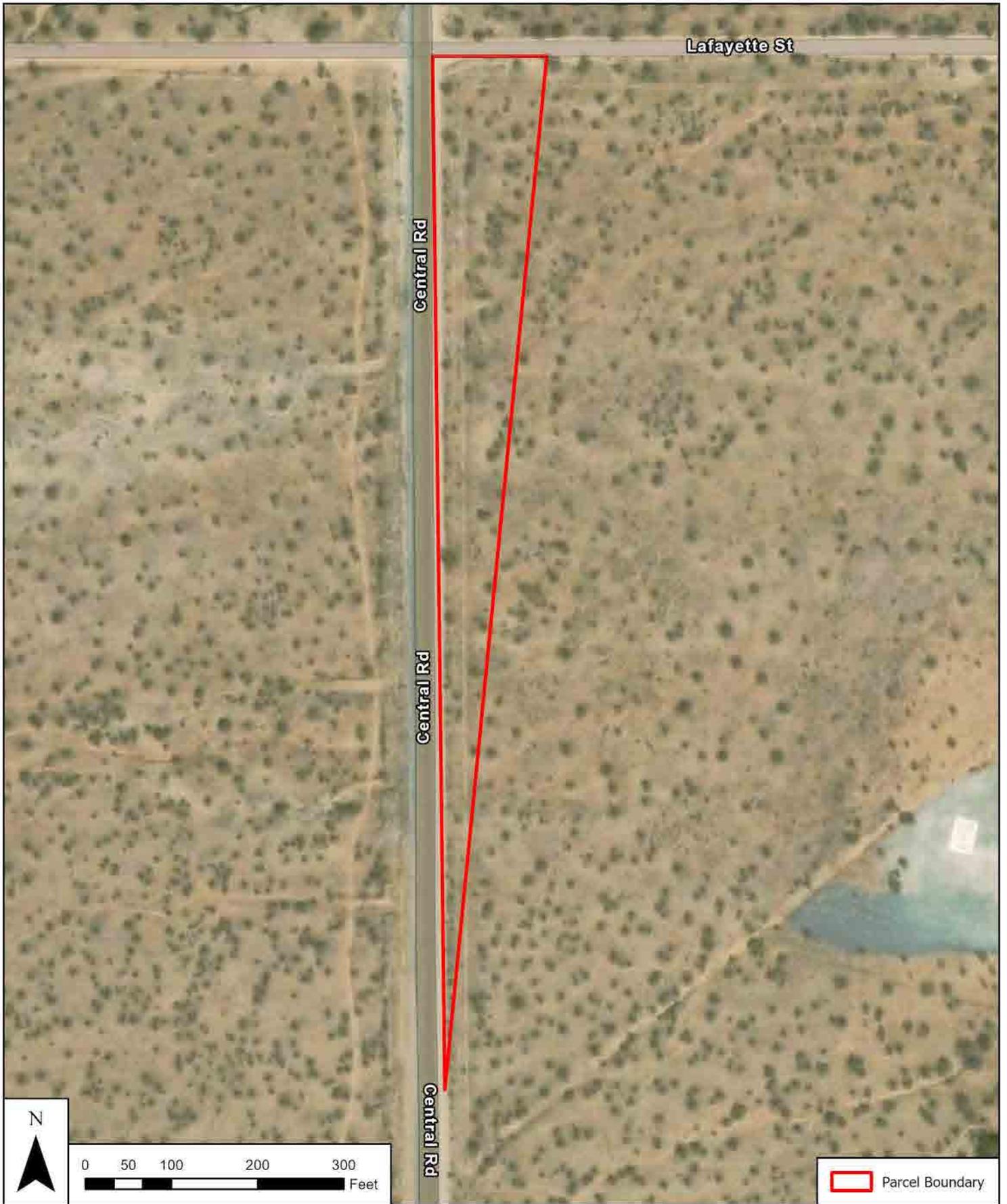
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- Leitner, P. and E.L. LaRue. 2014. Surveys for and Excavations of Suspected Mohave Ground Squirrel Burrows.
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- Recht, M.A. 1977. The biology of the Mohave ground squirrel, *Spermophilus mohavensis*. Ph.D. Dissertation, University of California, Los Angeles. 117 pp.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: <http://websoilsurvey.sc.egov.usda.gov/>. Accessed [8/29/2023].

Attachment A: Representative Photographs



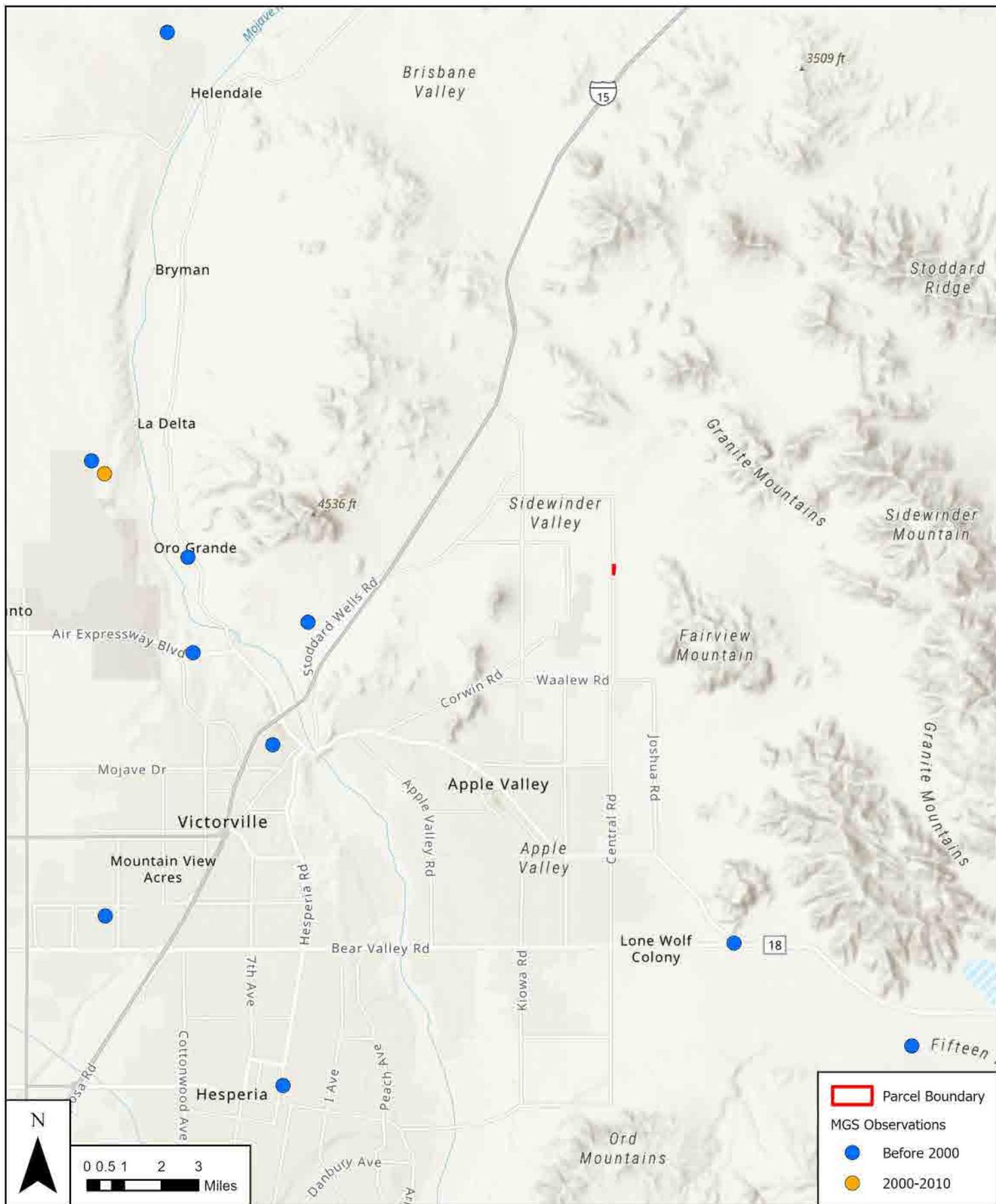
SOURCE: ESRI

1M Additional Parcel Habitat Assessment



SOURCE: ESRI

1M Additional Parcel Habitat Assessment



SOURCE: ESRI

1M Additional Parcel Habitat Assessment

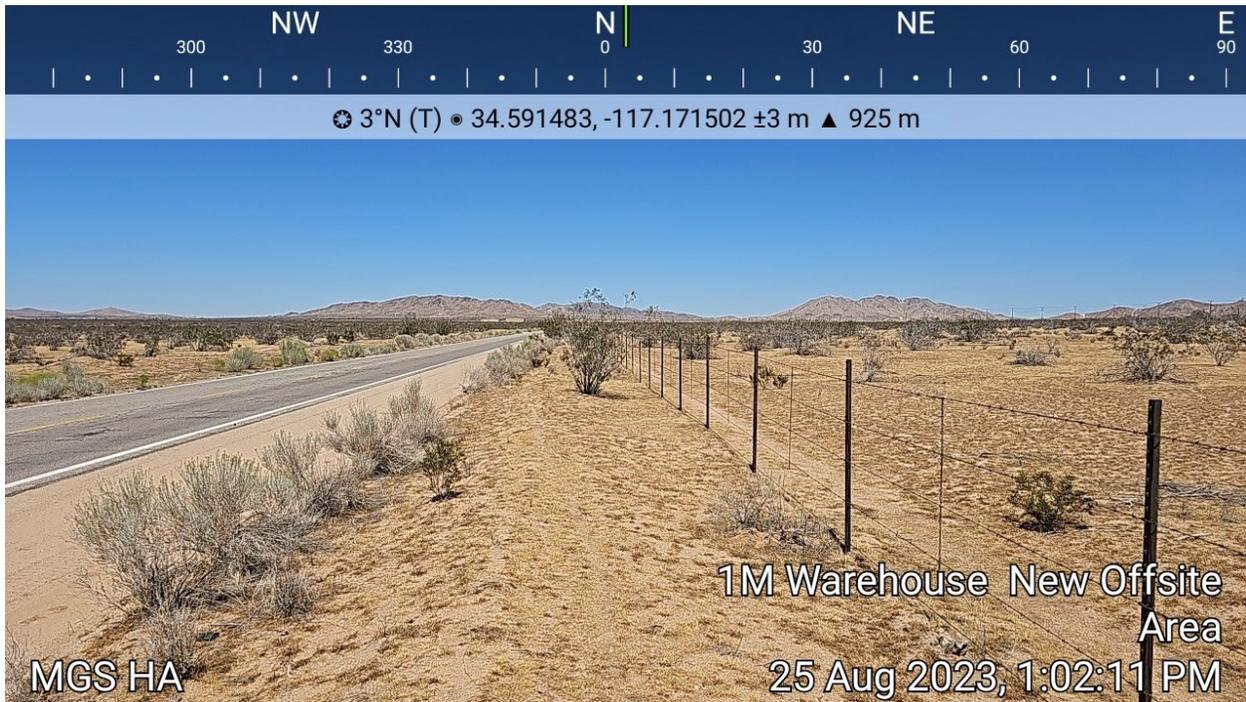


SOURCE: ESRI

1M Additional Parcel Habitat Assessment



Photograph 1: North end of new offsite area, facing east.



Photograph 2: South end of new offsite area, facing north.



Photograph 3: New offsite area, facing south.



Photograph 4: Surrounding vegetation at new offsite area, facing west.

Appendix E

Plant Compendium

Vascular Species

Eudicots

APIACEAE – ARROT FAMILY

Lomatium mohavense – Mojave desertparsley

APOCYNACEAE – DOGBANE FAMILY

* *Nerium oleander* – oleander

ASTERACEAE – SUNFLOWER FAMILY

Ambrosia acanthicarpa – flatspine bur ragweed

Ambrosia Dumosa – white bursage

Ambrosia salsola var. *Salsola* – burrobrush

Ambrosia Salsola – cheesebush

Artemisia californica – California sagebrush

Artemisia tridentata – big sagebrush

Chaenactis fremontii – pincushion flower

Chaenactis glabriuscula – yellow pincushion

Corethrogyne filaginifolia – sand-aster

Encelia actoni – Acton's brittle brush

Ericameria cooperi – Cooper's goldenbush

Ericameria linearifolia – narrowleaf goldenbush

Ericameria nauseosa – rubber rabbitbrush

Ericameria pinifolia – pinebush

Eriophyllum confertiflorum var. *confertiflorum* – golden-yarrow

Eriophyllum pringlei – Pringle's woolly sunflower

Gutierrezia californica – California match weed

Lasthenia gracilis – needle goldfields

Layia glandulosa – whitedaisy tidytips

Layia platyglossa – coastal tidytips

Malacothrix glabrata – smooth desertydandelion

Matricaria discoidea – disc mayweed

Pectis papposa var. *papposa* – manybristle chinchweed

Tetradymia axillaris – longspine horsebrush

Tetradymia stenolepis – Mojave cottonthorn

Uropappus lindleyi – Lindley's silverpuffs

BORAGINACEAE – BORAGE FAMILY

Amsinckia intermedia – common fiddleneck

Amsinckia menziesii – Menzies' fiddleneck

Amsinckia tessellate – bristly fiddleneck
Phacelia distans – distant phacelia
Phacelia fremontii – Fremont's phacelia
Phacelia tanacetifolia – lacy phacelia
Pholistoma membranaceum – white fiestaflower

BRASSICACEAE – MUSTARD FAMILY

- * *Brassica tournefortii* – Tournefort's mustard
- * *Hirschfeldia incana* – shortpod mustard
- * *Sisymbrium altissimum* – tall tumbledustard

CACTACEAE – CACTUS FAMILY

Cylindropuntia echinocarpa – silver cholla
Cylindropuntia ramosissima – branched pencil cholla
Opuntia basilaris var. *basilaris* – beavertail pricklypear

CHENOPODIACEAE – GOOSEFOOT FAMILY

- Atriplex canescens* – fourwing saltbush
Atriplex polycarpa – allscale
Chenopodium californicum – California goosefoot
Grayia spinosa – spiny hop sage
- * *Salsola tragus* – prickly Russian thistle

EUPHORBIACEAE – SPURGE FAMILY

Euphorbia albomarginata – whitemargin sandmat
Euphorbia micromera – Sonoran sandmat

FABACEAE – LEGUME FAMILY

Acmispon glaber – deer weed
Acmispon maritimus var. *maritimus* – coastal bird's-foot trefoil
Lupinus bicolor – miniature lupine

GERANIACEAE – GERANIUM FAMILY

- * *Erodium cicutarium* – redstem stork's bill

LAMIACEAE – MINT FAMILY

Salvia apiana – white sage
Salvia carduacea – thistle sage
Salvia columbariae – chia
Salvia dorrii var. *Pilosa* – purple sage
Scutellaria Mexicana – Mexican bladdersage

LOASACEAE – LOASA FAMILY

Mentzelia ravenii – no common name

Petalonyx thurberi – Thurber's sandpaper plant

MALVACEAE – MALLOW FAMILY

Sphaeralcea ambigua – desert globemallow

MONTIACEAE – MONTIA FAMILY

Calyptridium monandrum – common pussypaws

NYCTAGINACEAE – FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia* – California four o'clock

OROBANCHACEAE – BROOM-RAPE FAMILY

Castilleja exserta ssp. *Exserta* – exserted Indian paintbrush

PAPAVERACEAE – POPPY FAMILY

Eschscholzia californica – California poppy

Eschscholzia minutiflora – pygmy poppy

Platystemon californicus – creamcups

PLANTAGINACEAE – PLANTAIN FAMILY

Penstemon spectabilis – showy penstemon

POLEMONIACEAE – PHLOX FAMILY

Leptosiphon chrysanthus ssp. *Chrysanthus* – golden linanthus

POLYGONACEAE – BUCKWHEAT FAMILY

Eriogonum angulosum – anglestem buckwheat

Eriogonum fasciculatum var. *polifolium* – California buckwheat

Eriogonum fasciculatum – California buckwheat

Rumex hymenosepalus – canaigre dock

ROSACEAE – ROSE FAMILY

Adenostoma fasciculatum – chamise

Prunus fasciculata – desert almond

RUTACEAE – RUE FAMILY

Thamnosma montana – turpentinebroom

SOLANACEAE – NIGHTSHADE FAMILY

Lycium cooperi – peach thorn

TAMARICACEAE – TAMARISK FAMILY

* *Tamarix ramosissima* – tamarisk

VIBURNACEAE – MUSKROOT FAMILY

Sambucus Mexicana – blue elderberry

ZYGOPHYLLACEAE – CALTROP FAMILY

Larrea tridentata – creosote bush

Gymnosperms and Gnetophytes

CUPRESSACEAE – CYPRESS FAMILY

Juniperus californica – California juniper

EPHEDRACEAE – EPHEDRA FAMILY

Ephedra nevadensis – Nevada joint fir

Ephedra viridis – Mormon tea

Monocots

AGAVACEAE – AGAVE FAMILY

Hesperoyucca whipplei – chaparral yucca

Yucca brevifolia – Joshua tree

POACEAE – GRASS FAMILY

- * *Bromus diandrus* – ripgut brome
- * *Bromus rubens* – red brome
- Bromus sitchensis* var. *carinatus* – California brome
- * *Bromus tectorum* – cheatgrass
- Elymus elymoides* – squirreltail
- Festuca microstachys* – small fescue
- * *Hordeum murinum* – mouse barley
- Melica imperfecta* – smallflower melicgrass
- Poa secunda* – onesided bluegrass
- * *Schismus barbatus* – common Mediterranean grass
- Stipa speciosa* – desert needlegrass

THEMIDACEAE – BRODIAEA FAMILY

Dipterostemon capitatus ssp. *Capitatus* – bluedicks

* signifies introduced (non-native) species

Appendix F

Wildlife Compendium

Birds

Finches

FRINGILLIDAE – RINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus – house finch

Flycatchers

TYRANNIDAE – TYRANT FLYCATCHERS

Myiarchus cinerascens – ash-throated flycatcher

Sayornis nigricans – black phoebe

Sayornis saya – Say’s phoebe

Hawks

ACCIPITRIDAE – HAWKS, KITES, EAGLES, AND ALLIES

Buteo jamaicensis – red-tailed hawk

Hummingbirds

TROCHILIDAE – HUMMINGBIRDS

Calypte anna – Anna’s hummingbird

Jays, Magpies and Crows

CORVIDAE – CROWS AND JAYS

Corvus brachyrhynchos – American crow

Corvus corax – common raven

Larks

ALAUDIDAE – LARKS

Eremophila alpestris – horned lark

Mockingbirds and Thrashers

MIMIDAE – MOCKINGBIRDS AND THRASHERS

Toxostoma lecontei – LeConte’s thrasher

New World Vultures

CATHARTIDAE – NEW WORLD VULTURES

Cathartes aura – turkey vulture

Old World Sparrows

PASSERIDAE – OLD WORLD SPARROWS

* *Passer domesticus* – house sparrow

Old World Warblers and Gnatcatchers

POLIOPTILIDAE – GNATCATCHERS

Polioptila melanura – black-tailed gnatcatcher

Owls

STRIGIDAE – TYPICAL OWLS

Athene cunicularia – burrowing owl

Pigeons and Doves

COLUMBIDAE – PIGEONS AND DOVES

Zenaida macroura – mourning dove

Starlings and Allies

STURNIDAE – STARLINGS

* *Sturnus vulgaris* – European starling

Swallows

HIRUNDINIDAE – SWALLOWS

Hirundo rustica – barn swallow

Thrushes

TURDIDAE – THRUSHES

Sialia currucoides – mountain bluebird

Verdin

REMIZIDAE – PENDULINE TITS AND VERDINS

Auriparus flaviceps – verdin

Wood Warblers and Allies

PARULIDAE – WOOD-WARBLERS

Setophaga coronata – yellow-rumped warbler

Wrens

TROGLODYTIDAE – WRENS

Salpinctes obsoletus – rock wren

New World Sparrows

PASSERELLIDAE – NEW WORLD SPARROWS

Amphispiza bilineata – black-throated sparrow

Invertebrates

Butterflies

PAPILIONIDAE – SWALLOWTAILS

Papilio zelicaon – anise swallowtail

Mammals

Canids

CANIDAE – WOLVES AND FOXES

Vulpes macrotis arsipus – desert kit fox

Canis latrans – coyote

Domestic

CANIDAE – WOLVES AND FOXES

* *Canis familiaris* – domestic dog

Hares and Rabbits

LEPORIDAE – HARES AND RABBITS

Lepus californicus – black-tailed jackrabbit

Kangaroo Rats

HETEROMYIDAE – POCKET MICE AND KANGAROO RATS

Dipodomys sp. – kangaroo rat

Pocket Mice

HETEROMYIDAE – POCKET MICE AND KANGAROO RATS

Perognathus longimembris – little pocket mouse

Squirrels

SCIURIDAE – SQUIRRELS

Ammospermophilus leucurus – white-tailed antelope squirrel

Otospermophilus beecheyi – California ground squirrel

Reptiles

Lizards

PHRYNOSOMATIDAE – IGUANID LIZARDS

Phrynosoma platyrhinos – desert horned lizard

Uta stansburiana – common side-blotched lizard

TEIIDAE – WHIPTAIL LIZARDS

Aspidoscelis tigris – tiger whiptail

CROTAPHYTIDAE – COLLARED LIZARDS

Gambelia wislizenii – long-nosed leopard lizard

IGUANIDAE – IGUANAS

Dipsosaurus dorsalis – desert iguana

Snakes

COLUBRIDAE – COLUBRID SNAKES

Chionactis occipitalis – Mohave shovel-nosed snake

VIPERIDAE – VIPERS

Crotalus scutulatus – Mohave rattlesnake

* signifies introduced (non-native) species

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Appendix G

Special-Status Plants Potentially Occurring within the Biological Survey Area

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Acanthoscyphus parishii</i> var. <i>goodmaniana</i>	Cushenbury oxytheca	FE/None/1B.1	Pinyon and juniper woodland; carbonate, sandy/annual herb/May–Oct/3,995–7,795	Not expected to occur. The BSA is outside of the species' known elevation range and there is no suitable vegetation or carbonate soils present to support this species.
<i>Boechera dispar</i>	pinyon rockcress	None/None/2B.3	Joshua tree “woodland,” Mojavean desert scrub, pinyon and juniper woodland; granitic, gravelly/perennial herb/Mar–June/3,935–8,330	Not expected to occur. Although suitable Mojavean desert scrub and Joshua trees are present within the BSA, the BSA is outside of this species' known elevation range.
<i>Cryptantha clokeyi</i>	Clokey's cryptantha	None/None/1B.2	Mojavean desert scrub/annual herb/Apr/2,375–4,475	Low potential to occur. The BSA is within the species' known elevation range and contains suitable Mojavean desert scrub habitat capable of supporting this species; however, there are no CNDDDB occurrence records within 5 miles of the BSA (CDFW 2022). The nearest CNDDDB occurrence is approximately 15 miles east of the BSA (CDFW 2022). Furthermore, this species would have been detected, if present, during the April 2023 rare plant survey as the survey was conducted during this species' known blooming period.
<i>Cymopterus deserticola</i>	desert cymopterus	None/None/1B.2	Joshua tree woodland, Mojavean desert scrub; sandy/perennial herb/Mar–May/2,065–4,920	Low potential to occur. The BSA is within the species' known elevation range and contains suitable Mojavean desert scrub habitat capable of supporting this species; however, there are no CNDDDB occurrence records within 5 miles of the BSA (CDFW 2022).
<i>Cymopterus multinervatus</i>	purple-nerve cymopterus	None/None/2B.2	Mojavean desert scrub, pinyon and juniper woodland; gravelly (sometimes), sandy (sometimes)/perennial herb/Mar–Apr/2,590–5,905	Low potential to occur. The BSA contains suitable Mojavean desert scrub habitat capable of supporting this species; however, the nearest CNDDDB occurrence is approximately 5.1 miles southwest of the BSA and the species is considered possibly extirpated (CDFW 2022). Furthermore, this species would have been detected, if present, during the April 2023 rare plant survey as the survey was conducted during this species' known blooming period.

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Diplacus mohavensis</i>	Mojave monkeyflower	None/None/1B.2	Joshua tree woodland, Mojavean desert scrub; gravelly (sometimes), sandy (sometimes), washes (often)/annual herb/ Apr–June/1,965–3,935	Not expected to occur. The BSA contains suitable Mojavean desert scrub capable of supporting this species. Additionally, there are scattered Joshua trees present within the BSA, and the soils are sandy. There is a CNDDDB occurrence approximately 2 miles from the BSA observed in 2005, and numerous other CNDDDB occurrences approximately 8 miles west and northwest of the BSA (CDFW 2022). As such, this species was a target species for the April 2023 rare plant survey. This species was not observed during the focused April 2023 rare plant survey and is considered absent from the BSA.
<i>Dudleya abramsii</i> ssp. <i>affinis</i>	San Bernardino Mountains dudleya	None/None/1B.2	Pebble (Pavement) plain, pinyon and juniper woodland, upper montane coniferous forest; carbonate (sometimes), granitic (sometimes)/perennial herb/Apr–July/4,100–8,530	Not expected to occur. The BSA is outside of the species' known elevation range and there is no suitable vegetation present to support this species.
<i>Eremothera boothii</i> ssp. <i>boothii</i>	Booth's evening-primrose	None/None/2B.3	Joshua tree woodland, Pinyon and juniper woodland/annual herb/Apr–Sep/2,670–7,870	Not expected to occur. The BSA is within the species' known elevation range; however, although there are scattered Joshua trees present, there is no suitable vegetation (i.e., Joshua tree woodland or pinyon and juniper woodland) present to support this species. Based on locational records (Jepson Flora Project 2022) and the Consortium of California Herbaria (CCH 2022), the species is restricted to wash habitat (such as the Mojave River), within this region, which is absent from the BSA. Furthermore, although there are several documented occurrences along the Mojave River, morphology suggests introgression with <i>E. boothii</i> ssp. <i>intermedia</i> , and additional fieldwork is needed (CDFW 2022).

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Eriophyllum mohavense</i>	Barstow woolly sunflower	None/None/1B.2	Chenopod scrub, Mojavean desert scrub, playas/annual herb/Mar–May/1,640–3,145	Low potential to occur. The BSA is within the species' known elevation range and contains suitable Mojavean desert scrub habitat capable of supporting this species; however, there are no CNDDDB occurrence records within 5 miles of the BSA (CDFW 2022). The nearest CNDDDB occurrence is approximately 7.1 miles northeast of the BSA (CDFW 2022). Furthermore, the BSA is outside of the species' known geographic range, which occurs north of the BSA near Kramer Junction and Barstow (CCH 2022). Furthermore, this species would have been detected, if present, during the April 2023 rare plant survey as the survey was conducted during this species' known blooming period.
<i>Loeflingia squarrosa</i> var. <i>artemisiarum</i>	sagebrush loeflingia	None/None/2B.2	Desert dunes, Great Basin scrub, Sonoran desert scrub; sandy/annual herb/ Apr–May/2,295–5,295	Low potential to occur. The BSA is within the species' known elevation range and contains suitable desert scrub habitat capable of supporting this species; however, there are no CNDDDB occurrence records within 5 miles of the BSA (CDFW 2022). In addition, according to Jepson eFlora (2022), this species occurs on sand and gravel along hills, mesas, and dunes, which are not present in the BSA. Furthermore, this species would have been detected, if present, during the April 2023 rare plant survey as the survey was conducted during this species' known blooming period.
<i>Opuntia basilaris</i> var. <i>brachyclada</i>	short-joint beavertail	None/None/1B.2	Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland/perennial stem/ Apr–June (Aug)/1,390–5,905	Not expected to occur. The BSA is within the species' known elevation range and contains suitable Mojavean desert scrub habitat capable of supporting this species; however, there are no CNDDDB occurrence records within 5 miles of the BSA (CDFW 2022), and this conspicuous stem succulent would have been detected during the focused desert native plant mapping conducted in 2022.
<i>Pediomelum castoreum</i>	Beaver Dam breadroot	None/None/1B.2	Joshua tree woodland, Mojavean desert scrub/	Not expected to occur. The BSA is within the species' known elevation range and contains suitable desert scrub habitat to support this species. There are multiple CNDDDB occurrences surrounding the BSA, with the closest

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			perennial herb/Apr–May/ 2,000–5,000	occurrences approximately 7 miles from the BSA (CDFW 2022). As such, this species was a target species for the April 2023 rare plant survey. This species was not observed during the focused April 2023 rare plant survey and is considered absent from the BSA.
<i>Saltugilia latimeri</i>	Latimer's woodland-gilia	None/None/1B.2	Chaparral, Mojavean desert scrub, pinyon and juniper woodland; rocky or sandy, often granitic, sometimes washes/annual herb/ Mar–June/1,310–6,230	Not expected to occur. The BSA is within the species' known elevation range and contains suitable Mojavean desert scrub habitat capable of supporting this species; however, the BSA does not contain suitable granitic soils to support this species. Furthermore, there are no CNDDB occurrence records within 5 miles of the BSA, with the nearest occurrence more than 18 miles southeast of the BSA along the San Bernardino Mountain foothills (CDFW 2022).
<i>Scutellaria bolanderi</i> ssp. <i>austromontana</i>	southern mountains skullcap	None/None/1B.2	Chaparral, cismontane woodland, lower montane coniferous forest/perennial rhizomatous herb/ June–Aug/1,390–6,560	Not expected to occur. The BSA is within the species' known elevation range; however, there is no suitable vegetation present to support this species.
<i>Symphyotrichum defoliatum</i>	San Bernardino aster	None/None/1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, meadows and seeps, valley and foothill grassland/ perennial rhizomatous herb/July–Nov/5–6,690	Not expected to occur. The BSA is within the species' known elevation range; however, there is no suitable vegetation present to support this species.
<i>Yucca brevifolia</i>	western Joshua tree	None/SC/None	Great Basin grassland, Great Basin scrub, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland, Sonoran desert scrub, valley and foothill grassland/perennial leaf	Observed. Seven western Joshua tree individuals were observed within the BSA. Of the seven trees found within the BSA, only one individual was observed within the project site; the remaining six individuals were observed within the 100 foot buffer.

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			succulent/Apr–May/ 1,310–6,560	

Notes: BSA = biological survey area; CRPR = California Rare Plant Rank; CNDDDB = California Natural Diversity Database

Status Designations

FE: Federally endangered

SC: State listed candidate species

CRPR (California Rare Plant Rank):

CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere

CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere

CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere

Threat Rank:

- 1: seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
- 2: moderately threatened in California (20%–80% of occurrences threatened/moderate degree and immediacy of threat)
- 3: not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

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Jepson Flora Project. 2022. Jepson eFlora. Berkeley, California: University of California. Accessed September 2022 at <http://ucjeps.berkeley.edu/interchange/index.html>.

Appendix H

Special-Status Wildlife Potentially Occurring within the
Biological Survey Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Amphibians				
<i>Anaxyrus californicus</i>	arroyo toad	FE/SSC	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur. The BSA lacks suitable surface water features necessary for breeding, and no surface water features occur adjacent to the BSA. Closest known occurrence is approximately 7.5 miles southwest of the BSA, in the Mojave River (CDFW 2022a).
<i>Rana draytonii</i>	California red-legged frog	FT/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	Not expected to occur. The BSA lacks any surface water features required by this species, as well as riparian woodlands and shrubby or emergent vegetation.
Reptiles				
<i>Emys marmorata</i>	western pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. The BSA lacks surface water features required by this species. In addition, the BSA does not occur adjacent to any surface water features. The closest known occurrence is approximately 9.1 miles southwest of the BSA (CDFW 2022a).
<i>Gopherus agassizii</i>	Mojave desert tortoise	FT/ST, SCE	Arid and semi-arid habitats in Mojave and Sonoran Deserts, including sandy or gravelly locations along riverbanks, washes, sandy dunes, canyon bottoms, desert oases, rocky hillsides, creosote flats, and hillsides	Moderate potential to occur. Protocol surveys completed on October 4, 2022, and January 17, 2023, resulted in no observations of active desert tortoise burrows, active desert tortoise sign (i.e., scat, drink basins, footprints), or observations of individual desert tortoises. However, because the BSA supports suitable habitat for the species, the nearest known occurrence is approximately 3.3 miles northwester of the BSA and documented in 2004 (CDFW 2022a), and the BSA is located within high probability predicted habitat for the species (CDFW 2022b), this species has a moderate potential to occur within the BSA.

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
<i>Phrynosoma blainvillii</i>	Blainville's horned lizard	None/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains, including coastal scrub, chaparral, valley-foothill hardwood, conifer, riparian, pine-cypress, juniper, and annualgrassland habitats	Not expected to occur. Although the BSA contains sandy soils, it lacks coastal scrub, chaparral, and annual grasslands. Closest occurrence is approximately 10.3 miles west of the BSA (CDFW 2022a).
Birds				
<i>Agelaius tricolor</i> (nesting colony)	tricolored blackbird	BCC/SSC, ST	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	Not expected to occur. The BSA lacks marsh/wetland habitats with cattails or tules required by this species.
<i>Aquila chrysaetos</i> (nesting and wintering)	golden eagle	None/FP, WL	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Not expected to occur. The BSA includes open expanses with short vegetation for foraging, and a golden eagle nesting site is approximately 1.8 miles southwest of the BSA (CDFW 2022a); however, the BSA lacks hilly topography preferred by the species for wintering, and lacks suitable large trees and cliffs required for nesting.
<i>Asio otus</i> (nesting)	long-eared owl	BCC/SSC	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats	Not expected to occur. The BSA lacks riparian habitat, live oak thickets, and dense stands of trees and woodlands.
<i>Athene cunicularia</i> (burrow sites and some wintering sites)	burrowing owl	BCC/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Observed. An active burrow (i.e., feathers, whitewash, casts, and fresh prey remains) was observed on June 3, 2022. On April 19, 2023, an individual burrowing owl was incidentally observed flushing from this burrow.
<i>Buteo swainsoni</i> (nesting)	Swainson's hawk	None/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas, such as wheat and alfalfa fields and pasture	Low potential to occur. The BSA lacks isolated trees to provide suitable nesting habitat. In addition, the BSA lacks grasslands and agricultural areas where this species prefers to forage. The closest known occurrence was documented approximately 2.2 miles from the BSA (CDFW 2022a).

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
<i>Coccyzus americanus occidentalis</i> (nesting)	western yellow-billed cuckoo	FT/SE	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. Prime habitat for this species is along river systems and dense forests, which is not within or adjacent to the BSA.
<i>Empidonax traillii extimus</i> (nesting)	southwestern willow flycatcher	FE/SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. Mostly inhabits wet floodplains in riparian habitats, which are not found within the BSA.
<i>Icteria virens</i> (nesting)	yellow-breasted chat	None/SSC	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Not expected to occur. The BSA lacks areas of dense riparian thickets and shrubbery.
<i>Lanius ludovicianus</i> (nesting)	loggerhead shrike	None/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Moderate potential to occur. This species inhabits open areas with short vegetation, similar to what can be found on the BSA. The closest known occurrence was documented approximately 2 miles north of the BSA (CDFW 2022a).
<i>Piranga rubra</i> (nesting)	summer tanager	None/SSC	Nests and forages in mature desert riparian habitats dominated by cottonwoods and willows	Not expected to occur. The BSA lacks this species' preferred habitat of mature desert riparian habitats dominated by cottonwood and willows. Closest known occurrence is approximately 8.5 miles southwest of the BSA (CDFW 2022a).
<i>Setophaga petechia</i> (nesting)	yellow warbler	None/SSC	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Not expected to occur. This species is often found in thickets near streams and wetlands, which the BSA lacks. The closest known occurrence is approximately 8.5 miles west of the BSA (CDFW 2022a).
<i>Toxostoma bendirei</i>	Bendire's thrasher	BCC/SSC	Nests and forages in desert succulent shrub and Joshua tree habitat in Mojave Desert; nests in yucca, cholla, and other thorny scrubs or small trees	Moderate potential to occur. This species is known to nest in yucca, cholla, and other desert shrubs. The nearest known occurrence is approximately 5 miles east of the BSA (CDFW 2022a).

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
<i>Toxostoma lecontei</i>	LeConte's thrasher	BCC/SSC	Nests and forages in desert wash, desert scrub, alkali desert scrub, desert succulent, and Joshua tree habitats; nests in spiny shrubs or cactus	Observed. This species was incidentally observed during 2022 protocol Mohave ground squirrel trapping surveys; however, the location of the observation was not documented. The BSA supports suitable foraging habitat (desert scrub) and nesting habitat (spiny shrubs and cactus).
<i>Vireo bellii pusillus</i> (nesting)	least Bell's vireo	FE/SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur. This species is found in low-elevation, dense riparian habitats, which do not occur within the BSA. The nearest known occurrence is approximately 8.4 miles southwest of the BSA (CDFW 2022a).
<i>Vireo vicinior</i> (nesting)	gray vireo	None/SSC	Nests and forages in pinyon-juniper woodland, oak, and chamise and redshank chaparral	Not expected to occur. The BSA lacks pinyon-juniper woodlands, oak, chamise, and redshank, which are preferred by this species.
Fishes				
<i>Siphateles bicolor mohavensis</i>	Mohave tui chub	FE/FP, SE	Lacustrine ponds or pools; 4 feet minimum water depth; freshwater flow; mineralized and alkaline environment; habitat for aquatic invertebrate prey and egg attachment substrate; <i>Ruppia maritima</i> preferred for egg attachment and thermal refuge in summer months	Not expected to occur. The BSA lacks any surface water features.
Mammals				
<i>Antrozous pallidus</i>	pallid bat	None/SSC	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in human-built structures and trees	Not expected to roost; moderate potential to forage. The BSA provides suitable desert scrub foraging habitat, but lacks rocky outcrops, human-made structures, and trees for roosting. The nearest known occurrence is approximately 10.5 miles south of the BSA (CDFW 2022a).

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
<i>Chaetodipus fallax pallidus</i>	pallid San Diego pocket mouse	None/SSC	Desert wash, desert scrub, desert succulent scrub, and pinyon–juniper woodland	Low potential to occur. This species is often found in coastal sage scrub, but can also be found in desert areas. However, the species was not observed during protocol small mammal surveys, and the nearest known occurrence is approximately 6 miles southeast of the BSA (CDFW 2022a).
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None/SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, human-built structures, and tunnels	Not expected to occur. The BSA lacks mesic forests and riparian habitats, as well as limestone caves and human-made structures. The closest known occurrence is approximately 9.6 miles west of the BSA (CDFW 2022a).
<i>Microtus californicus mohavensis</i>	Mojave river vole	None/SSC	Wet, weedy, herbaceous areas along the Mojave River	Not expected to occur. The BSA is not along nor adjacent to the Mojave River where this species is known to occur, and the BSA does not contain wet herbaceous vegetation.
<i>Spermophilus (Xerospermophilus) mohavensis</i>	Mohave ground squirrel	None/ST	Desert scrub habitats, including those dominated by creosote bush and burrobush, desert sink scrub, and desert saltbush scrub	Not expected to occur. Mohave ground squirrel was not observed during the 2022 focused protocol surveys within the project site. The project site contains suitable creosote bush habitat capable of supporting this species, and small mammal burrow complexes were observed during the biological reconnaissance; however, the site is in proximity to major roads. In addition, a habitat assessment conducted in January 2023 within the off-site improvement area determined this species is unlikely to occupy the off-site improvement areas due to high levels of disturbance as well as a lack of connectivity between this area and known population areas. The nearest known occurrence is approximately 6.9 miles southwest of the BSA (CDFW 2022a).

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
<i>Taxidea taxus</i>	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils.	Moderate potential to occur. The BSA contains suitable open creosote flats with friable soils, and potentially suitable burrows were observed and mapped within the BSA.
<i>Vulpes macrotis arsipus</i>	desert kit fox	None/None ¹	Sparse vegetated scrub habitats such as creosote scrub communities that support abundant rodent populations (Center for Biological Diversity 2013).	Observed. Observed within the BSA via a camera trap that was deployed as part of the Mohave ground squirrel focused surveys.

Notes: BSA = biological study area; CNDDDB = California Natural Diversity Database.

¹ Section 4000 of the California Fish and Game Code defines “kit fox” as a fur-bearing animal.

Status Designations

Federal

BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern

FE: Federally listed as endangered

FT: Federally listed as threatened

State

FP: California Fully Protected species

SCE: State candidate for listing as endangered

SE: State listed as endangered

SSC: California Species of Special Concern

ST: State listed as threatened

WL: California Watch List species

References

- CDFW (California Department of Fish and Wildlife). 2022a. RareFind 5, Version 5.2.14. California Natural Diversity Database. Sacramento, California: CDFW, Biogeographic Data Branch. Accessed September 2022. <https://map.dfg.ca.gov/rarefind/view/RareFind.aspx>.
- CDFW. 2022b. "Biogeographic Information Observation System: CDFW BIOS Viewer." <https://apps.wildlife.ca.gov/bios6/>.
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Appendix I

Burrowing Owl Relocation Plan

Burrowing Owl Relocation Plan

1M Warehouse Project

SEPTEMBER 2023

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
CDFW	California Department of Fish and Wildlife
MM	Mitigation Measure
Plan	Burrowing Owl Relocation Plan
project	1M Warehouse Project

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1 Purpose and Objectives

The following Burrowing Owl Relocation Plan (Plan) describes the burrowing owl (*Athene cunicularia*) monitoring and reporting requirements during construction of the 1M Warehouse Project (project) as recommended in the Biological Resources Technical Report prepared for the project (Dudek 2023). This Plan was prepared in accordance with **Mitigation Measure (MM) BIO-12** per the Biological Resources Technical Report. The full text of **MM-BIO-12** is provided in Section 1.1 herein for ease of reference.

This Plan is intended to identify when passive displacement of burrowing owls will be used, the methods that will be implemented to perform passive displacement, and the monitoring and reporting that will be required if passive displacement is performed. More specifically, this Plan includes descriptions of the following requirements for passive displacement procedures:

- Methods to confirm a burrow is active
- Measures that could be used to avoid and minimize impacts
- Methods to be used to determine vacancy and excavation timing
- Methods for burrow excavation
- Methods for removal of other potential owl burrow surrogates or refugia
- Requirements for reporting on the excavation and closure of burrows
- Requirements for monitoring to evaluate success
- Requirements for reporting on long-term burrowing owl deterrence of the impacted site

1.1 Mitigation Measure BIO-12

This Plan was prepared in accordance with **MM-BIO-12**, per the project's Biological Resources Technical Report (Dudek 2022). The full text of **MM-BIO-12** is provided below:

MM-BIO-12 Pre-Construction Surveys for Burrowing Owl and Avoidance. One pre-construction burrowing owl survey shall be completed no more than 14 days before initiation of site preparation or grading activities, and a second survey shall be completed within 24 hours of the start of site preparation or grading activities. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction surveys, the project site shall be resurveyed. Surveys for burrowing owl shall be conducted in accordance with protocols established in the California Department of Fish and Wildlife's 2012 (or most recent version) Staff Report on Burrowing Owl Mitigation.

If burrowing owls are detected, the Burrowing Owl Relocation Plan shall be implemented in consultation with the California Department of Fish and Wildlife (CDFW). As required by the Burrowing Owl Relocation Plan, disturbance to burrows shall be avoided during the nesting season (February 1 through August 31). Buffers shall be established around occupied burrows in accordance with guidance provided in CDFW's Staff Report on Burrowing Owl Mitigation. No project activities shall be allowed to encroach into established buffers without the consent of a monitoring biologist. The buffer shall remain in place until it is determined that occupied burrows have been vacated or the nesting season has completed.

Outside of the nesting season, passive owl relocation techniques approved by CDFW shall be implemented. Owls shall be excluded from burrows in the immediate project area and within a buffer zone by installing one-way doors in burrow entrances. These doors shall be placed at least 48 hours prior to ground-disturbing activities. The project site shall be monitored daily for 1 week to confirm owl departure from burrows prior to any ground-disturbing activities. Compensatory mitigation for permanent loss of owl habitat shall be provided following the guidance in CDFW's Staff Report on Burrowing Owl Mitigation.

Where possible, burrows shall be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe shall be inserted into the tunnels during excavation to maintain an escape route for any wildlife inside the burrow.

Should burrowing owl be located during the clearance survey, the project would result in the loss of 75.1 acres of suitable habitat for burrowing owl. Mitigation for direct impacts to 75.1 acres shall be fulfilled through conservation of suitable burrowing owl habitat through the purchase of credits at a minimum of 1:1 in-kind habitat replacement of equal or better functions and values to those impacted by the project, for a total of 75.1 acres.

2 Background

2.1 Project Overview

The approximately 92.0-acre site, including the 67.3-acre on-site area and 24.7-acre off-site improvement area, is in the northern part of the Town of Apple Valley, which is within the Victor Valley Region of San Bernardino County (Figure 1, Regional Map). The project site is in the northeast quadrant of Central Road and Lafayette Street. The project would involve construction of a single industrial/warehouse building (approximately 1,080,125 square feet) and associated improvements. In addition, the project would involve associated improvements, including loading docks, truck and vehicle parking, and landscaped areas. Additionally, the project would include improvements along Lafayette Street and Johnson Road, including frontage landscaping and pedestrian improvements. A variety of trees, shrubs, plants, and land covers would be planted within the project frontage's landscape setback area and within the landscape areas around the proposed industrial/warehouse building and throughout the project site.

2.2 2022/2023 Biological Survey Results

Biological resource surveys of the 149.6-acre biological survey area (BSA), which includes the project site and off-site improvement areas, plus a 100-foot buffer, were conducted April 2022 through January 2023, respectively. During an initial biological reconnaissance survey of the project site conducted on June 3, 2022, Dudek biologists observed and mapped an active burrowing owl burrow (i.e., whitewash, feathers, pellets, and fresh prey remains at a burrow entrance) and several inactive burrows immediately nearby, creating a burrow complex. This burrow complex was composed of at least seven suitable burrows (i.e., burrows at least 4 inches in diameter) (Figure 2, Suitable Burrowing Owl Burrow Locations). This burrow complex was inspected by Dudek biologists again on August 31, 2022, during an aquatic resources delineation; this time, the burrow complex no longer appeared to be actively occupied due to the lack of fresh sign. Dudek biologists inspected the burrow complex a third time during a desert tortoise (*Gopherus agassizii*) protocol presence/absence survey on October 4, 2022. This third inspection resulted in similar results as the second inspection of the burrow complex; burrowing owl sign was present, but the complex did not appear to be actively occupied (i.e., whitewash, feathers, and pellets were present, but cobwebs were found across most of the burrow entrances). Finally, on April 19, 2023, during rare plant surveys, Dudek biologists incidentally observed an individual burrowing owl that flushed from this burrow location (Figure 2, Suitable Burrowing Owl Burrow Locations).

Given the presence of a burrowing owl within the off-site improvement area, along with the complex within the project site, suitable habitat for burrowing owl exists, and the species could occupy the BSA prior to construction. Pursuant to the California Fish and Game Code and the Migratory Bird Treaty Act, a pre-construction survey in compliance with the California Department of Fish and Wildlife's (CDFW) 2012 Staff Report on Burrowing Owl Mitigation (2012 Staff Report) (CDFG 2012) would be necessary to re-evaluate the locations of potential burrowing owl burrows within the project limits so that impacts to owls and active owl nests can be avoided or minimized. Consistent with **MM-BIO-12**, a pre-construction survey for burrowing owl will be conducted in areas supporting potentially suitable habitat no more than 14 days prior to the start of construction activities, and a second survey will be completed within 24 hours of the start of site preparation or grading activities.

2.3 Mitigation Measures

The project would result in the permanent loss of 75.1 acres of suitable habitat for burrowing owl, specifically 75.1 acres of creosote bush scrub. As required by **MM-BIO-1**, mitigation for direct impacts to western Joshua trees (*Yucca brevifolia*) will be fulfilled through the purchase of credits at a CDFW-approved mitigation bank or other CDFW-approved conservation mechanism. Conservation efforts for western Joshua tree associated with the Western Joshua Tree Mitigation Fund will focus on the conservation of large, interconnected Joshua tree woodlands on lands where edge effects are limited, versus lands in urban settings that are subject to habitat fragmentation and edge effects, such as the project site. Mitigation for impacts to western Joshua tree will also mitigate for impacts to loss of suitable habitat for burrowing owl.

If passive displacement of burrowing owl is implemented, the abovementioned purchase of credits at a CDFW-approved mitigation bank or other conservation mechanism approved by CDFW will mitigate for direct impacts to displaced burrowing owls.

2.4 Qualified Biologist

In accordance with the 2012 Staff Report, a qualified biologist meets the following minimum qualifications (CDFG 2012):

- Familiarity with the species and its local ecology
- Experience conducting habitat assessments and non-breeding- and breeding-season surveys, or experience with these surveys conducted under the direction of an experienced surveyor
- Familiarity with the appropriate state and federal statuses related to burrowing owls, scientific research, and conservation
- Experience with analyzing impacts of development on burrowing owls and their habitat

In accordance with the 2012 Staff Report, a qualified biologist will perform the burrowing owl surveys as outlined in **MM-BIO-12**. Occupied burrows will not be disturbed during the nesting season. Occupied burrows will also not be disturbed during the non-nesting season until a qualified biologist verifies that either (1) nesting has not begun or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival.

3 Avoidance and Minimization Measures

3.1 Pre-Construction Burrowing Owl Surveys

In accordance with **MM-BIO-12**, a qualified biologist (see Section 2.4) will conduct surveys of the project site and off-site improvement areas and within a 150-meter buffer, where legally accessible, no more than 14 days prior to the start of construction activities and again within 24 hours of the start of site preparation or grading. The surveys will identify active wintering or breeding burrowing owls within these areas.

The survey methods are detailed in the 2012 Staff Report (CDFG 2012) and will consist of walking parallel transects 7 to 20 meters apart over the entire survey area and noting all burrowing owls present and any suitably sized burrows (i.e., 4 inches or greater in diameter) with burrowing owl sign (e.g., whitewash, feathers, pellets). The results of the surveys will be submitted to CDFW.

If burrowing owls or active burrowing owl sign are detected during pre-construction surveys, the qualified biologist or monitoring biologist will coordinate with the contractor to avoid and minimize impacts to burrowing owl by implementing the measures described below.

3.2 Buffer Distances

If occupied burrowing owl burrows are detected during the pre-construction surveys, the active burrow will be flagged to include a 160-foot buffer during the non-breeding season and a 250-foot buffer during the breeding season, or as otherwise determined by the qualified biologist. The buffer will be staked and flagged. Ground-disturbing activities during the breeding season will be restricted within the buffer. Depending on the level of disturbance, a smaller buffer may be established in consultation with CDFW.

The active burrows will be monitored to ensure that the buffer distance is effective. Effective buffers minimize direct impacts by providing space between the owl and the construction activity. In addition, effective buffers minimize indirect impacts by decreasing sound and visual disturbance for the animal. A monitoring biologist will be present during all initial activities adjacent to burrowing owl buffers to monitor bird behavior. In any case where a burrowing owl shows signs of stress or disturbance due to construction activities, all activities in the immediate vicinity will be halted and the buffer distance and construction activities will be re-evaluated. In accordance with **MM-BIO-13**, no project activities will be allowed to encroach into established buffers without the consent of a monitoring biologist. The buffer will remain in place until it is determined that any nesting activity has ended and/or occupied burrows have been vacated.

3.3 Burrow Screening

In cases where it is infeasible to maintain a 160-foot buffer during the non-breeding season or a 250-foot buffer during the breeding season due to environmental, topographic, or construction constraints, the buffer may be reduced and burrows screened to minimize potential impacts to burrowing owls, where appropriate and feasible. This strategy involves screening burrows by installing hay bales, plywood, and/or other fencing material to create a visual and auditory barrier between construction activities and the active burrows. Biological monitors will

determine if the topography of a specific site is appropriate for the use of this technique, and whether this technique will be effective at reducing disturbance.

During the breeding season, hay bales will be stacked three bales high and 50 feet wide. During the non-breeding season, hay bales will be stacked two bales high and 50 feet wide. All hay bales used on the project site will be certified as weed free. Perches near the burrow will remain within the sheltered area of the bales, and the bales will not be closer than 2 or 3 feet from the occupied burrow and will be placed as far from the active burrow as possible, outside the nearest work area. During and following installation of the shelter, biological monitors will be present for all ground-disturbing activities within the area between the recommended buffer and the edge of the reduced buffer. Biological monitors will evaluate and make adjustments to the buffer and/or shelter to ensure that impacts to burrowing owl are minimized and the owls are not showing signs of stress or disturbance.

When determining an appropriate buffer setback distance, the qualified biologist will take into consideration any data collected on the individual sensitivities of the burrowing owls present at the project site. This data will be used as a baseline to compare the behavior of burrowing owls within no-disturbance buffers that are smaller than the recommended distances. Biological monitors will have the authority to stop construction or sheltering activities that are disturbing sensitive species, and to make changes to the shelters and buffers in accordance with these guidelines to increase protection of the burrowing owls, if necessary.

Documentation of the installation of a shelter will include the following: where and when the shelter was installed, how long it will be required, anticipated level of construction activity, pictures of the shelter, pictures of installation, a description of the installation, and a description of site conditions. The description should include surrounding vegetation, topography of the area, animals present at the burrow, and line-of-sight conditions between the burrow and construction activities. This information and a status of the shelters will be described in the monthly reports (see Section 5.2, Reporting Requirements).

3.4 Excavation of Inactive Burrows

Excavation of inactive burrows, confirmed inactive based on wildlife camera monitoring, will help deter burrowing owls from occupying construction areas. Pre-construction surveys (described above) will be conducted within the project site to determine if burrows are actively being used. If burrows are suitably sized (i.e., 4 inches or greater in diameter), game cameras will be installed at the entrance for 3 days to confirm owl presence. Inactive burrows will be excavated and refilled by a qualified biologist. To prevent injury to wildlife that might be inside the burrow, all excavation of inactive burrows will be performed using hand tools, escape routes will be installed (flexible plastic pipe), and a mirror or camera will be used to scope during the excavation of all burrows. The excavation of inactive burrows will occur prior to clearing or grading activities.

4 Passive Displacement

If an active burrow is identified in an area where there is potential for it or the tunnel structure to be destroyed or irreversibly affected by construction, and the owl would be in danger, and shelter-in-place, setback distances, and avoidance will not be effective or possible, then passive displacement will be implemented. To the extent feasible, passive displacement will take place such that it is in synch with owl natural dispersal cycles (i.e., early in the non-breeding season, when owls are less site-faithful) (Hennessy et. al. 2020; Le Gouar et. al. 2012).

4.1 Determining Vacancy

Passive displacement will only occur outside of the breeding season (September 1 through January 31) after a qualified biologist verifies that juveniles from the burrow are foraging independently and capable of independent survival, or the owls have not begun nesting. If exclusion will occur immediately (within 1 week) after the end of the breeding season (August 31), daily monitoring will be conducted for 1 week to confirm that young have fledged prior to exclusion. Similar to the excavation of inactive burrows, a mirror or camera will be used to scope all previously active burrows to ensure burrows are not occupied by eggs or young.

4.2 Excavation of Active Burrows

Burrowing owls will be excluded from currently occupied burrows by installation of a one-way door in the original burrow and all connected legally accessible surrounding potentially active burrows within 160 feet. One-way doors will remain in place at least 72 hours before excavation. The one-way doors will be monitored for exiting or trapped animals via a game camera. Once a qualified biologist can determine by site surveillance that the old burrow is vacant (i.e., 3 days of negative game camera results), with no sign of fresh use by wildlife, including tracks, scat, or recent excavation, the burrows will be checked with an endoscope immediately prior to excavation to verify status. Sections of flexible plastic pipe will be inserted into the tunnels during excavation to maintain an escape route for any animals that could be inside the burrow. Each burrow will be refilled with dirt and/or rocks to prevent reoccupation of the burrows. Photographs will be taken of the excavation and closure of the burrow to demonstrate success and sufficiency. Construction will occur as soon as possible following passive relocation and burrow collapse to discourage burrowing owls from re-occupying the disturbance area.

Prior to burrow collapse, the qualified biologist will obtain confirmation that the burrows are empty of wildlife, document the installation of one-way doors 72 hours in advance of burrow excavation, and remove other potential burrow surrogates or refugia on the project site. Burrows that are not threatened by collapse due to the project (i.e., burrows outside the construction area) will not be passively excluded or dismantled.

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5 Monitoring and Reporting

5.1 Monitoring Requirements

In accordance with the 2012 Staff Report, monitoring will occur before, during, and after exclusion of burrowing owls. In accordance with **MM-BIO-12**, if exclusion occurs, a qualified biologist will conduct daily monitoring for 3 days to confirm owls have vacated the burrows. Monitoring will be performed from 2 hours before sunset to 2 hours following sunset, or 1 hour before sunrise to 2 hours following sunrise, corresponding with the time when burrowing owls are most active; this monitoring time will be extended if owls are active longer. Biologists will examine the collapsed burrows and survey for owl-related impacts and new burrows in the surrounding area. The results of these monitoring efforts and an evaluation of the success of the passive displacement efforts will be included in the monthly compliance reports, along with any needed remedial measures to avoid and/or minimize impacts.

5.2 Reporting Requirements

Pre-Construction Clearance Survey Reports

A report will be submitted to CDFW documenting the results of the pre-construction surveys. The report will describe the methods and results of the clearance surveys and will serve as notification as to whether owl passive relocation is necessary.

Monthly Reports

If avoidance or passive relocation is implemented, monthly reports will be prepared for submittal to CDFW. The reports will summarize the construction activities that occurred with the potential to impact burrowing owls, any injuries or fatalities of burrowing owls, the effectiveness and practicality of the avoidance and minimization measures implemented, and recommendations for modifying the protection measures. If passive relocation of burrowing owls is performed, the monthly reports will also include the following: the total number and locations of burrows collapsed, a map of those locations, photographs of the excavation and closure of the burrows, the number and activity of the owls observed leaving the burrows to be excavated, and the methods used to continually make the site inhospitable to burrowing owls and fossorial mammals.

Final Compliance Report

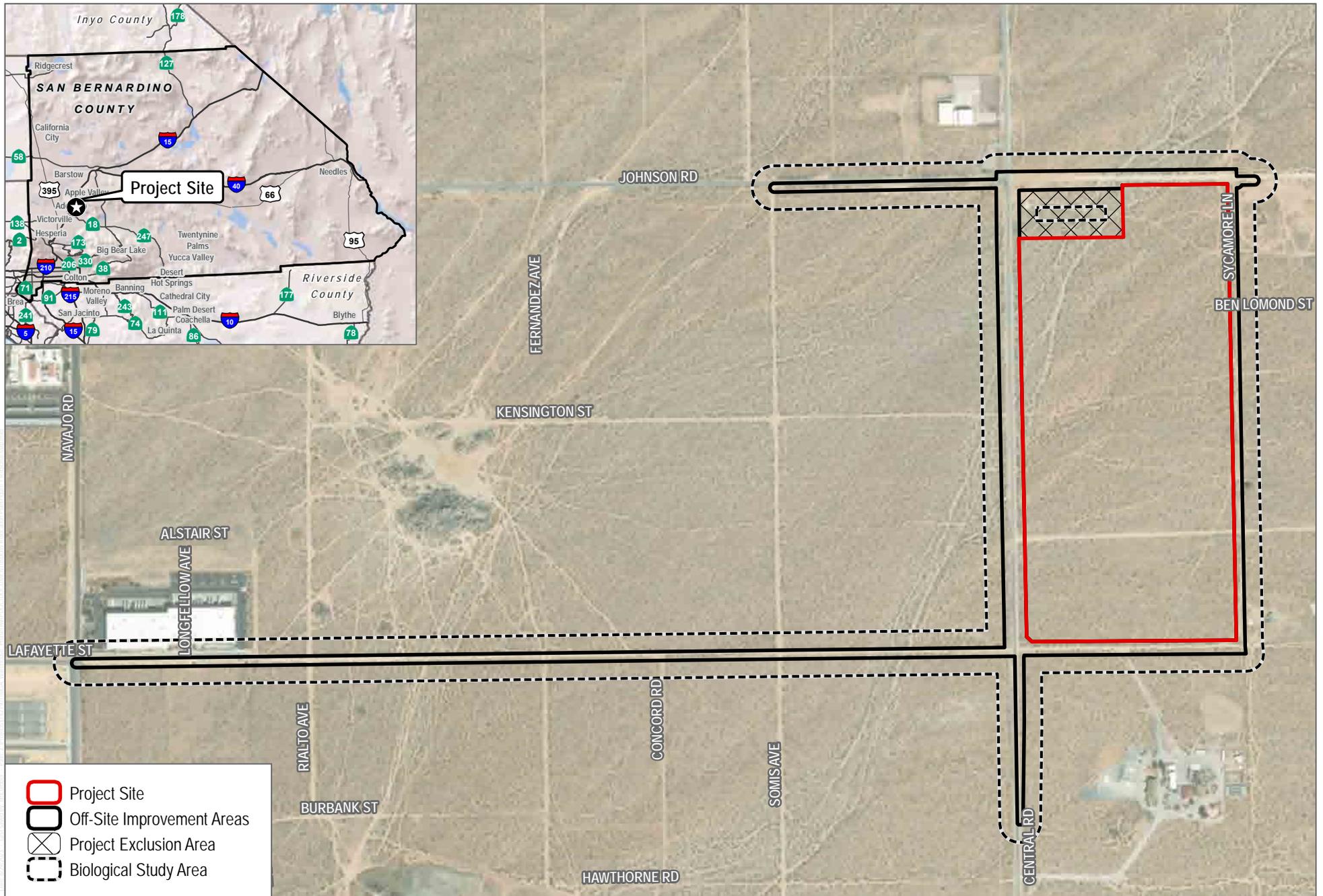
A final compliance report will be submitted to CDFW summarizing the effectiveness of the mitigation measures and the level of burrowing owl take associated with the project.

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6 References

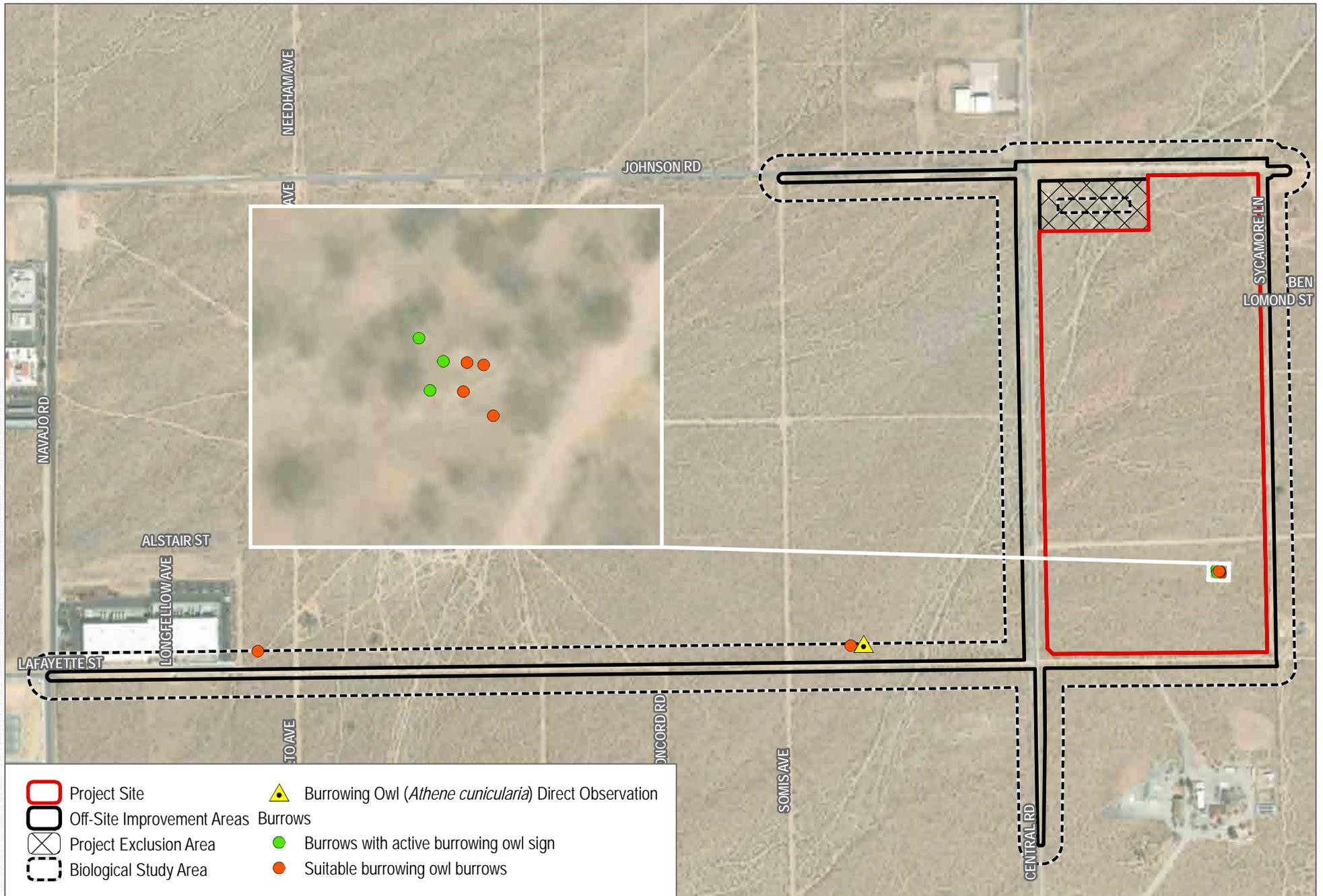
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SOURCE: DigitalGlobe 2017; San Bernadino County 2021

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SOURCE: DigitalGlobe 2017; San Bernardino County 2021

FIGURE 2
Suitable Burrowing Owl Burrow Locations
 1M Warehouse Project Burrowing Owl Relocation Plan

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Appendix J

Desert Kit Fox Relocation and Mitigation Plan

Desert Kit Fox Relocation and Mitigation Plan

1M Warehouse Project

SEPTEMBER 2023

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
CDFW	California Department of Fish and Wildlife
MM	Mitigation Measure
Plan	Desert Kit Fox Relocation and Mitigation Plan
project	1M Warehouse Project

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1 Introduction

The 1M Warehouse Project (project) would involve construction of a single industrial/warehouse building (approximately 1,080,125 square feet) and associated improvements on an approximately 92.0-acre site, including the 67.3-acre on-site area and 24.7-acre off-site improvement area. The project site is in the northern part of the Town of Apple Valley, which is within the Victor Valley Region of San Bernardino County (Figure 1, Regional Map). The project site and off-site improvement areas are dominated by creosote bush scrub and provides suitable habitat for desert kit fox (*Vulpes macrotis arsipus*).

1.1 Potential Impacts to Desert Kit Fox

Although not state or federally listed, nor a California Department of Fish and Wildlife (CDFW) Species of Special Concern, desert kit fox is protected from take by Title 14 of the California Code of Regulations Section 460. Furthermore, there is heightened concern (since 2014) for desert kit fox and the possible effects from development in the desert because of the discovery of canine distemper virus in foxes on and near a couple of solar project sites in the Colorado Desert region; specifically, cases have been found near the Genesis Solar Energy Project, Colorado River Substation, and Desert Sunlight Project in the eastern Colorado Desert (Clifford and Rudd 2013).

Without protection measures, desert kit foxes on the project site could be injured or killed during construction activities due to the number of personnel, vehicles, and equipment, and the processes associated with construction, vegetation mowing, and grading. Denning and foraging habitat will be eliminated on the project site as a result of construction; therefore, any foxes within the project site will need to be relocated off the project site. As a result, direct impacts to foxes and indirect impacts to their local populations may occur, including disrupted social hierarchies, increased fighting, decreased survival, dispersal of displaced foxes to undesirable areas, and increased disease incidence and/or transmission. No permanent fencing will occur along the project site perimeter that would exclude foxes from area use; however, no suitable habitat will be present on site for foxes following construction.

1.2 Purpose and Objectives

During focused surveys, specifically, protocol Mohave ground squirrel (*Xerospermophilus mohavensis*) surveys, at least one desert kit fox was observed within the project site via a camera trap. In addition, a suitable desert kit fox den complex was observed during the 2022/2023 survey efforts within the project, and a potentially suitable den was observed in the southeastern portion of the off-site improvement area (Figure 2, Desert Kit Fox Suitable Den Locations). This Desert Kit Fox Relocation and Mitigation Plan (Plan) outlines the proposed methods for implementing the relocation of this desert kit fox, as well as any additional individuals inhabiting the project site.

Per the project's Biological Resources Technical Report, biological Mitigation Measure (MM) BIO-15 (Pre-Construction Survey for Desert Kit Fox and Avoidance) requires that this Plan be implemented if desert kit fox is detected during the pre-construction surveys (Dudek 2022). As such, the following Plan details the methods for exclusion of foxes from the project site, if determined present during the pre-construction survey.

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2 Background

2.1 2022/2023 Focused Survey Results

2.1.1 Desert Kit Fox Dens

On June 3, 2022, Dudek biologists conducted an initial biological reconnaissance survey of the project site. During this survey, a potentially suitable desert kit fox den complex was observed within the southeastern portion of the project site and was mapped. Although no active desert kit fox sign (i.e., scat, tracks, or freshly dug dirt at the entrance of the dens) was observed at these dens, their size and structure showed them to be suitable for desert kit fox (Figure 2). Biologists did observe active burrowing owl (*Athene cunicularia*) sign (i.e., whitewash, feathers, casts, fresh prey remains) at this den complex. It is unlikely that desert kit fox and burrowing owl would occupy the den complex concurrently; however, burrowing owls use burrows seasonally. Thus, if the dens were unoccupied by burrowing owl, desert kit fox could occupy this den complex.

On August 31, 2022, Dudek biologists conducted a subsequent biological reconnaissance survey, a desert native plant survey, and an aquatic resources delineation concurrently within the project site. During these surveys, the previously mapped desert kit fox den complex was observed again; however, no active desert kit fox sign was observed. Finally, on October 4, 2022, a desert tortoise (*Gopherus agassizii*) protocol presence/absence survey was conducted by Dudek biologists. During this desert tortoise protocol survey, the previously mapped desert kit fox den complex was observed a third time; however, no active desert kit fox sign was observed. No additional suitable desert kit fox dens were observed during this survey.

On January 17 and August 25, 2023, Dudek biologists conducted a third biological reconnaissance survey, a desert native plant survey, an aquatic resources delineation, and a protocol Mojave desert tortoise survey within the off-site improvement areas. During these surveys, one potentially suitable desert kit fox den was observed and mapped west of the corner of Lafayette Street and Central Road. Biologists observed potential desert kit fox scat at the den entrance. No additional suitable desert kit fox dens were observed during these survey efforts.

2.1.2 Desert Kit Fox Observations

Dipodomys Ecological Consulting biologists conducted protocol Mohave ground squirrel (*Spermophilus* (*Xerospermophilus*) *mohavensis*) surveys within the project site from April 27 to July 2, 2022. These surveys included running five camera trap stations within the project site. A single camera trap (#2 in the southern grid) documented at least one desert kit fox within the project site on July 2, 2022 (see Appendix D of the project's Biological Resources Technical Report; Dudek 2022).

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3 Pre-Construction Surveys and Biological Compliance Monitoring

In accordance with MM-BIO-15, project pre-construction surveys will commence within 10 days before the start of surface disturbance to determine if desert kit foxes are on the project site and off-site improvement areas, or within 200 feet of the project site and off-site improvement areas (where legal access has been granted). This will help to determine active den use. In addition, biological compliance monitoring will be conducted by a qualified biologist and will consist of walking through habitat prior to grading to search for sensitive biological resources. The biologist will note any suitably sized dens with fresh desert kit fox sign or presence of desert kit fox. Copies of the desert kit fox survey results will be submitted to CDFW.

If an active non-natal desert kit fox den is detected within the project site, off-site improvement areas, or 200-foot buffer area during the biological compliance monitoring, a 200-foot buffer will be established around the active den, unless otherwise authorized by CDFW. Where required buffering will not be feasible, passive relocation will be allowed with concurrence from the Town of Apple Valley, CDFW, and the U.S. Fish and Wildlife Service.

If an active natal desert kit fox den is detected within the project site, off-site improvement areas, or 200-foot buffer area during the biological compliance monitoring, an initial 200-foot no-disturbance buffer will be established around the natal den, and this buffer will be maintained until the den can be verified to not host pups. Construction activities will not be permitted in this area until the den has been vacated. Once the den is vacated, and if in danger by construction, it can be collapsed, if deemed necessary by the project lead and/or project biologist.

3.1 Desert Kit Fox Protection Measures

The following protection measures will be implemented for desert kit foxes at the project site and off-site improvement areas:

- The project biologist and/or project lead will be familiar with the approved Plan and all methods herein. Both will be the project contacts with CDFW and remain apprised of all issues and conversations relative to desert kit fox associated with the site. All biological monitors assigned to work on this species will be familiar with this Plan and approved methods. The project owner will have ultimate responsibility for implementation of this Plan.
- Data and results of surveys will be readily available to the agencies, with summary reports provided as outlined in Chapter 5, Reporting and Notifications.
- The Worker Environmental Awareness Program will include information for all construction workers, and especially nighttime workers, that will (1) educate them sufficiently about desert kit fox biology and nocturnal activity for them to understand why they are requested to follow certain procedures; (2) provide measures for avoiding impacts to desert kit fox; and (3) provide procedures for reporting if they see a live, injured, or dead desert kit fox.
- A speed limit of 15 miles per hour will be observed on the project site for the protection of wildlife and maintenance of air quality.

- All pipes greater than 4 inches in diameter within the project site and off-site improvement areas will be capped and/or covered every evening and when not in use to prevent desert kit foxes and other animals from accessing the pipes. In addition, the pipes will be inspected by a biological monitor prior to their being moved.
- All steep-walled holes and trenches more than 2 feet deep will be covered at the close of each workday or provided with one or more escape ramps, at maximum 50-foot intervals, constructed of earth fill or wooden planks.
- To preclude any transmission of canine distemper virus and other diseases by project personnel, the CDFW veterinarian's guidance will be incorporated and implemented, including the following:
 - No pets will be allowed on the site.
 - Any hazing activities that include the use of chemical or other repellents that could contain disease-bearing substances must be cleared through CDFW prior to use. Animal-based repellents (e.g., coyote urine, bobcat urine) may be used only after testing and approval by CDFW.
 - If canine distemper virus is found at any point during the project, all handling of desert kit foxes and monitoring of dens will observe clean techniques, including, at a minimum, disinfecting or covering shoes after visiting any den, disinfecting equipment that has come into contact with any desert kit fox, and wearing single-use disposable gloves.
 - Notification, disease testing, and necropsies will be performed as described in Chapter 5 for any sick or diseased desert kit fox or for any desert kit fox mortality.

4 Passive Desert Kit Fox Relocation Techniques

Relocation, for the purposes of this Plan, refers to the exclusion of desert kit foxes from the project site/off-site improvement areas to locations off the project site, some or most of which are likely to be already within the individuals' core or extended use areas. Relocation will include both passive and active methods to remove desert kit foxes from the project site during construction. Table 1 provides a detailed set of measures based on the occupancy and condition of desert kit fox dens. Desert kit fox dens with litters or adults raising pups will be avoided until young have left the den. A minimum no-disturbance buffer of 200 feet will be maintained around all active natal dens where young are being reared. This buffer may be reduced through coordination between the project biologist and CDFW. Any active desert kit fox den is considered to be a natal den from February through July unless shown otherwise by camera monitoring.

4.1 Passive Relocation Methods

Passive relocation is a program of hazing and den collapse to discourage desert kit foxes from continuing to use those dens and to prevent re-use of the project site. It is preferable to encourage an animal to leave its den, rather than blocking it out of its den after it has left the den for the evening, as recommended by the U.S. Fish and Wildlife Service (USFWS 1999). Desert kit foxes may succumb to exposure during the day or predation during the night if they are blocked out of a den to which they have returned, expecting refuge. Even if a desert kit fox is known to use dens off the project site, just because a desert kit fox leaves for the night does not mean that it will use off-site dens and not try to return to the project site. By contrast, discouraging use of a den provides a desert kit fox with the opportunity to seek use of another safe den. Hazing techniques include progressively blocking a den with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) and artificial, non-injurious materials (e.g., filled sandbags, blocks), and/or partially excavating some of the inactive tunnels in a multi-tunneled den. Other techniques that CDFW must approve prior to their use may include approved urine or chemical compounds, non-injurious noise, human activity, recordings of dogs or coyotes, or other techniques. Knowing where desert kit foxes live and the dens that they use, as determined by previous surveys and observations, will help ensure the feasibility of progressive den blocking and continued desert kit fox safety.

Persistent and continued hazing hopefully will result in encouraging most desert kit foxes to move to a den site that is off the project site. However, although den closure may discourage a desert kit fox from using a particular den, it does not prevent the desert kit fox from simply using a different den on the project site, digging a new den, or excavating a former, now-collapsed den (this has been observed at solar projects). An alternative method for desert kit foxes near the project site could include installing temporary chain-link fencing around the project site and around the den, forming a "peninsula" of unfenced habitat that will funnel desert kit foxes off the project site, rather than to another location within the project site. This funnel would be wide enough to permit desert kit foxes to escape a coyote. For dens with pups, the width would be 200 feet from the burrow on all sides. Once desert kit foxes have moved off site, the gap would be closed, and the funnel of fencing removed.

Previously, Dudek biologists have used chain-link fencing to cover an entire den in conjunction with installing commonly available pet doors at each entrance. This was found to be most effective at prohibiting the excavation of new entrances and eventual den abandonment. Animals were allowed to access the dens for a short period

before biologists activated the pet door's one-way function, prohibiting ingress but allowing egress. This is a preferred method and can be employed for large dens or those with multiple entrances, in addition to the techniques described above.

Regardless of the technique used, passive relocation will be timed such that, to the extent feasible, grading and clearing will occur in other portions of the project site first. Leaving a naturally vegetated, but relatively narrow, path to better access off-site areas can be successful. The purpose of this is to make the rest of the site less attractive to exiting desert kit foxes as compared to the adjacent natural habitat. Hopefully, desert kit foxes will choose to leave the site and not establish new dens within the project construction area.

Three nights of inactivity, as proved by camera and track evidence, is sufficient to determine that the passive techniques have been successful. It is imperative that the entire den is excavated because desert kit foxes will find and dig out partially excavated den networks.

4.2 Desert Kit Fox Return to the Project Site/Off-site Improvement Areas

If a desert kit fox attempts to reestablish residency within the project site or off-site improvement areas, it will be passively relocated using techniques described below (see Table 1). In the event that a desert kit fox is spotted within 200 feet of active construction, a monitor will be present to ensure the desert kit fox remains safe. If the monitor determines that the nearby construction is negatively impacting the desert kit fox, construction will be halted until the monitor determines it is safe to continue. Once the desert kit fox moves to a location more than 200 feet away from active construction, construction activities can resume.

Table 1. Desert Kit Fox Den Classifications and Protection Measures

Den Type	Definition	Time Period	Action Required
<p>Potentially and definitely active dens (non-natal): All dens on the project site/off-site improvement areas and dens that cannot be avoided during construction</p>	<p>Den of sufficient size and shape/curvature that is active; current or older desert kit fox sign may or may not be present</p>	<p>Any season; from February through July, it must be proven that they are not natal dens (see below)</p>	<ol style="list-style-type: none"> 1. Monitor for up to 3 consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. <ol style="list-style-type: none"> 1a. During the observation period, the biologist shall determine the need to install a buffer and the appropriate size (if any). 2. If no tracks entering the den are observed in the tracking medium or no photos of the target species entering the den are captured after 3 nights, the den shall be excavated completely and backfilled by hand. May be excavated during pre-construction survey period. 3. If tracks are observed, the den shall be protected by an appropriate buffer as determined by the biologist; the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) and artificial, non-injurious materials (e.g., filled sandbags, blocks) for the next 3 to 5 nights to discourage the desert kit fox from continued use. In addition to progressively blocking the den, the biologist may employ chain-link fence to cover the den and use one-way pet doors at each entrance. Other hazing techniques (e.g., approved urine or chemical compounds, noise, recordings of dogs or coyotes) may be used. After verification that the den is unoccupied, it shall be excavated and backfilled by hand to ensure that no desert kit foxes are trapped in the den. If the den is verified to be inactive, then it may be collapsed during whelping/pup-rearing season (February through July) only after consulting with the California Department of Fish and Wildlife (CDFW). 4. If the den remains occupied, passive hazing and monitoring shall be repeated until it is verified that the occupant has left the den. Alternatively, the den may be partially excavated when it is temporarily vacant, leaving sufficient depth to provide protection for the desert kit fox but discouraging it from den use.
<p>Active natal or pup-rearing dens: All dens on the project site/off-site improvement areas and all dens within the survey area for</p>	<p>Active natal den – a den with pups</p>	<p>During whelping season (February through July)</p>	<ol style="list-style-type: none"> 1. If an active natal den (a den with pups) is detected on the site, the biologist shall determine the appropriate course of action to minimize the potential for animal harm and mortality. The course of action would depend on the age of the pups, location of the den on the site (e.g., is the den in a central area or in a perimeter location), and the pending construction activities proposed near the den. An initial minimum 200-foot

Table 1. Desert Kit Fox Den Classifications and Protection Measures

Den Type	Definition	Time Period	Action Required
<p>construction that have been confirmed to be active</p>			<p>no-disturbance buffer shall be maintained around all active natal and pup-rearing dens. Active natal/pup-rearing dens shall not be excavated.</p> <p>If the den is active during the whelping season, even if pups are not seen, a 200-foot no-disturbance buffer shall be maintained until the den can be verified to not host pups.</p> <p>CDFW shall be notified of intent to close a den during the pupping season, and closures shall be done in coordination with CDFW.</p> <ol style="list-style-type: none"> 2. Vehicular access through the buffer area will be permitted at the discretion of the biologist. Other construction activities shall not be allowed unless coordinated with CDFW. Each request to enter a buffer is to be made on a case-by-case basis; work is to be performed during daylight hours; and construction personnel shall be given an extensive tailgate training by a member of the biological monitoring staff to include desert kit fox behaviors, den status, and animal stress. The biological monitor has authority to stop work; biological monitors must be present to monitor the den while any work is being performed in the buffer. All work will be stopped or paused upon the biological monitor’s instruction if desert kit foxes are observed exhibiting stress or other signs of impacts. Any work activity within a den buffer shall be documented and reported in the monthly compliance report. 3. The den shall be monitored by non-invasive techniques (e.g., wildlife camera, night-vision binoculars, telemetry if an adult is collared) until the den is vacated. 4. If the situation is unusual and/or not addressed by the approved Desert Kit Fox Relocation and Mitigation Plan, the biologist or project lead, in consultation with the biologist, will consult with CDFW to determine the appropriate course of action to minimize the potential for animal harm or mortality.

5 Reporting and Notifications

The following reporting and notifications related desert kit fox will occur:

- A report to evaluate the success of the relocation efforts and any subsequent re-occupation of the project site/off-site improvement areas will be provided (including a comprehensive summary, tables, maps, and other relevant material) at the end of the construction period. Data will be readily available to CDFW upon request.
- If an injured, sick, or dead desert kit fox is detected on any area associated with the project, the designated CDFW personnel at both the Ontario CDFW office and the CDFW Wildlife Investigation Lab will be notified as identified below:
 - **Injured Animals.** If a desert kit fox is injured because of any project-related activities, the project lead, project biologist, or approved biological monitor will notify CDFW personnel within 8 hours regarding the capture and transport of the animal to the CDFW-approved wildlife rehabilitation and/or veterinarian clinic. A follow-up written notification of the incident will be sent to CDFW containing, at a minimum, the date, time, location, and circumstances of the incident within 24 hours. The project biologist or approved biological monitor will maintain communication with the rehabilitation clinic and/or veterinarian to monitor the animal's progress or demise, and will report to CDFW weekly, or sooner if the animal recovers, dies, or is euthanized.
 - CDFW will determine the final disposition of the injured animal, whether it requires euthanasia or if it recovers.
 - All costs for professional care of the injured animal will be paid by the project owner.
 - **Sick Animals.** If a sick desert kit fox is observed, the project lead, project biologist, or approved biological monitor will notify CDFW personnel within 8 hours regarding the capture and transport of the animal to the CDFW-approved veterinarian clinic. A follow-up written notification containing a description of the animal's condition, location found, and other relevant data will be sent to CDFW within 24 hours.
 - If the animal dies, it will be transferred to the CDFW Wildlife Investigations Laboratory for a necropsy, at CDFW's discretion, to determine the cause of death. The project owner will pay to have the animal transported. A written notification of the incident will be sent to CDFW and contain, at a minimum, the date, time, location, and circumstances of the incident.
 - CDFW will determine the final disposition of the animal if it recovers.
 - All costs for professional care, including transportation of the dead animal, will be paid by the project owner.
 - **Fatalities.** If a desert kit fox is killed because of any project-related activities during construction, operation, or closure, or is found dead on the project site, the project lead, project biologist, or approved biological monitor will immediately refrigerate the carcass and notify CDFW personnel within 8 hours of the discovery to receive further instructions on the handling of the animal. Handling and storage of a dead animal will follow the most recently issued guidelines for handling a desert kit fox carcass (currently the CDFW Wildlife Investigations Laboratory; CDFW 2022). Written information will be sent by the project biologist or approved biological monitor with the carcass that includes a description of the animal's condition, location found, and other relevant data. A necropsy will be performed by the

CDFW Wildlife Investigations Laboratory, at CDFW's discretion, to determine the cause of death and other health-related factors, even in the case of vehicle collision. The project owner will pay to have the animal transported.

- Prior to beginning any work related to this Plan, CDFW will provide the project owner with the names and contact information of an approved, local wildlife veterinarian and wildlife rehabilitation facility. CDFW will also provide names and contact information for relevant personnel from CDFW and the CDFW Wildlife Investigations Laboratory facility.

6 References

CDFW (California Department of Fish and Wildlife). 2022. "Protocols for Safe Handling and Disposal of Carcasses." <https://wildlife.ca.gov/Conservation/Laboratories/Wildlife-Health/Monitoring/Protocols>.

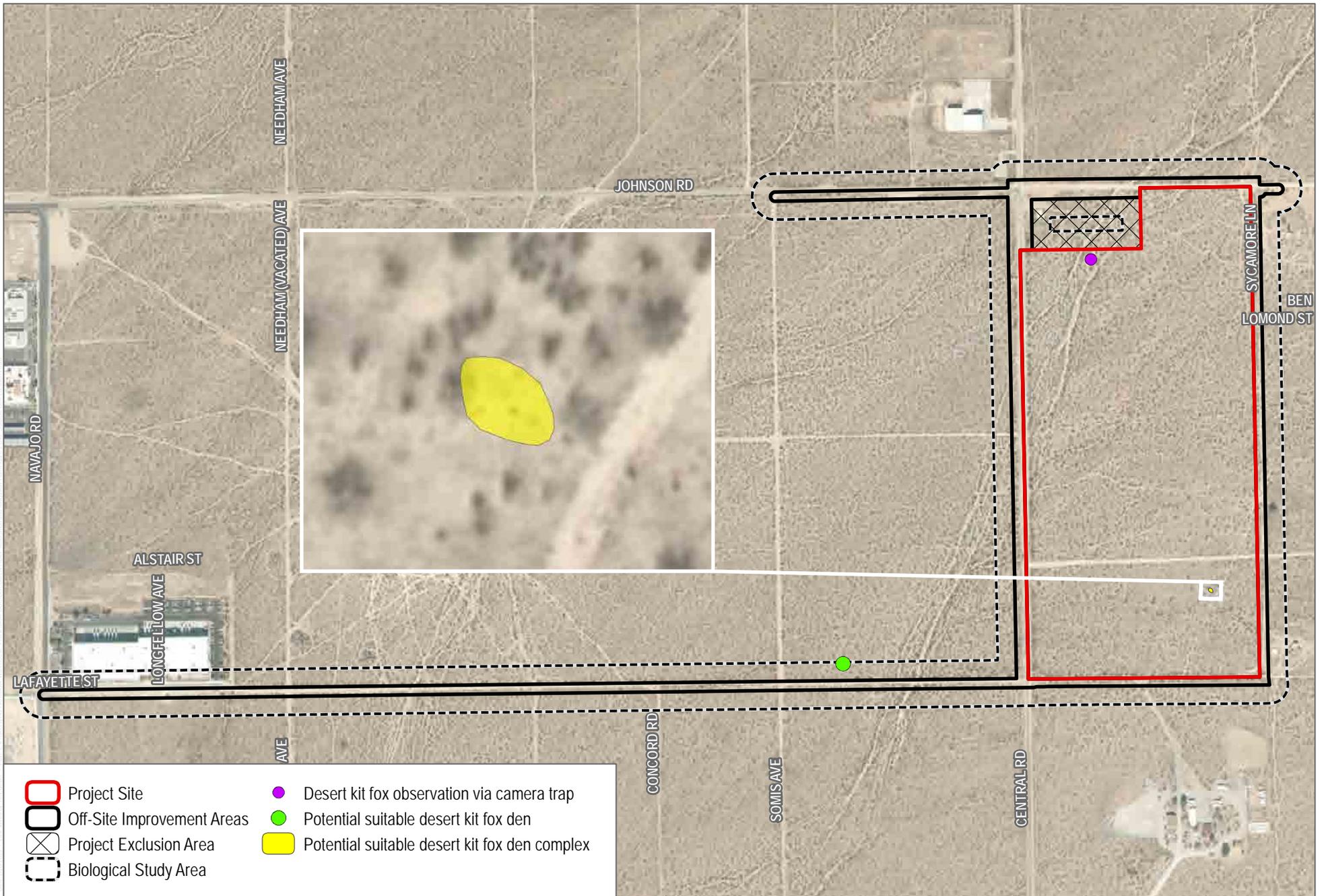
Dudek. 2022. *Biological Resources Technical Report for the 1M Warehouse Project*. Encinitas, California: Dudek. November 2022.

Clifford, D., and J. Rudd. 2013. *CDFW Outline for Proposed Desert Kit Fox Health Monitoring and Mitigation Program*. Submitted to the California Energy Commission. October 22, 2013.

USFWS (U.S. Fish and Wildlife Service). 1999. *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance*. Prepared by the Sacramento Fish and Wildlife Office. Sacramento, California: Sacramento Fish and Wildlife Office. June 1999.

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SOURCE: DigitalGlobe 2017; San Bernardino County 2021



FIGURE 2

Desert Kit Fox Suitable Den Locations

1M Warehouse Project Desert Kit Fox Relocation and Mitigation Plan

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